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A Study of Prekindergarten Impact on Early Literacy Readiness

Lakeisha Shantae Stokes
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A STUDY OF PREKINDERGARTEN IMPACT ON EARLY LITERACY READINESS

by

Lakeisha Shantae Stokes

Abstract of a Dissertation
Submitted to the Graduate School of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

May 2015
ABSTRACT

A STUDY OF PREKINDERGARTEN IMPACT ON EARLY LITERACY READINESS

by Lakeisha Shantae Stokes

May 2015

The awareness of the positive impact of prekindergarten programs on the success of early literacy of students has heightened due to the research performed on the topic (Barnett, Hustedt, Robin, & Schulman, 2003; Cohen, 1996; Magnuson & Waldfogel, 2005). The purpose of this study was to evaluate prekindergarten student gains in the development of early literacy skills, depending on their prekindergarten program experience. The study further examined Head Start and public school prekindergarten teachers’ knowledge of early literacy skills.

Results from the prekindergarten teacher survey indicated that public school prekindergarten teachers had higher levels of education than Head Start prekindergarten teachers. The analysis disclosed that teachers’ college degrees were related to their knowledge of phonological awareness skills. The prekindergarten teachers’ educational background was related to their knowledge of letter sound recognition, letter sound segmentation, and rhyming, but educational background was not related to their knowledge of syllabication.

Results indicated the Head Start teachers had years of experience similar to those of public school prekindergarten teachers. Years of experience were not related to either groups’ knowledge of phonological awareness skills. There was a significant difference between public school prekindergarten teachers’ and Head Start prekindergarten
teachers’ participation in phonological awareness skills’ professional development. Public school teachers had participated in professional development in a greater number of topics. Unexpectedly, the more professional development in which Head Start prekindergarten teachers participated, the lower their knowledge of the related skills. There was a significant difference between public school prekindergarten teachers’ and Head Start prekindergarten teachers’ knowledge of letter sound recognition and letter sound segmentation, but there was no significant difference between the two groups’ knowledge of syllabication and rhyming.

Analysis of the archived student data indicated that there was no significant difference in reading score gains among the student groups, whether they attended Head Start prekindergarten, public school prekindergarten, or no prekindergarten. The student prekindergarten type had no impact of the students’ first grade performance on the early literacy assessment. The analysis also disclosed no significant difference between the achievements of genders, regardless of prekindergarten type.
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May 2015
DEDICATION

Thank you, God, for blessing me with the strength, power, gifts, favor, and loved ones to make it to the finish line of this process. I dedicate this work to my daughter, mother, and loved ones. Laila, my love, I have committed all that I do to you. Thank you for loving mommy through this process, despite the quick dinners, late pick-ups, and weekends at home. I love you. If I did not have you as my main focus, this never would have happened. You cause me to see my life through a new lens for our future. To my mother, Gloria Stokes, you have been my earthly rock, standing in the gap for me when I needed you most. You have been a babysitter, taxi, cook, entertainer, protector, and more for my baby. Through your actions, I have experienced your unconditional love during this process. I shall never forget all you have done. To my daddy, Albert Stokes, and sisters, Alkennia and Rononda, thank you for your continuous encouragement. I also dedicate this work to Pastors Higgason and Miskel. Your tender-hearts, prayers, and commitment to the Godly development of your flock have blessed me so, during this process. Lastly, I dedicate this work to Angela, Bridgett, Sonyia, Shelia, Sheria, Melvia, Evelyn, Hope, Dr. Thomas, and Mrs. White. I can never repay you all for your prayers and presence. I praise God for the blessings that all of you have been to my life.
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The completion of this dissertation came at the most difficult time in my life. The fact that I am able to acknowledge such great people proves that God was with me and has more purposeful work for me. I have grown in wisdom, stature, and in favor with God and people. Thank you all for your professionalism, support, and intellect.
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CHAPTER I
INTRODUCTION

The purpose of the study was to evaluate prekindergarten student gains in the development of early literacy skills, depending on their prekindergarten program, and to examine explicit prekindergarten teacher knowledge of early literacy skills and concepts. The study involved public school prekindergarten participants from a south Mississippi school district and a south Alabama school district. Head Start prekindergarten participants from the same south Alabama school district and a second Mississippi school district in the central part of the state also participated. Thus, the south Alabama district was the only location from which both public school prekindergarten and Head Start prekindergarten teachers responded. The study involved an examination of these prekindergarten teachers’ background and knowledge of phonological awareness. Both groups of teachers were surveyed in order to examine their knowledge of early literacy skills taught in prekindergarten and to analyze their educational background and experiences. The study also involved an examination of archived data of students who completed prekindergarten programs in one of three cohort groups: a) students in prekindergarten programs operated by public school districts, b) students in Head Start prekindergarten, or c) students who had no prekindergarten experience. The kindergarten and first grade early literacy gains of the cohort of students were examined in order to analyze relationships among early literacy achievement and type of prekindergarten programs.

Prekindergarten programs provide early childhood education that positively impacts students’ preparation for kindergarten. Such programs also have other short-term
and long-term effects that improve students’ future educational experiences and lives as adults. While prekindergarten programs benefit children in many ways, the impact that the program has on them varies. This variance may be caused by a variance in the type of program that a child experiences. Variance in impact may also be due to differences in the teachers’ knowledge of the content and skills that students must master to be successful in future grade levels. The type of program that a student experiences and teacher knowledge are both fundamental components of the overall quality of a prekindergarten program, which can impact student performance.

The impact of prekindergarten on student academic success has prompted researchers, organizations, and state and federal governments to evaluate prekindergarten programs’ effectiveness. Federal and state governments support different types of prekindergarten programs with funding, benchmarks, guidelines, and policies to help improve the quality of these programs in order to improve the overall success of students. Research and debates about the need for more government support in providing additional and higher quality prekindergarten programs have prompted many organizations to reevaluate the support they provide.

Chapter I introduces the study. It provides background information about and illustrations of two types of prekindergarten programs: programs funded by public schools and Head Start programs, which are federally funded. This chapter describes the problem examined in the study and provides a justification for the study. The research questions that were addressed are outlined. The chapter also provides assumptions and delimitations related to the study.
Background of the Two Prekindergarten Program Types

Publicly Funded Prekindergarten

Publicly funded prekindergarten programs are not required nor funded by the federal government; rather, they are funded through local school districts, offering one or two years of early childhood education (Magnuson & Waldfogel, 2005). Only 28% of the nation’s four-year-olds are enrolled in state (public) funded pre-kindergarten programs (Barnett, Carolan, Fitzgerald, & Squires, 2011). Significant resourcing for prekindergarten programs comes from Title I funds (Magnuson & Waldfogel, 2005). Title I is a federally-resourced program that provides funding to school districts across the United States for the improvement of education for economically disadvantaged students (National Title I Association, 2013). While Title I funds can be used for prekindergarten programs, schools have many options for spending Title I funds, many of which they believe outweigh the need for prekindergarten programs. From 1990 to 2002 states increased funding for prekindergarten programs by 250%, to approximately $1.9 million (Magnuson & Waldfogel, 2005). Thirty-nine states began prekindergarten initiatives in 2000, but only seven (Connecticut, Georgia, Illinois, Kentucky, Massachusetts, Ohio, and Oklahoma) made extensive per capita investments in the programs (Magnuson & Waldfogel, 2005). Many state-funded prekindergarten programs provided services for disadvantaged three- and four-year olds only, with only approximately 14% of four-year-olds enrolled in public school-based programs in 2002 (Gilliam & Zigler, 2001).

State funding for prekindergarten increased to $5.49 billion in 2010-2011 (Barnett et al., 2011). Only Georgia, Oklahoma, and Florida offer publicly funded
prekindergarten to all children (this is referred to as universal prekindergarten), serving over half of all four-year-old children in those states (Barnett et al., 2011; Frede & Barnett, 2009; Magnuson & Waldfogel, 2005). Most students participating in these prekindergarten programs continue in the kindergarten programs in the same districts. They are typically assessed to determine their school readiness, which includes measuring their academic performance in early literacy skills in math and reading.

**Hattiesburg Public School District.** One example of a publicly funded program participating in the proposed study is the Hattiesburg Public School District (HPSD). HPSD began its publicly funded prekindergarten program during the 2009-2010 school year (Hattiesburg Public School District, 2008). The prekindergarten program was funded with Title I funds with the purpose of providing early childhood development services to "low income children, educationally disadvantaged students, and eligible migrant families" (Hattiesburg Public School District, 2008, p. 373). The school board of trustees meeting minutes specified that the students from low socioeconomic status were the target group for this prekindergarten program. HPSD has a free and reduced lunch student population of 90.89% (Mississippi Department of Education, 2015). It was acknowledged that this prekindergarten program would probably benefit the majority of prekindergarten students in the school district. HPSD uses DIBELS (Dynamic Indicators of Basic Early Literacy Skills) to assess the early childhood literacy skills of prekindergarten, kindergarten, and first grade students (E. Thomas, personal communication, March 6, 2013).
Head Start

In 1965, Head Start began as a federally funded childcare program providing free early childhood education for children of low-income families throughout the United States (Barnett et al., 2003; Cohen, 1996; Magnuson & Waldfogel, 2005). Head Start began as a result of President Lyndon Johnson’s War on Poverty in 1965, becoming the largest publicly funded early childhood program (Barnett et al., 2003; Cohen, 1996; Magnuson & Waldfogel, 2005). Through Head Start, community organizations are able to provide early education and comprehensive health, nutrition, and family services to three- and four-year olds with federal funds that enable them to operate their prekindergarten programs (Barnett & Hustedt, 2005; Magnuson & Waldfogel, 2005; Pinebelt Association for Community Enhancement Head Start/Early Head Start, 2012). In 1975, Head Start enrolled 5% of the three- and four-year olds in the United States, growing to 7% in 1990 and 11% in 2000 (Barnett et al., 2003). While Head Start targets disadvantaged children, it only has the capacity to serve some of the nation’s disadvantaged children (Barnett et al., 2003). Upon completion of the Head Start program, most students enter the public school kindergarten programs where they are assessed in order to determine their school readiness, by measuring their academic ability in early childhood developmental skills in math and early literacy.

Pinebelt Association for Community Enhancement (PACE) Head Start. PACE Head Start is a nonprofit community-based organization that serves children, under six, and families of low socio-economic status in the Hattiesburg community (Pinebelt Association for Community Enhancement Head Start/Early Head Start, 2012). PACE is one example of a Head Start program participating in the proposed study. PACE Head
Start is federally funded and received $5.1 million for the 2012-2013 school year. During the 2011-2012 school year, 90% of the families in Hattiesburg served by Head Start lived below the poverty level. PACE uses Children’s Progress Academic Assessment (CPAA) to gauge the early childhood literacy skills of four-year-old prekindergarten students at the end of their prekindergarten school year (G. Clark, personal communication, June 13, 2013). CPAA is an interim, computer adaptive test developed by Northwest Evaluation Association (NWEA) (Northwest Evaluation Association, 2013).

Statement of the Problem

In 2009, President Obama brought attention to the national issue of early childhood education in the United States (U. S. Department of Education, 2009a). The American Recovery and Reinvestment Act (ARRA) of 2009 provided over $100 billion to the United States Department of Education to fund over 325,000 jobs, resources, and support to education (U. S. Department of Education, 2009b). Within ARRA was $2 billion to support early childcare through the Child Care and Development Block Grant (CCDBG) Fund, with $93.6 million allocated specifically to improving childcare for infants and toddlers (Ewen & Matthew, 2009).

Mississippi is one of 11 states without state-funded prekindergarten programs. Arizona, Hawaii, Idaho, Indiana, Mississippi, Montana, New Hampshire, North Dakota, South Dakota, Utah, and Wyoming do not resource prekindergarten programming through state funds. Mississippi is the only state in the southeast without a state-funded prekindergarten program (Barnett et al., 2011; Canter, 2012b). The ARRA Act of 2009 allotted funds to the Mississippi Department of Education (U. S. Department of Education, 2009b). Mississippi received approximately $24 million from the
Department of Education, with 42 full-time jobs being created (U. S. Department of Education, 2009b). While helpful, these funds are divided among hundreds of early childcare programs, including Head Start. The lack of financial support from the state government is another obstacle that prevents many children from receiving the rudimentary literacy education necessary for future reading success.

While research has continuously shown the benefit of prekindergarten programs to the academic success of students, Mississippi has been slow to support the implementation of programs throughout the state (Barnett et al., 2011; Canter, 2012a; Gormley, Dawson, Gayer, & Phillips, 2005). In January 2013, Mississippi school district administrators urged the Mississippi Legislature to pass a bill to provide funding to districts for prekindergarten programs (Hess, 2013). In March 2013, retired Mississippi generals and admirals urged the Mississippi Legislature to implement state-funded early childhood education systems (Mission: Readiness, 2013). This request was partially due to the fact that 90% of Mississippians ages 17 to 24 do not qualify for military support services (Mission: Readiness, 2013). The military leaders’ request was based on research concluding that prekindergarten programs have long-term benefits for increased student achievement and prospects of future success as an adult (Barnett, 1995; Nores, Belfield, Barnett, & Schweinhart, 2005; Shonkoff & Phillips, 2000).

In April, 2013, Mississippi passed the Early Childhood Initiative, Senate Bill 2395, which provided $3 million in funding to school districts that apply for and are eligible to receive a portion of the funds (Early Childhood Initiative, 2013). Public, private, and faith-based schools are able to apply for funding, with low performing districts receiving first consideration (Early Childhood Initiative, 2013). These funds are
divided among many qualifying districts within the state, resulting in relatively small amounts of funding per district. This limited funding may not have as much of an impact as the Senate Bill intended to increase successful, long-term implementation of quality prekindergarten programs in Mississippi (Early Childhood Initiative, 2013). While Mississippi school districts are making efforts to implement prekindergarten programs, the lack of funding from the state continues to hinder the implementation of high quality prekindergarten programs (Canter, 2012a).

In addition to the issue of funding, there is concern over prekindergarten teachers’ ability to effectively teach early literacy skills. Mississippi prekindergarten teachers in public school and Head Start settings adhere to different guidelines and accountability systems. Head Starts programs follow federal guidelines, while public school prekindergarten adhere to both federal and state guidelines.

President George W. Bush signed the School Readiness Act of 2007, which included the goal of reforming the federally-funded Head Start program in order to improve school readiness of children from low-income families (Early Childhood Knowledge and Learning Center, 2007). The School Readiness Act was passed in order to provide guidelines and support with the aim of improving the quality of Head Start and to expand access to more families (Early Childhood Knowledge and Learning Center, 2007). Advocates of prekindergarten have urged the government to implement initiatives for early childhood education based on the need to provide high-quality and sustainable childcare to improve school readiness for all children, regardless of family socio-economic status or income (Barnett et al., 2003; Cohen, 1996; Magnuson & Waldfogel, 2005).
School districts’ prekindergarten programs have various funding sources. Most states receive funding from both the state and federal government for school districts (Federal Education Budget Project, 2013). The federal funds require certain guidelines that must be followed in order for prekindergarten programs to receive funding. While most of the public school funding for prekindergarten is provided by the school district, small amounts of funding such as block grants do come from the federal government. The fact that districts have different funding sources causes different guidelines. This can affect the quality of the programs because the guidelines determine the resources, services, and instructional practices of the district. While the government continues to analyze the outcome of Head Start programs to determine effectiveness, there is no external system in place to provide consistent funding or evaluate public school prekindergarten programs, since the school district pays for the prekindergarten program that it implements.

Differences in guidelines and accountability systems result in prekindergarten programs that vary in program quality, which includes factors such as teacher knowledge, instruction, policy, and organizational structure. Variability in accountability and expectations for such programs can also result in inconsistent student performance and achievement outcomes. The differences in quality may also impact student achievement and school readiness (Administration of Children and Families, 2006; Grafwallner, 1994; Magnuson & Waldfogel, 2005). Public school prekindergarten programs have been found to be of higher quality than prekindergarten programs such as Head Start (Administration of Children and Families, 2006; Goodson & Moss, 1992; Magnuson, Ruhm, & Waldfogel, 2007). Regardless of the type, higher quality prekindergarten
programs have a stronger positive impact on prekindergarten student readiness for kindergarten (Barnett, 1995; Chien, Halle, Hair, & Wadner, 2012; Gormley et al., 2005; Huang, Invernizzi, & Drake, 2012).

Research Questions

The purpose of this study was to analyze the impact that different prekindergarten program experiences have on prekindergarten student development of early literacy skills. This study also examined whether teachers are equipped with the knowledge of critical prekindergarten skills that impact student’s preparedness for future literacy education. The study involved quantitative research and addressed the following questions:

1. Are there significant differences among reading score gains (performance) by the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, no prekindergarten)?

2. Is there a significant difference between the educational background of public school prekindergarten teachers and Head Start prekindergarten teachers?

3. Is there a significant relationship between the educational background of prekindergarten teachers and their knowledge of phonological awareness?

4. Is there a significant difference between the educational experience of public school prekindergarten teachers and Head Start prekindergarten teachers?

5. Is there a significant relationship between the educational experience of prekindergarten teachers and their knowledge of phonological awareness?

6. Is there a significant difference between the knowledge of phonological awareness of public school prekindergarten teachers and the knowledge of
phonological awareness of Head Start prekindergarten teachers?

7. Are differences between male and female literacy achievement scores related to the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, and no program)?

The following related hypotheses were addressed in the study:

H₁: There are significant differences among reading score gains by the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, no prekindergarten).

H₂: There is a significant difference between the educational background of public school prekindergarten teachers and Head Start prekindergarten teachers.

H₃: There is a significant relationship between the educational background of prekindergarten teachers and their knowledge of phonological awareness.

H₄: There is a significant difference between the educational experience of public school prekindergarten teachers and Head Start prekindergarten teachers.

H₅: There is a significant relationship between the educational experience of public school prekindergarten and their knowledge of phonological awareness.

H₆: There is a significant difference between the knowledge of phonological awareness of public school prekindergarten teachers and the knowledge of phonological awareness of Head Start prekindergarten teachers.
H₇: Differences between male and female achievement scores are related to the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, and no program).

Delimitations

There were several factors that the researcher concluded would delimit this study. The Dynamic Indicators for Basic Early Literacy Skills (DIBELS) assessment has several subtests. This study analyzed student results from two of the subtests only. The kindergarten subtests, Initial Sound Fluency and Oral Reading Fluency, were used, as this study addressed early literacy readiness. The student data were limited to those gathered for the 2011-2012 and 2012-13 school years that are available. DIBELS is only one measure of early literacy skills and reading attainment and was used in all schools that participated in the study. Other measures of early literacy skills and reading attainment exist.

There are other variables that impact kindergarten school readiness that were not evaluated in this particular study. Examples of those variables are parents’ educational background, number of days absent from school, and educational experiences prior to prekindergarten or Head Start. There were also sample limitations. This study did not employ a random sampling; instead, convenience sampling was used. This study required selecting public school districts that use the same assessment tools and have Head Start programs that feed into the schools in the counties and/or municipalities where they are located.
Assumptions

It was assumed that individuals administering the DIBELS subtests did so objectively, accurately representing the students’ performance. It was also assumed that the teachers would follow the directions of the survey instrument. Finally, it was assumed that teachers would answer the questions truthfully and without doubts or fear of reprimand.

Definitions

Terms relevant to this research are defined below.

*DIBELS* (Dynamic Indicators for Basic Early Literacy Skills)- DIBELS is an assessment used to measure a child’s acquisition of early literacy skills from kindergarten through sixth grade. DIBELS consist of short subtests used to measure and monitor the development of early literacy and reading skills. DIBELS were specifically designed to assess the following core components of reading: fluency, phonemic awareness, alphabetic knowledge, vocabulary, and print concepts (Goffreda & DiPerna, 2010; Invernizzi, Landrum, Teichman, & Townsend, 2010).

*Head Start*- In 1965, Head Start began as a federally funded childcare program providing free early childhood education for children of low socio-economic status throughout the United States (Barnett et al., 2003; Cohen, 1996; Magnuson & Waldfogel, 2005). As the largest publicly funded early childhood program, Head Start began as a result of President Lyndon Johnson’s War on Poverty in 1965 (Barnett et al., 2003; Cohen, 1996; Magnuson & Waldfogel, 2005). Through Head Start, community organizations can provide early education and comprehensive health, nutrition, and family services to three- and four-year olds with federal funds to operate their
prekindergarten programs (Barnett & Hustedt, 2005; Magnuson & Waldfogel, 2005; Pinebelt Association for Community Enhancement Head Start/Early Head Start, 2012).

*Initial Sound Fluency (ISF)*- ISF is a DIBELS subtest that measures phonological awareness and assesses students’ ability to identify and orally construct the initial sound of a word (University of Oregon, 2013a). The ISF subtest is administered at the beginning and in the middle of kindergarten. Initial Sound Fluency is also referred to as First Sound Fluency (FSF) in the newest version of DIBELS, called DIBELS Next (Dynamic Measurement Group, 2010). This subtest provides teachers with data for progress monitoring, gives proficiency levels in early literacy skills as a benchmark for instruction, and offer effective guidance for interventions for students who have early literacy deficits (DiPerna & Goffreda, 2010; Elliot, Lee, & Tollfson, 2001; Good, Simmons, & Kame’enui, 2001; Langdon, 2004; University of Oregon, 2013c).

*On Grade Level*- A term used to connote that a student has mastered the concepts, skills, and knowledge necessary for academic performance in activities appropriate for the grade level that correlates to the student’s age.

*Oral Reading Fluency (ORF)*- ORF is a DIBELS subtest that assesses student accuracy and fluency in reading connected texts such as short stories. The subtest is administered in the middle and at the end of first grade (DiPerna & Gofredda, 2010; Riedel, 2007; University of Oregon, 2013b). Fluency represents a student’s ability to unconsciously and automatically decode words. This is a beginning stage of reading, when meaning and comprehension are now the focus (University of Oregon, 2013b). This subtest also provides teachers with data for progress monitoring, gives proficiency levels in early literacy skills as a benchmark for instruction, and offer effective guidance
for interventions for students who have early literacy deficits (DiPerna & Goffreda, 2010; Elliot et al., 2001; Good et al., 2001; Langdon, 2004).

**Prekindergarten**- Prekindergarten is a general term used to describe a preschool that provides educational experiences for three- and four-year-olds (Babarin et al., 2008). For the purpose of this study, prekindergarten refers to programs provided by public school districts or Head Start programs. Such programs are differentiated from general preschools by the expectation of significant learning. These programs are supported by government funding (Magnuson & Waldfogel, 2005).

**Preschool**- Preschool is a generic term used to denote any early childhood educational program. Preschool is defined as an educational experience with in an organized childcare setting that occurs from birth to four years of age (Cohen, 1996; Mitchell, 1989). Other names for early childcare programs include prekindergarten, center-based care, parental care, nursery school, daycare, and informal care (Andrew & Slate, 2001; Magnuson & Waldfogel, 2005; Mitchell, 1989).

**Public School Prekindergarten**- For the purpose of this study, specific reference to a public school prekindergarten program denotes a prekindergarten program implemented by a public school district. Such programs are distinguished from general preschools by the expectation of significant learning. These programs are funded through public school districts (Magnuson & Waldfogel, 2005). Within the confines of this study, no other type of prekindergarten was specifically identified or defined.

**School Readiness**- School readiness refers to students being holistically prepared to learn in kindergarten. School readiness in the area of literacy refers to students being
able to use and understand spoken language in order to communicate. It also involves recognizing sounds, letters, and print, and developing vocabulary (Chien et al., 2012).

*Universal Prekindergarten*- Universal prekindergarten (UPK) refers to free prekindergarten that is available to all four-year-olds regardless of characteristics such as family income or race and ethnicity (Barnett et al., 2003; Gormley et al., 2005). UPK programs are also referred to as state-funded voluntary programs (Frede & Barnett, 2009). The concept of UPK is to offer early childhood education to all children, especially to children who do not qualify for restricted prekindergarten programs like Head Start (Frede & Barnett, 2009).

Justification

This study is justified in part by the debates about the relative quality of various types of prekindergarten. Research about prekindergarten effectiveness is driving organizations and governmental agencies to demand that the quality of the programs improve in order to increase student achievement (Barnett et al., 2003; Early Childhood Knowledge and Learning Center, 2007). As nation-wide expectations for complying with prekindergarten quality standards rise, so do the expectations for children’s preparedness for kindergarten (Chien et al., 2012).

Studies have shown that prekindergarten positively impacts the early development of children. Research and policy have begun to focus on the significance of the cognitive skills and early literacy development required for future academic achievement (Fram, Kim, & Sinha, 2012; Huang et al., 2012; Kuaerz, 2002). Prekindergarten provides the necessary cognitive and early literacy skills that promote the successful development that is critical for school readiness (Barnett, Cook, Jung, & Wong, 2008; Barnett & Hustedt,
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While the debate exists about the specific impact of prekindergarten on school readiness, studies have concluded that short-term effects of prekindergarten programs include enhanced early development and kindergarten readiness in four-year-olds (Barbarin, et al., 2008; Barnett & Camilli, 2002; Magnuson, Meyers, Ruhm, & Waldfogel, 2004; Magnuson et al., 2007; National Institute for Early Education Research, 2003). There have also been various studies that found that high-quality prekindergarten programs also have a long-term impact on student academic achievement, student future success as productive citizens, and the economy (Barnett, 1995; Gormley et al., 2005; Legal Momentum, 2005; Nores et al., 2005; Shonkoff & Phillips, 2000).

Research has provided evidence that students who participate in different types of prekindergarten programs have different achievement outcomes. Magnuson and Waldfogel (2005) examined the impact of prekindergarten on school readiness, using data from the Early Childhood Longitudinal Study (ECLS). ECLS identifies readiness as academic gains achieved in math and reading skills. In this study, gains were found in math and reading skills for children participating in public school prekindergarten programs, while the performance of children who attended other types of preschool programs resulted in smaller gains in these skills (Magnuson & Waldfogel, 2005).

Studies of Head Start programs have generally concluded that there are modest gains among the program’s students. The Family and Child Experiences Survey (FACES) examined the impact of Head Start prekindergarten programs on student achievement and school readiness (U. S. Department of Health and Human Services,
The FACES data are drawn from representative cohorts of students enrolled in Head Start who entered the program with early cognitive skills such as vocabulary, early math, early reading, and early writing and social skills below the national average. These data are used to analyze program outcomes, quality, and implementation. The study revealed statistically significant gains in cognitive skills and early literacy skills for the Head Start students. There were also small gains in early literacy skills such as phonemic awareness and print concepts. Even with these gains, most of the Head Start students continue to perform below the national average in cognitive and social skills. However, while the gains made during the one year enrolled in Head Start were below the national average, they did transfer into higher student achievement in kindergarten (U. S. Department of Health and Human Services, 2006).

Other research on Head Start has found that the program positively impacts student readiness academically, emotionally, and physically (Barnett & Hustedt, 2005; Chien et al., 2012). Researchers also contend that Head Start quality, accountability, and systemic implementation improvements are needed (Barnett & Hustedt, 2005). Provided these enhancements occur, students will be better prepared for long-term academic success.

The difference in student achievement across program types may be due to a difference in aspects of the school quality. Features of the prekindergarten programs include state-regulated components such as teacher knowledge and experience, structural organization, curricula, class size, student-to-teacher ratio, and additional services provided (Barbarian et al., 2008). According to these researchers, children's direct experiences in the classroom environment include factors such as: teacher organization
and routines, instructional practices, engaging students, and higher-quality student-teacher interaction. Magnuson and Waldfogel (2005) argued that teacher knowledge is an important structural component in prekindergarten program quality.

Research has concluded that higher quality prekindergarten programs correlate with participants having higher cognitive skills and increased language development (Burchinal et al., 2001; National Institute of Child Health and Human Development, 2000). High quality teachers are one of the many components of high quality programs. Teachers are responsible for accurately and effectively implementing academic instruction and therefore play an essential role in students’ development of fundamental cognitive skills and early literacy skills. The National Institute of Early Education Research (NIEER) developed a ten-item checklist that is considered to be the quality standards necessary for an effective prekindergarten program (Barnett et al., 2003). Of the ten standards, the second, third, and fifth standards each address the concept of a knowledgeable teacher. The second standard stipulates that teachers have at least a bachelor’s degree; the third standard stipulates that teachers should have specialized training in early childhood education; and the fifth standard mandates that teacher have at least 15 hours of annual professional development (Barnett et al., 2003). Some research also suggests that the NIEER items checklist may not be linked to student achievement (Mashburn et al., 2008). Teacher quality is a common thread throughout the standards, implying that teachers’ knowledge and ability to provide effective instruction impacts student mastery of skills and concepts. Teachers are important to a child’s development and academic achievement (Barbarin et al., 2008; Mashburn et al., 2008). Teachers’
knowledge is an important component of program quality that directly influences instruction and student learning (Burchinal et al., 2001; Magnuson & Waldfogel, 2005; Moats, 1994).

The impact of different prekindergarten program types on early literacy skills and teacher knowledge is a relevant topic. In April 2013, Mississippi passed bills related to the quality of prekindergarten programs and prekindergarten teachers. During this session, the Mississippi House of Representatives passed House Bill 955, the Third Grade Reading Gate, requiring that all third graders be able to read before promotion to the fourth grade (House Bill 955, 2013). The bill was enforced on July 1, 2013. While the law may have created much debate, it also created a statutory obligation for schools and teachers. The new standards addressed in the act make clear that students need to be ready to begin kindergarten and master the early literacy skills that are fundamental to future literacy success. Their preparedness predicts their ability to perform on grade level in the future. Another House of Representatives bill that took effect on July 1, 2013 was House Bill 890, which provides directives and guidelines designed to ensure consistent student growth in the area of literacy beginning kindergarten through high school (House Bill 890, 2013).

One of the outcomes of House Bill 890 is that students must have proficient literacy skills in order to be promoted, and can no longer be socially promoted. Teachers need to have the foundational knowledge of their content area beginning in prekindergarten, to help prevent children from suffering academic gaps that cause reading deficiencies, grade retention, and the need for intense remediation. If prekindergarten teachers have the academic knowledge and competency to prepare their students for the
next grade level, students may be more likely to have the early literacy skills and knowledge necessary for future literacy success.

This study provided valuable insights into the level of academic quality that public school districts and Head Start programs offer students. While teachers are required to have a certain level of education and/or certification to teach prekindergarten, research has shown that this factor may not significantly affect their ability to effectively teach students. Instead, research suggests that teachers’ conceptual knowledge directly impacts student learning. The absence of such knowledge on part of the teachers may negatively impact student learning, causing achievement gaps in early literacy that impact early development and school readiness. The presence of this knowledge can prevent or close achievement gaps, improving early development and school readiness. Hopefully, the evaluation of student early literacy data and teacher knowledge, presented by this study, will provide guidance to policy makers, practitioners, higher education instructors, and teacher educators in making improvements to the quality of public school prekindergarten programs and Head Start.

Summary

While many studies have explored the impact that prekindergarten learning experiences have on students’ future performance, future examination is needed of the impact of school readiness of different types of prekindergarten programs and the quality of teacher knowledge in the area of early literacy on school readiness. Some studies focused on one program implemented as a model with specific guidelines, funding, and organizational structure set and designed prior to implementation. Several studies evaluated prekindergarten impact on school readiness, focusing only on variables such as
students of low-socio economic status, need for retention, and gains in math and reading scores. However, recent studies that evaluate the impact of teacher and program quality on school readiness specifically for early literacy are not plentiful.

The quality of a prekindergarten program is directly related to the quality of the education a child receives. As teachers are an integral component of program quality, their knowledge and ability directly influences students’ understanding of early literacy skills. Consequently, teacher knowledge of critical early literacy skills is imperative for student proficiency in such skills. As accountability for student achievement increases, this should begin with prekindergarten programs ensuring that students begin kindergarten on grade level, regardless of program type.

The purpose of this study was to examine prekindergarten types among a cohort of kindergarten students in order to determine if there is a difference in student achievement in early literacy. This study also examined teacher quality by evaluating their knowledge of content related to specific early literacy concepts and skills that students need in order to be prepared for kindergarten. This foundational early literacy knowledge results in fewer students having achievement gaps, needing remediation, or being retained. In effect, this would decrease the need for costly and time-consuming interventions and ineffective or erroneous instructional while improving the quality of student learning and development.

Students who attend prekindergarten deserve a high quality experience that provides a solid foundation in early literacy skills. As federal and state governments and school districts look for funds and means with which to provide early childhood education for all students, systemic plans for ensuring high quality prekindergarten
programs should also be considered. Without quality prekindergarten programs, students may continue to fall behind in acquiring the necessary literacy skills for academic success that leads to future success as adults, parents, community members, and workers.
CHAPTER II

REVIEW OF LITERATURE

Background of the Study

Current research and federal and state government actions have brought attention to the topic of prekindergarten programs. Some of the attention specifically focuses on the availability of quality program implementation for all children and the impact that the academic experiences have on the future success of children. As the debates about prekindergarten continue to evolve in the 21st century, studies have shown that prekindergarten impacts various aspects of early childhood development. This chapter provides background information on prekindergarten and the government’s role in providing early childhood education in the United States and Mississippi. This chapter is also dedicated to theories that support the role of prekindergarten in early literacy development, research that examines prekindergarten’s impact on school readiness in the development of cognitive and early literacy skills, teacher quality as a component of quality prekindergarten programs, and assessment of early literacy skills.

Evolution of Prekindergarten and Related Government Initiatives

Prekindergarten, often referred to as preschool, is defined as a quality educational experience involving activities and instruction that develop skills and competencies necessary for success in kindergarten (Burchinal et al., 2008; Cohen, 1996; Mitchell, Seligson, & Marx, 2001). This prekindergarten experience can begin at birth and occur until the age at which children are eligible for kindergarten enrollment. Non-parental childcare dates back to 1828 (Andrews & Slate, 2001; Bainbridge, Meyers, Tanaka, & Waldfogel, 2005). Boston Infants School opened in the 1820s with dual purposes of
providing childcare for children, ages 18 months old to four years old, of working mothers and providing an alternative to at-home childcare (Andrew & Slate, 2001). As more immigrants moved to the United States, childcare grew, with New York day nurseries beginning in 1854 (Andrew & Slate, 2001; Mitchell et al., 2001). Theses prekindergarten programs provided childcare for children, ages six weeks old to six years old, of poor women, and also provided additional parenting resources (Andrew & Slate, 2001; Mitchell et al., 2001). For the purpose of this study, prekindergarten refers to the three- and four-year-old experiences.

The increase in prekindergarten enrollment in the 1900s can be attributed to three major occurrences in United States history (Robertozzi, 2011). First, there were more government initiatives that provided funding for prekindergarten, including President Lyndon Johnson’s War on Poverty in 1965, which initiated Head Start (Barnett & Hustedt, 2005; Barnett et al., 2003; Cohen 1996; Magnuson & Waldfogel, 2005). Second, more women began joining the work force during the 1990’s (Barnett et al., 2003; Cohen, 1996). Third, government mandates, based on research about the positive benefits of prekindergarten programs, caused additional increases in prekindergarten programs (Barnett et al., 2003; Cohen, 1996).

**History of Government Initiatives in Prekindergarten Programming**

Historically, government initiatives in support of early childhood education amounted to an attempt to fix problems in the social system and economy, such as mothers going to work or assisting families living in poverty (Barnett & Hudstedt, 2005; Cohen, 1996; Magnuson & Waldfogel, 2005). In 2010, states spent more than $5.49 billion on prekindergarten (Barnett et al., 2011). While the federal government has
provided some funding to states to support prekindergarten, state funding decreased by almost $60 million in 2010 following a $30 million decrease in 2009, with over 600,000 more children enrolling in state-funded prekindergarten in 2011-2012 (Barnett et al., 2011). The 2011-2012 school year experienced a record year-to-year drop in state funding decreasing by a half a billion dollars (Barnett, Carolan, Fitzgerald, & Squires, 2012). As families, communities, and organizations increase their awareness of the important impact of prekindergarten on student academic achievement, the federal government contradictorily chose in these budget cycles to decrease funding for prekindergarten education.

The American Recovery and Reinvestment Act (ARRA) of 2009 provided $100 billion to the United States Department of Education to fund over 325,000 jobs, resources, and support to education (U. S. Department of Education, 2009b). Within the ARRA was $2 billion to support early childcare. However, ARRA funds represented only 2% of state prekindergarten funding nationwide (Barnett et al., 2011). Advocates of prekindergarten have urged government to implement initiatives for early childhood education based on the need to provide high-quality and sustainable childcare to improve school readiness for all children (Barnett et al., 2003; Cohen, 1996; Magnuson & Waldfogel, 2005).

The Obama Administration recently presented a proposal for voluntary universal prekindergarten for all four-year-olds in the United States (Duncan, 2013). This proposal offers a remedy for the lack of educational support by the federal and state governments for early childhood education. Of the 28 industrialized nations, the United States spends the least on early education as a percentage of the Gross Domestic Product (GDP). The
United States is 28th among the 29 member nations of the Organisation for Economic Co-operation and Development (OECD) nations in enrolling four-year olds in prekindergarten (Duncan, 2013). OECD is an organization in which nations work collaboratively to improve the social and economic welfare of their people (Organisation for Economic Co-operation and Development, 2013). The President’s proposed 2013 federal funding would be the largest preschool budget provided by the federal government since the creation of Head Start in 1965 (Duncan, 2013). With federal and state partnerships in funding, the proposal calls for high quality prekindergarten programs to be made available to families of low to moderate income. This is a bipartisan proposal that would impact over one million children. United States Secretary of Education, Arne Duncan, stated that the lack of prekindergarten support by the federal government is a missed opportunity for a large return on a long-term investment.

Contemporary Focus on Prekindergarten Accountability

The focus on the importance of high quality implementation of prekindergarten programs has prompted government legislation and mandates to hold programs accountable for high-quality implementation. The School Readiness Act of 2007 was recent legislation enacted by Congress that supports the improvement of prekindergarten program quality (Early Childhood Knowledge and Learning Center, 2007). President George W. Bush endorsed the School Readiness Act of 2007 with the goal of reforming the federally-funded Head Start program in order to improve the school readiness of children from low-income families (Early Childhood Knowledge and Learning Center, 2007). The School Readiness Act was enacted to provide guidelines and support in order
to improve the quality of Head Start and expand its access to more disadvantaged families (Early Childhood Knowledge and Learning Center).

In 2009, President Obama focused additional attention to the national issue of early childhood education in the United States (US Department of Education, 2009b). As states above, the American Recovery and Reinvestment Act (ARRA) of 2009 provided $100 billion to the United States Department of Education to fund over 325,000 jobs, resources, and support to education (US Department of Education, 2009b). Within the ARRA was $2 billion to support early childcare through the Child Care and Development Block Grant (CCDBG) Fund, with $93.6 million allocated specifically to improving childcare of infants, toddlers, and young children (Ewen & Matthew, 2009). The governmental support provided to early childhood programs comes with mandates to ensure that educators commit to specific guidelines, timelines, and accountability for measurable outcomes (U.S. Department of Education, 2009a).

While studies have been conducted to evaluate the benefits of prekindergarten, few studies have compared state funded public school prekindergarten programs with private prekindergarten programs, mainly because few public school programs existed prior to 1980 (Magnuson et al., 2007; Mitchell, 1989). Furthermore, although plethora of studies have examined the overall impact of childcare and Head Start, few quality studies exist for public school prekindergarten that examine the instructional program and teacher quality (Pianta et al., 2005). Many of the studies include several types of preschool programs in one category. Each type may have a different impact on students’ early literacy development and school readiness due to the level of instructional quality that the programs provide. With the exception of Head Start, few studies have considered
whether specific types of preschool programs are more or less beneficial than other early education programs (Magnuson et al., 2007).

Theoretical Framework

Dynamic Skill Theory

The process of developing skills and gaining knowledge is a critical part of early childhood education (Chien et al., 2012). The Dynamic Skill Theory describes the incremental process whereby early developmental skills and knowledge act as fundamental building blocks for the future acquisition of academic knowledge, skills, and abilities. Harvard Law professor, Kurt Fischer, examined cognitive development that involves sequencing and synchrony in development, processes known collectively as Dynamic Skill Theory (Fischer, 1980). Cognition and cognitive skills refer to the process of knowing, perceiving, committing to memory, and/or gaining knowledge (Fischer, 1980). Fischer argued that the Dynamic Skill Theory provides a framework that answers the five following questions:

1. What is the structure of an individual’s cognitive skills at any point in development?
2. Which skills develop into which new skills as the child moves step-by-step from infancy to adulthood?
3. What is the process by which present skills develop into new skills?
4. How do present skills relate to the skills that they have developed from? For example, are the previous skills included in the present skills, supplanted by the present skills, or what?
5. Why is cognitive development so often uneven in different domains? (Fischer, 1980, p. 479)

In a step-by-step process, skills develop through three levels of very different kinds of skills: sensory-motor skills, representational skills, and abstract skills (Fischer, 1980). The skills become more complex at each level while being structurally built on the skill from the previous level (Fischer, 1980).

Each level is characterized by a well-defined structure that indicates the kind of behaviors that a person (child or adult) can control at that level. The person is then able to combine and differentiate skills from one level to form skills at the next, higher level. The development is relatively continuous and gradual, and the person is never at the same level of proficiency for all skills. “The development of skills must be induced by the environment, and only the skills induced most consistently will typically be at the highest level that the individual is capable of” (Fischer, pp. 479-480).

As infants and toddlers, people begin to learn skills and abilities such as grabbing a rattle, remembering a color, or crawling on the floor (Fischer, 1980). Over time, they build upon these learned skills and abilities, gaining control of their actions, and become able to master more complex skills built upon previously learned lower-level skills by interacting with their environment. Changes within the environment will ultimately change the skill being used. Fischer and Yan (2002) explained that Dynamic Skill Theory unpacks human development and learning so that researchers can understand human thoughts and actions, along with the complexity and ability involved in the process. As Fischer (1980) argued:
A skill is a unit of behavior composed of one of more sets. The characteristic structure of each level is a type of skill, varying in complexity from a single set at Level 1 to a very large number of sets at the highest levels. (p. 482)

The new, more complex set of skills is developed to proficiency based on the successful connection (coordination) with the previous, less complex set of skills or actions (Fischer & Bidell, 1998; Fischer & Rose, 2001). The new skills are also a more developed next phase of the previous, less complex skills (Parziale & Fischer, 1998).

Language and literacy skills are learned in a process consisting of several steps, at various levels, which children learn overtime through various interactions within their environment such as activities, instructional practices, and interaction with teachers and the classroom as a whole (Scarborough, 2001). The Dynamic Skill Theory, a developmental process of skill building through interactions with the environment, correlates with early childhood language and literacy development in that literacy involves two overarching concepts: language comprehension and word recognition. Language comprehension consists of background knowledge of words, vocabulary, language structure (syntax and semantics), verbal reasoning (inference, metaphors, and analogy), and literacy knowledge (print concept, and genres). Word recognition is comprised of phonemic awareness (syllables, phonemes), decoding (alphabetic principle, spelling-sound correspondence), and sight recognition of familiar words. In early childhood development, the Dynamic Skill Theory relates to students' ability to read and spell words being built upon the lower level of alphabetic knowledge (Fischer & Bidell, 1998; Fischer & Rose, 2001).
In reference to the development of early skills, Dynamic Skill Theory reveals how mastery of early literacy skills impacts the mastery of future reading comprehension. Given all of these factors, a high-quality prekindergarten experience (lower level), can impact student readiness at the kindergarten (next level) (Barbarin et al., 2008). The Dynamic Skill Theory also helps to explain how student learning can be impacted by a teacher’s knowledge and ability to teach the early childhood literacy skills needed to develop future reading skills. If a teacher does not have such capacity or lacks accurate knowledge of early literacy skills, students may not master the lower level (prekindergarten) skills needed to build higher level skills. If the teacher has accurate knowledge of early literacy skills and is able to teach them, then students will have a better opportunity to master lower level skills, thus enabling them to go to the next level of skills.

*Social Development Theory*

Beginning in the early 1900s, Lev Semenovich Vygotsky began to analyze the effect that socialization has on mental development. Vygotsky’s theory is based on the understanding that individuals’ mental development occurs through interactions with others and their environment (Vygotsky, 1978; Wertsch & Tulviste, 1992).

Vygotsky’s genetic law of cultural development states the following:

Any function in the child’s cultural development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regards to voluntary attention, logical memory, the formation of concepts...[I]t goes without
saying that internalization transforms the process itself and changes its structure and function. Social relations or relations among people genetically underlie all higher functions and their relationships. (Vygotsky, 1981, p. 163)

A teacher’s relationship with a student impacts the student’s development and learning along with the acquisition of content knowledge and skills. The quality of the teacher-student interaction determines the degree to which a student masters the learning. This interaction involves factors such as identifying objectives, effective management of time, and use of academic strategies (Yate & Yates, 1990). This interaction also involves providing scaffolded support, developing high-order thinking skills, and giving effective feedback to improve learning (Mashburn et al., 2008, Yates & Yates, 1990). It is through this interaction that students are able to acquire the developmental early literacy skills, concepts, and knowledge required for future literacy success. The quality of teacher-student interaction also determines the level of mastery of early literacy development that a student achieves.

Assuming that the mental development happens during personal interaction (interpsychological) implies that without this interaction, the development of the individual will not occur to the extent that is needed for the individual to process the skills, knowledge, or concepts successfully and proficiently (Wertsch & Tulviste, 1992). This may also suggest that if prekindergarten teachers instruct students with inaccurate, unsound pedagogical knowledge of the content, students will advance to the next grade with erroneous comprehension and a flawed foundation of essential early literacy skills. As a result they would be unprepared for kindergarten grade level success in early literacy.
Pertinent Research and Professional Perspectives

This section provides research and professional perspectives on several components of prekindergarten. It begins by outlining the impact of prekindergarten program on short- and long-term student achievement. Next, different prekindergarten types are identified along with what research concludes about their impact on school readiness and early childhood literacy achievement. Specific early childhood literacy skills and knowledge pertinent to school readiness and future reading success are identified and examined.

This section also discusses research related to the overall perception of what defines prekindergarten programs quality; the impact of high- versus low- quality prekindergarten programs on student early literacy success and school readiness is also examined. Lastly, this section reviews research and professional perspectives on differences that exist in gender and prekindergarten performance and prekindergarten’s longitudinal effect on student academic achievement in the area of early childhood literacy.

Impact of Prekindergarten

Increasingly, research indicates that prekindergarten programs have short- and long-term effects on children's academic skills (Barnett 1995; Barnett et al., 2003; Burchinal et al., 2001; Huang et al., 2012; Magnuson et al., 2004; National Institute of Child Health and Human Development, 2000). Earlier studies suggesting that a prekindergarten experience has a positive impact on short-term early childhood development date from the late 1970s to the late 1990s (Campbell & Ramey, 1994; McCarton et al., 1997; Reynolds & Temple, 1995; as cited in Barnett et al., 2008, p. 123).
However, some researchers believe that many studies suggesting positive impacts of prekindergarten were invalid because they did not follow children in order to evaluate long-term benefits, nor did they identify the aspects of the programs that promote school readiness (Gilliam & Zigler, 2001; Magnuson & Waldfogel, 2005).

While some research concluded that prekindergarten does not have long-term benefits, more recent research suggests that effective early childhood education has short-term benefits such as increased academic test scores, decreased grade retention, and decreased special education placement have been found in several studies (Barnett, 1995; Barnett & Camilli, 2002; Chien et al., 2012; Magnuson et al., 2004). Similarly, positive long-term benefits such as increased graduation rates, increased college attendance, decreased crime rates, and improved employment and earnings have been found in several studies (Barnett et al., 2003; Barnett & Hustedt, 2003; Legal Momentum & the MIT Workplace Center, 2004; Nores et al., 2005). While studies vary on the amount saved, research indicates that each dollar invested in prekindergarten results in significant dollar savings to taxpayers in future costs. Research at the Massachusetts Institute of Technology (MIT) put this figure at $13 (Legal Momentum & the MIT Workplace Center, 2004). This investment results in financial benefits for the community and taxpayer investments (Legal Momentum & MIT Workplace Center, 2004; Nores et al., 2005; Ou & Reynolds, 2006).

**Program Type and Prekindergarten Impact on Kindergarten Readiness**

In 1990, the National Educational Goals Panel (NEGP), an independent executive branch agency of the federal government, developed a framework to provide monitoring and support for education, providing specific goals focused on all children being ready to
learn by 2000 (National Education Goals Panel, 1999). Research and government policy have focused on the significance of the cognitive skills and early literacy development required for future academic achievement (Kuaerz, 2002). Readiness is viewed as a multidimensional concept, comprised of more than cognitive and language skills (Chien, et al., 2012). For the purpose of this proposed study, the researcher will focus on the cognitive and early literacy and language skills that contribute to school (kindergarten) readiness.

The NEGP created five developmental domains associated with early childhood development and learning: physical well-being, socio-emotional development, approaches to learning, language development, and cognitive and general knowledge (Chien et al., 2012). These developmental domains provide a holistic view of all developmental aspects that children should master for a successful transition to kindergarten (Chien et al., 2012; National Association for the Education of Young Children, 2009). While all domains may be fundamental to early childhood development, the fourth and fifth domains (language development and cognitive and general knowledge) are emphasized in this literature review because this study focused on these two domains specifically.

There are few studies that evaluate the effect that public school prekindergarten programs have on student readiness. This includes evaluating the quality of the structure and instructional process of the program. While studies have been conducted to evaluate the benefits of prekindergarten, few studies comparing state funded public school prekindergarten programs to private prekindergarten programs mainly because few public school programs existed prior to 1980 (Magnuson et al., 2007; Mitchell, 1989).
There are various factors that can impact prekindergarten readiness for kindergarten. School type may be one of those factors. Different students attend preschool types such as family-based care, Head Start, public school prekindergarten, and private daycare. Studies examining the impact of prekindergarten type on kindergarten readiness found higher gains in math and reading skills for children participating in public prekindergarten programs than for children participating in other types of prekindergarten programs, such as Head Start and center-based programs (Grafwallner, 1994; Magnuson et al., 2007; Magnuson & Waldfogel, 2005). Research evaluating the progress of children who attended day care or family care programs (but not prekindergarten) consistently found that they scored lower than students who participated in some type of prekindergarten program (Grafwallner, 1994). A meta-analysis of publicly funded kindergarten programs found a statistically significant positive impact on cognitive and language skills (Gormley et al., 2005).

Another study conducted by the Family and Child Experiences Surveys (FACES) examined the impact of Head Start prekindergarten programs on student achievement and school readiness (U. S. Department of Health and Human Services, 2006). The study revealed statistically significant gains in cognitive and early literacy skills. However, most of the Head Start students continue to perform below the national average of students who participate in other prekindergarten programs in cognitive and social skills (Administration for Children and Families, 2006). As Head Start quality, accountability, and systemic implementation improve students will be better prepared for long-term academic success (Barnett & Hustedt, 2003).
While some researchers found that the type of prekindergarten experience impacts student achievement, other research has found that program type is not a significant variable (Andrews & Slate, 2002). Andrew and Slate concluded that there was no statistically significant difference in student scores for the main effect of program type, family location or gender. No relationship was found between student readiness for kindergarten and type of school program nor was there a relationship with student socio-economic status.

Henry et al. (2003) evaluated early literacy development and the prekindergarten program quality of three types program types in the state of Georgia: public school prekindergarten, private school, and Head Start. When instructional quality was considered, students who attended higher quality programs mastered significantly more academic skills than lower quality programs. For this reason, Georgia public school prekindergarten programs resulted in minimal differences in early developmental skills compared to the private schools. When program quality was not considered, Georgia public prekindergarten students and private school students entered kindergarten with similar readiness; however, the overall conclusion was that there was not a significant difference in the results that related to program type.

A number of studies have examined overall preschool and Head Start programs’ impact on student academic gains. Recently studies examined Head Start, classroom quality, and impact on literacy and language. Bulotsky-Shearer, Wen, Faria, Hahs-Vaughn, and Korfmacher (2012) performed a national study of Head Start programs, in which they concluded that Head Start programs with low classroom quality resulted in lower academic gains in literacy than those achieved by students who experienced higher
quality Head Start programs. A positive relationship was found between teacher-student interactions associated with student vocabulary (Bulotsky-Shearer et al., 2012). Although positive relationships did not impact growth during kindergarten and first grade, it did counteract the negative impact that poor home involvement had on academic achievement (Bulotsky-Shearer et al., 2012; McCartney, Dearing, Taylor, & Bub; 2007). Less extensive studies exist of publicly funded prekindergarten also examine the instructional program and teacher quality (Pianta et al., 2005).

Research has shown that public school prekindergarten programs in some instances have low classroom quality ( Clifford et al., 2005; Pianta et al., 2005). Peske and Haycock (2006) concluded that public schools that served children of poverty have typically employed teachers who are unprepared and ineffectively mentored, which impacts the quality of instruction and student achievement. It has also been shown that high-quality prekindergarten programs improve the academic impact that public schools have on student readiness (Henry et al., 2003). Publicly funded prekindergarten programs serve a majority of children who live in poverty. Since academic gains in prekindergarten are larger for children of poverty, public school prekindergarten programs should make quality instruction a priority (Burchinal, Peisner-Feinberg, Bryant, & Clifford, 2000; Hamre & Pianta, 2005; Vandell, 2004).

While a number of studies have examined overall childcare and Head Start programs, few quality studies exist for publicly funded prekindergarten that examine the quality of the program along with the quality of the teacher-student interaction (Pianta, et al., 2005). Two studies of publicly funded prekindergarten programs examined both the structural and instructional or process quality of the programs (Howes et al., 2008; Pianta
et al., 2005). Both studies concluded that student gains were not significantly impacted by structural components.

As has been noted, research on the relative impact of various types of preschool programs on achievement is limited. Across program types, however, there is research that consistently addresses the impact of public preschool programs, including public school programs and Head Start. The research examining the impact that school type has on the development of early childhood literacy varies in its findings (Andrew & Slate, 2002; Henry et al., 2003; Magnuson et al., 2007; Magnuson & Waldfogel, 2005; Administration for Children and Families, 2006). While this may be the case, there is agreement that the quality of teacher-student interaction, regardless of program type, is an overarching variable that significantly impacts early literacy development (Barnet & Hustedt, 2003; Bulotsky-Shearer et al., 2012; Chien et al., 2012; Henry et al., 2003; Howes et al., 2008; Pianta et al., 2005). In cases in which one program type had high quality, the gains in cognitive and literacy skills were significantly higher than gains in another program type. In additions, if previous research consistently showed that a program type resulted in lower gains, improving the instructional (process) quality of that program increased gains such that they were equivalent or surpassed those of other program types (Bulotsky-Shearer et al., 2012; Henry et al., 2003; Howes et al., 2008; Pianta et al., 2005). Although, attending a prekindergarten program may result in some early literacy gains and help to close some achievement gaps, it is the quality of the program that may have a significant impact on enhancing students’ early literacy development. A high-quality program with high-quality instruction has a greater impact.
on kindergarten readiness, the development of early literacy skills, and future reading ability.

*Early Literacy Skills Necessary for School Readiness*

Phonemic, or phonological, awareness is a specific type of early childhood literacy knowledge that students should master to prepare them for school readiness. Phonemic awareness refers to children’s understanding of the structure of spoken language as “phonological units going from larger units (syllables and words) to smaller units of speech (phonemes and morphemes)” (Pullen & Justice, 2003, p. 88). Mastering phonemic awareness means that students are capable of hearing sounds and making a connection between sounds and the letter(s) they represent. Studies have concluded that the development of phonemic awareness is a strong predictor of reading achievement and has a significant relationship with later literacy skills such as reading, spelling, and comprehending (Crim et al., 2008; Moats, 1994). A proficient understanding of phonemic awareness is necessary for successful progression in kindergarten (Moats, 1994; Rouse & Fantuzzo, 2006; Scarborough, 2001).

Phonological awareness involves the development of implicit conscious reaction and explicit awareness (Morais, 1991). The implicit cognitive understanding of phonological awareness means that there is a basic understanding of words and syllable sounds. The explicit cognitive understanding of phonological awareness involves an understanding of phonemes (Guedens & Sandra 2003; Stanovich, 1992). Phonemic awareness differs from phonological awareness in that phonemic awareness concentrates specifically on the development of the explicit awareness of early literacy skills (Ouellette, 2013).
Students may not have the understanding of phonemic awareness necessary for success in kindergarten. Therefore, the early literacy development necessary for future literacy success may rely on their teacher’s knowledge and instruction of phonemic awareness (Crim et al., 2008). Research has supported the fact that accurate instruction by a teacher with knowledge of phonological awareness and other early literacy skills can lead to success in an academically diverse group of learners (Babur, Bos, & Mather, 2001; Bos, Chard, Dickson, Mather, & Podhajski, 2001; Rashotte, Wagner, & Torgesen 1994). Mastering phonemic awareness is an essential component of prekindergarten students’ literacy development.

With most reading disabilities result from deficits in phonemic and phonological awareness, a lack of “the knowledge that letters and letter combinations correspond to speech sounds” can make it almost impossible to learn Standard English (Moats, 1994, p. 83). Students with large learning gaps in early literacy skills can gain success from intense intervention and exposure to effective and explicit early literacy teaching by knowledgeable teachers (Crim et al., 2008; Moats, 1994). Even students with a basic understanding of early literacy skills can progress more quickly and become better spellers with an effective teacher (Moats, 1994).

In order to build mastery of their own phonemic awareness, prekindergarten teachers need specialized knowledge and the ability to effectively teach prerequisite skills to enable students’ successful development of these critical early literacy skills. Prekindergarten teachers need a conceptual understanding of phonemic awareness and of what students must learn in order to develop effective phonemic awareness. For example, prior mastery of alphabetic knowledge and oral language are two skills that
students must master prior to mastering phonemic awareness (Oullette, 2013). Teachers also need to be knowledgeable about instructional strategies for teaching phonemic awareness such as segmentation. If teachers lack the proficient knowledge of teaching phonemic awareness, they may be unable to effectively and accurately teach the necessary early literacy skills that effect future literacy and reading. As a result, students may be not only be unsuccessful at mastering the learning, but also learn the incorrect skills and knowledge. Not only will students be unprepared for kindergarten, but they will gain additional learning gaps that will have to be addressed before effective learning can begin. Instructional deficiencies may also result in teachers’ inability to prevent and accurately identify reading deficiencies in students.

Prekindergarten Program Quality

Overall program quality. Researchers frequently examine the impact of quality prekindergarten programs on the early cognitive and language development of children of all academic and socio-economic backgrounds (Babarin et al., 2008; Barnett et al., 2011; Burchinal et al., 2001; Burchinal et al., 2000; Campbell & Ramey, 1994; Henderson, Ponder, Gordon, Mashburn, & Rickman, 2003; Henry et al., 2003; National Institute of Child Health and Human Development, 2000). Barbarin et al. (2008) conducted a study on prekindergarten classroom quality and stated that:

Preschool quality is a multifaceted, multilevel construct that includes a variety of program and classroom features, and a large body of literature exists in which correlates and consequences of these features have been evaluated, often separately in different studies that may focus on one or a few aspects of quality. As a result of the different methods of conceptualizing and measuring quality
across studies, there is a mixture of evidence, particularly concerning the magnitude of associations between specific features of quality. (p. 735)

Prekindergarten program quality also includes factors such as the emotional, social, physical, and instructional components that impact instructional or process quality in the teacher-child interaction (Burchinal et al., 2008; LoCasale-Crouch et al., 2007; Pianta et al., 2005). Instructional (process) quality is an impactful determinant of student success. Components of instructional quality include progress monitoring, allocating and protecting instructional time, effective management and instructional strategies, responsive feedback, support, verbal engagement, and scaffolding (Brophy, 1986; Burchinal et al., 2008; Yates & Yates, 1990). These components involve direct teacher-student interaction in the classroom and determine the quality of academic development and success of students (Justice, Mashburn, Hamre, & Pianta, 2008). This instructional (process) quality is illustrative of Vygotsky’s Skill Development Theory. Vygotsky’s theory is based on the general assumption that the cognitive developmental process begins occurs during inter-psychological interactions involving the sharing of knowledge between people (Crawford, 1996; Wertsch & Tulviste, 1992). The quality of this interaction determines the degree to which students proficiently master skills (Justice et al., 2008). Howes et al. (2008) argued that “children learn in the context of interaction with adults; this seems to be particularly the case for young children’s learning of pre-academic skills related to early literacy, language development…” (p.29). The quality of instructional components included in teacher-student interactions is dependent upon teachers having specialized training in early childhood development skills and concepts, such as phonemic awareness (Early et al., 2006; Pianta et al., 2005). A teacher who does
not have specialized, accurate understanding of the skills and knowledge relevant to early literacy development will be unable to provide effective teacher-student interaction that will results in school readiness. Prekindergarten teachers should have the profound pedagogical ability to incorporate direct instruction, effective strategies, and differentiation appropriate to students’ academic level in order to successfully develop early literacy skills (Bransford, Brown, & Cocking, 1999; Hamre & Pinata, 2005).

Based on the principles of Vygosky’s theory, the National Association for the Education of Young Children developed classroom standards for designing and evaluating prekindergarten programs designed to promote a high quality learning experience (Burchinal et al., 2008). The four dimensions of classroom practice are:

1. Implementation of a curriculum that is sensitive to the developmental capabilities and backgrounds of the children, addresses multiple domains of children’s development, and supports the view that children are active participants in their own learning;
2. Effective teaching characterized by coherent development of ideas, informative and supportive feedback to children, and multiple instructional approaches to optimize children’s learning opportunities;
3. Ongoing assessment of children’s development for individualization of instruction for individual children as well as overall program improvement; and
4. The centrality of positive teacher–child relationships to children’s school success. (Burchinal et al., 2008, p.141)
These four principles imply that proficient learning relies on the quality of the interaction between the teacher and student. These interactions provide the environment, resources, and support children need for academic success and school readiness (Howes & Ritchie, 2002; Pianta, 1999). Research emphasizes that the quality of this interaction is especially critical in learning early literacy and language development.

Goodson and Moss (1992) stated that there is a large spectrum of prekindergarten program quality. Children who attend a mediocre prekindergarten do not improve their academic readiness as much as those who attend a high-quality prekindergarten (Vandell, 2004). A high-quality program with high-quality instruction is more effective in preparing students for kindergarten, having a greater impact on their early literacy skills (Burchinal et al., 2000; Vandell, 2004). Since improving school readiness and closing academic gaps are main reasons for providing prekindergarten programs, providing high-quality prekindergarten programs to at-risk children, especially, prepare a larger proportion of students for success in kindergarten and beyond (Burchinal et al., 2000; Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Vandell, 2004).

High-quality prekindergarten programs save a greater impact than low quality programs on developing early childhood skills. Such programs increase the return on the investment in prekindergarten (Barnett, 1995; Chien et al., 2012; Legal Momentum & the MIT Center, 2005). National educational organizations such as the National Institute for Early Education Research (NIEER) and the National Association for the Education of Young Children (NAEYC) set research-based quality standards as benchmarks for prekindergarten programs (Barbarin et al., 2008; Canter, 2012a). Most state prekindergarten programs address NAEYC recommendations by setting a standardized
teacher-to-student ratio and class size (Chien et al., 2012; Magnuson & Waldfogel, 2005). Different states use different progress monitoring systems to assess the quality of their prekindergarten programs (Barnett et al., 2011). Prekindergarten programs that adhere to benchmarks standards such as NIEER and NAECY standards offer better educational experiences and have better student academic achievement (Barbarin et al., 2008). Gilliam and Zigler (2004) argued that little is known about the effectiveness of most state-funded prekindergarten programs, with few evaluations reported in peer reviewed publications. In addition, there are opposing views on what is considered a quality prekindergarten program as well as the process through which they are evaluated (Barnett et al., 2011). In addressing the issue of prekindergarten quality, NIEER provides nine benchmarks for a high quality prekindergarten program:

1. Teachers with at least a bachelor’s degree;
2. Prekindergarten teachers with specialized training in early childhood;
3. Teachers with 15-hours annually in professional development;
4. Assistant teachers with child development associate’s (CDC) degrees;
5. A comprehensive curriculum comprised of the domains of literacy/language, math, science, socio-emotional skills, cognitive development, health, physical development, and social studies;
6. Maximum class size of 20 students;
7. A child-to-teacher ratio of 10:1 or better;
8. One meal served per day; and
9. Require screening/referral and support services (Barbarin et al., 2008, p. 734)
Teacher quality. The quality of prekindergarten educational experiences impacts school readiness by minimizing learning gaps and providing critical foundational knowledge for academic success (Barnett et al., 2012; Barnett et al., 2003; Burchinal et al., 2008; Burchinal et al., 2000; Henry et al., 2003; Vandell, 2004). Today, federal and some state governments respond to the need for more early childhood education by creating programs or providing funding for programs. The mandates required in order to receive the funding focus on implementation and expansion of the structural component of the programs, not evaluations of the instructional quality of the programs (Howes et al., 2008; Pianta et al. 2005). Structural components include teacher-child ratio, location in a school building, length of day, and teacher qualifications. While these components are the focal point of government quality benchmarking, these components yield modest or non-significant gains in students’ readiness (Howes et al., 2008; Pianta et al., 2005).

Additional studies have examined public school prekindergarten program structural quality, analyzing teacher education and credentials as a predictor of effective language and literacy instruction and students’ acquisition of language skills. As different states have different prekindergarten requirements and guidelines pertaining to teacher educational background, training and instruction, the impact of student mastery of skills may differ (Bogard, Traylor, & Takanishil, 2008). In Mississippi, the public school qualifications required to teach prekindergarten through kindergarten require that an individual have a bachelor’s of science degree with a child development emphasis from an accredited program or completion of a teacher education program (alternate route) (Mississippi Department of Education, 2013). Another example of public school
prekindergarten qualification requirements, this one for the state of Alabama, states that individuals must have one of the following:

1. A degree in Human Environmental Science Degree with a concentration in Early Childhood Development or Child Development;
2. An Early Childhood Education degree (B.S., B.A., or M.A./M.S.) with or without teacher certification;
3. A Special Education degree with a minimum of 18 credit hours in early childhood/child development coursework, and teacher certification; or
4. An Elementary Education degree with a minimum of 18 credit hours in Early Childhood/Child Development coursework, and teacher certification (Alabama Department of Children’s Affairs, 2013). This certification is only required for teachers employed by public school districts.

Head Start prekindergarten classroom teachers, nationwide, must have at least one of the following:

1. An associate, baccalaureate or advanced degree in early childhood education;
2. An associate degree in a field related to early childhood education and coursework equivalent to a major relating to early childhood education, with experience teaching preschool-age children;
3. A baccalaureate or advanced degree in any field and coursework equivalent to a major relating to early childhood education, with experience teaching preschool-age children; or
4. A baccalaureate degree in any field and having been admitted into the Teach For America program, passed a rigorous early childhood content exam, such
as the Praxis II, participated in a Teach For America summer training institute that includes teaching preschool children and is receiving ongoing professional development and support from Teach For America’s professional staff. (Statutory Degree and Credentialing Requirements for Head Start Teaching Staff, n.d.)

In addition to the aforementioned requirements, at least 50% of Head Start teachers, nation-wide, are required to have a baccalaureate or advanced degree in Early Childhood Education or any subject and coursework.

Studies that examined the impact of teacher education on student achievement found that all of the teacher participants had bachelor’s degrees, while many had master’s degrees (Justice et al., 2008; Weiland, Ulvestad, Sachs, & Yoshikawa, 2013). However, teacher education and years of experience were not associated with student achievement in early literacy skills, nor with effective quality instruction. Burchinal et al. (2008) examined the academic achievement of over 2,000 children in approximately 700 randomly selected prekindergarten programs in 11 states. Their study concluded that the majority of the classes met the structural quality standards of teachers having college degrees and prekindergarten certification, yet the programs were low-quality. States continue to require or recommend minimal structural standards not only because organizations have set them as quality standards for prekindergarten programs, but also due to state and federal governments requiring these standards as mandates to prekindergarten programs for receiving funding (Barnett et al., 2005; Early Childhood Knowledge and Learning Center, 2007; Phillips, Mekos, Scarr, McCartney, & Abbott-Shim, 2001). While teacher education and experience have been considered benchmarks
for quality in prekindergarten programs, specifically the NIEER standards, studies continuously show that teacher education is a structural quality component that has little or no impact on student achievement in early literacy skills (Burchinal et al., 2008; Mashburn, 2008; National Association for the Education of Young Children, 2009). This may imply that government agencies and other organizations that advocate for student achievement should emphasize and examine instructional quality components such as teacher knowledge of specific concepts and skills that directly relate to student acquisition of early literacy skills.

The quality of the instruction provided by prekindergarten teachers is a core dimension of overall program quality. Effective instruction also improves student retention of knowledge at the end of kindergarten (Burchinal et al., 2008). Prekindergarten teachers provide the instruction, support, and guidance that students need to successfully master the conceptual content necessary for the accurate development of early literacy skills that impacts future literacy success (Hamre & Pianta, 2005; Howes & Ritchie, 2002; Lo-Casale et al., 2007; Pianta, 1999).

Variation in the quality of prekindergarten programs is possible when major structural components such as teacher qualifications, funding, and program implementation vary (Frede & Barnett, 2009). NIEER developed the previously-cited nine-item checklist that is considered the quality standards necessary for an effective prekindergarten program (Barnett et al., 2003). Of the nine standards, the second, third, and fifth standards each address the concept of a knowledgeable teacher (Barnett et al., 2003). The second standard stipulates that teachers have at least a bachelor’s degree; the third standard requires that teachers should have specialized training in early childhood
education; and the fifth standard mandates that teachers should have at least 15 hours of annual professional development (Barnett et al., 2003). Teacher quality is a common thread throughout the standards, emphasizing the importance of a teacher to a child’s development and academic achievement (Barbarin et al., 2008). Teacher knowledge and instructional practices are important components of program quality (Burchinal et al., 2008; Howes et al., 2008; Magnuson & Waldfogel, 2005; Mashburn, 2008; Pianta et al., 2005).

Prekindergarten teachers’ knowledge of specific early childhood skills is important to students’ ability to master early literacy skills. Teacher knowledge refers to the conceptual understanding of early literacy development (Burchinal et al. 2008; Dickinson & Caswell, 2007). Some research has referred to the impact of teachers’ knowledge of skills and concepts on student learning as child/student and teacher interaction (Burchinal et al., 2008; Early et al., 2006; Guo, Justice, Kaderavek, & McGinty, 2012). A quality child/student and teacher interaction occurs when a teacher provides quality instruction, teaches in-depth concepts, and supports the learning as needed by individual students. In order for these processes to occur, a teacher has to have a sound foundation in the grade-level content area. A teacher’s knowledge and competency relative to foundational concepts for a grade level content affects students’ accurate acquisition of knowledge and skills (Burchinal et al., 2008; Hamre & Pianta, 2005; Mashburn, 2008; Snow, Burns, & Griffin, 2008). While having a literacy-rich environment, including various types of books, material, and resources, may impact student learning, a larger impact occurs when teachers are knowledgeable and able to accurately support student learning (Guo et al., 2012). A teacher’s ability to implement
high-quality literacy interaction and instruction with students increases students’ academic gains in early literacy achievement.

It is also important to recognize that teacher knowledge is different from teacher educational background. Research has shown that teacher educational background and number of years teaching does not significantly impact student performance (Early et al., 2006; Howes et al., 2008). Their knowledge is directly related to the quality of the instruction that is provided to students. This is also shown in research that examined the quality of literacy based on the implementation of a specific curriculum. Prekindergarten teachers who taught a curriculum with high fidelity could still deliver low quality instruction due to their lack of expertise in early literacy skills and knowledge (Justice et al., 2008). Guo et al. (2012) conducted a study that contradicted prior theory whereby an environment rich in literature supported student gains in early literacy.

[O]ur findings suggests that a materially rich physical environment may be necessary but not sufficient condition for creating high-quality, literacy-promoting interactions in the classroom (i.e. creating a rich psychological literacy environment). (p. 321)

Consistent with these findings, prior research also indicated that high-quality interactions involving literacy instruction were determined by teacher knowledge specific to early literacy development (Dickinson & Caswell, 2007; Roskos, Rosemary, & Varner, 2006).

As government support increases, debates about prekindergarten programs’ impact on student outcome also increase (Burchinal et al., 2008; Pianta et al., 2005). These debates include questions about the components of prekindergarten programs that have significant impact on student readiness and academic success. These debates have
also caused greater emphasis to be placed on the features or components of the programs that can be regulated to ensure better quality programs (Barnett et al., 2003). As more research about instructional and process quality is conducted, additional information in response to these questions can be provided so that governmental policy will include sound recommendations and mandates for improvement that impacts academic success.

**Gender and Prekindergarten**

Literacy entails more than just cognitive development of skills necessary for reading and comprehension (Millard, 2003). Literacy encompasses cultural and social conventions representative of people who create and define literacy practices (Barton & Hamilton, 1998; Millard, 2003; Street, 1984). Millard explained that through these practices, feminists argued that literacy is a set of foundational social practices that frame cognitive practices that “became important in explanations of interrelationship of (gendered) identity and literacy development” (Orellana, 1995, p. 23). These feminists were students, researchers, and teachers who examined and exposed gender bias in education in the interests of females. Over time, this movement altered the ideologies and perspectives about literacy to be those of the adult teachers, who were mostly women (Heath, 1983; Taylor & Dorsey-Gaines, 1988). This constructed social framework for cognitive development could possibly impact children’s thoughts and views of literacy and literature. In turn, this framework impacts what and why they read. If literacy instruction, activities, and events are geared to serve the needs and desires of females, this may affect male students’ desire to read.

Research has even shown that preschool girls are more interested in literacy than boys; this coincides with parents rating girls as having greater motivation and interest in
learning (Alexander, Johnson, Leibham, & Kelly, 2008; Baroody & Diamond, 2013; Baroody & Dobbs-Oates, 2011; McKenna, Kear, & Ellsworth, 1995; Meece, Glienke, & Burg, 2006). Baroody and Diamond (2013) argued that assessments of female and male interests in literacy might be misleading because different studies used various methods that were not correlated to measure interests. The researchers found that while parents rated literacy interest levels higher for girls than for boys, there was no statistically significant gender difference in interest found in child-reported or observed assessments.

Historically, research has shown that prekindergarten female students outperform their male counterparts (Gullo, 1991; Gullo & Clements, 1984; Smith, 1968). More recent research has corroborated such findings. For example, although students participating in a public prekindergarten program had higher early literacy assessments scores than Head Start students, males scored lower than the females on all of the assessments, except in vocabulary (Henry et al., 2003.). This lower performance of male students may be due to factors such as maturity, interaction with the teacher and other students, or prior experiences (Maccoby & Jacklin, 1974). In contrast, Gullo and Burton (1992) concluded that sex was not found to have a significant impact on kindergarten readiness.

Whether or not female students have a higher interest in literacy and perform better on assessments, it is the responsibility of parents and teachers to ensure that both females and males are proficient in this critical skill area of early childhood development. It is important for children to collaboratively partake in discussion, instruction, and activities related to early literacy in order to promote engagement. Teachers should also ensure that both genders are provided with literature and resources appropriate to their
reading level and interests, resulting in the ability to read proficiently, comprehend, and apply their knowledge of various experiences of life.

Longitudinal Effects of Prekindergarten

As research supports the impact of prekindergarten programs on student readiness and government agencies continue to maintain financial support, evaluating the impact that of these programs beyond kindergarten is important. Students’ pre-literacy experiences are different, and students thus begin prekindergarten with different sets of abilities and capacities for developing early literacy skills. The fact that differences in the development of phonemic awareness is related to the rate of acquisition of reading skills in the future was supported by research conducted several decades ago (Mann & Liberman, 1984; Stanovich, Cunnigham, & Cramer, 1983; Wagner & Torgenson, 1987). Moreover, differences in the development of oral language were found to be related to differences in future reading proficiency (Pikulski & Tobin, 1989; Scarborough, 1989). Interpreting the trajectory of the impact of prekindergarten can be considered ambiguous. As Whitehurst et al. (1994) write,

For instance, does the correlation between knowledge of concepts of print and later reading achievement (Tunmer et al., 1988) represent a causal role for concepts of print in the sequence of skills leading to reading, or do scores on a test of concepts of print simply serve to index other variables, such as a child's interest in the task of learning to read, that could be the actual causal variables in later reading achievement? (p. 262)

Although research has supported the fact that the cognitive development of early literacy skills in prekindergarten impact academic success, there is less information about
the extent to which prekindergarten academic gains predict student success after kindergarten. While much research examines the relationship between prekindergarten program structural quality and the quality of student learning, fewer studies have examined the impact of a prekindergarten experience on the early years of school. Much of the research related to prekindergarten students’ academic trajectory examined the effects of: i) interventions during prekindergarten; ii) half-day versus full-day (program type); or iii) non-academic variables (e.g., race, family characteristics) on academic retention beyond kindergarten (Campbell & Ramey, 1994; Cannon, Jacknowitz, & Panter, 2006; Karweit, 1992; Peisner-Feinberg et al., 2001; Votruba-Drzal et al., 2008; Weiss & Offenberg, 2002; Whitehurst et al., 1999). A prekindergarten experience has been shown to be a predictor of the successful acquisition early literacy skills at the end of the kindergarten year (Burchinal et al., 2008).

The retention of early literacy skills has been shown to be due to two indicators of high-quality prekindergarten: teacher-student interaction and instruction by the end of prekindergarten. As a result, prekindergarten teachers’ expertise in early literacy skills was necessary for retention of these skills to occur (Burchinal et al., 2008). Gains in early literacy skills achieved in prekindergarten may lose their impact on later reading achievement if the skills taught in prekindergarten are different from the skills focused on in kindergarten (Whitehurst et al., 2008). This loss may also be due to non-academic factors such as characteristics of the home and or the school environment (Peisner-Feinberg et al., 2001; Votruba-Drzal et al., 2008). Gains by students in Head Start and low socio-economic public school prekindergarten programs have been shown to be sustained to the end of first grade (Huang et al., 2012; Whitehurst et al., 1994). This
retention of early literacy skills has also been shown to last through the end of second grade and into third grade, but fade soon after due to factors such as family characteristics, length of kindergarten program, and associated school program characteristics (Broberg et al., 1997; Votruba-Drzal et al., 2008).

Summary

As government agencies and other organizations invest more funding and resources into the implementation of prekindergarten programs, greater attention is placed on the effectiveness of the programs. Effectiveness should be gauged in terms of both structural and instructional (process) criteria. Structural components, such as teacher-student ratio, are set as conventional standards of quality. However, research shows that high quality is not based on structural components. Rather it is based on instructional (process) components. As research continues on which criteria impact student achievement, instructional components and teacher-student interaction have been shown to be predictors of student readiness, mastery of early literacy skills, and future academic achievement. With recent national discussion and state legislation on the critical importance of early literacy, high-quality programs and teachers are needed to prepare the nation’s children for future community responsibilities and quality living. While the impact of prekindergarten on closing achievement gaps may fade after a few years, the benefits of early intervention and foundational reading skills gained last for years (Barnett et al., 2003; Barnett & Hustedt, 2003; Legal Momentum & the MIT Workplace Center, 2004; Nores et al., 2005). The lasting impact of prekindergarten education has been demonstrated, whether in closing early literacy gaps for enhanced kindergarten success or improved livelihood and career experiences.
Debates have emerged regarding the components of prekindergarten programs that have the greater impact on student learning of early literacy skills. The quality of the teacher-student interaction has a direct impact on students’ successful mastery of essential developmental early literacy skills, such as phonemic awareness. Students’ proficient mastery and acquisition of these skills are related to the level of proficiency and of subsequently learning to read. Teachers’ educational background and years of experience do not have a significant impact on the development of early literacy skills, as does their specialized conceptual understanding of foundational literacy skills and knowledge.

The retention of early literacy skills beyond a student’s kindergarten experience may have a positive effect on students learning to read at an earlier age. This can eliminate the need for special curricula, interventions, and remediation programs, which are expensive and consume valuable instructional time. Although the academic gains that result from prekindergarten may fade after a few years, many students benefit. Students who may have had large academic gaps in early literacy will be more likely to begin kindergarten on an even plane with their classmates instead of beginning at a disadvantage during the first few years of their academic experience. Beginning kindergarten on grade level offers academic advantages that outweigh other gains that may fade overtime.
CHAPTER III

METHODOLOGY

This chapter describes the research method design used in this study to evaluate prekindergarten student gains in the development of early literacy skills, depending on the nature of their prekindergarten program, and to examine explicit prekindergarten teacher knowledge of early literacy skills and concepts. Research questions and hypotheses are specified. The justification for selecting the prekindergarten students and teachers as the research population is also provided in this chapter. Chapter III is composed of an explanation of the research design, procedures, participants, and analysis of the data. The chapter also includes a description of the instrument used to collect data in the study. An explanation of the independent and dependent variables is also included, in addition to the statistical processes used to analyze data.

Research Design

The research design with regard to the prekindergarten students and teachers utilized quantitative analysis techniques. Data consisted of archived student scores from the Dynamic Indicators for Basic Early Literacy Skills (DIBELS). DIBELS is the early childhood assessment used by the public school districts in which the study took place. Student early literacy skills gains were measured using the Initial Sound Fluency subtest of DIBELS, which occurs in kindergarten. The DIBELS Oral Reading Fluency subtest was used to analyze reading attainment gains in first grade. The study examined differences between the academic performance of prekindergarten cohorts in the kindergarten and first grade. The DIBELS performance data consisted of subsequent scores used to analyze gains in early literacy skill and reading attainment.
Scores from students who experienced the various prekindergarten types (public school prekindergarten, Head Start, no prekindergarten) were used to compare early literacy gains and reading attainment. The early literacy achievement of students in cohort groups was examined in kindergarten and first grade. This evaluation resulted in an analysis of the relationships between early literacy achievement and prekindergarten program types.

The prekindergarten teachers’ specialized knowledge of early literacy concepts and skills were examined through a survey that included a phonological awareness assessment. The data from this portion of the questionnaire were used to assess the knowledge that prekindergarten teachers need to effectively and accurately teach students the critical foundational early literacy skills and concepts necessary for kindergarten readiness and future literacy success. Additional survey elements were used to gather information about the prekindergarten teachers’ educational background and experience (years of experiences and professional development participation). The data were used to analyze relationships between educational background and experiences and specialized knowledge of early childhood literacy concepts and skills.

Research Questions and Hypotheses

The purpose of this study was to evaluate prekindergarten student gains in the development of early literacy skills depending on the nature of their prekindergarten program and to examine explicit prekindergarten teacher knowledge of early literacy skills and concepts. These foundational skills and concepts impact teachers’ ability to provide proper intervention, scaffolding, and instruction that result in student proficiency
in early literacy development. The proposed study involved quantitative research and addressed the following questions:

1. Are there significant differences among reading score gains (performance) by the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, no prekindergarten)?

2. Is there a significant difference between the educational background of public school prekindergarten teachers and Head Start prekindergarten teachers?

3. Is there a significant relationship between the educational background of prekindergarten teachers and their knowledge of phonological awareness?

4. Is there a significant difference between the educational experience of public school prekindergarten teachers and Head Start prekindergarten teachers?

5. Is there a significant relationship between the educational experience of prekindergarten teachers and their knowledge of phonological awareness?

6. Is there a significant difference between the knowledge of phonological awareness of public school prekindergarten teachers and the knowledge of phonological awareness of Head Start prekindergarten teachers?

7. Are differences between male and female literacy achievement scores related to the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, and no program)?

The following related hypotheses were addressed in the study:

H1: There are significant difference among reading score gains by the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, no prekindergarten).
H2: There is a significant difference between the educational background of public school prekindergarten teachers and Head Start prekindergarten teachers.

H3: There is a significant relationship between the educational background of prekindergarten teachers and their knowledge of phonological awareness.

H4: There is a significant difference between the educational experience of public school prekindergarten teachers and Head Start prekindergarten teachers.

H5: There is a significant relationship between the educational experience of public school prekindergarten and their knowledge of phonological awareness.

H6: There is a significant difference between the knowledge of phonological awareness of public school prekindergarten teachers and the knowledge of phonological awareness of Head Start prekindergarten teachers.

H7: Differences between male and female achievement scores are related to the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, and no program).

Participants in the Study

The study included teacher participants and archived student achievement data. The researcher was granted permission to distribute surveys to prekindergarten teachers in hard copy or electronic copy. Permission was granted from three locations to distribute surveys and receive prekindergarten teacher responses. Public school prekindergarten teachers from a south Mississippi school district and south Alabama school district participated in the survey. Head Start teachers from the same south
Alabama school district and a second Mississippi school district in the central part of the state also participated. Thus, the south Alabama district was the only location from which both public school prekindergarten and Head Start prekindergarten teachers responded.

The researcher was granted permission to conduct the study by both of the public school districts. The Alabama school district’s superintendent and the south Mississippi school district’s executive director of student support granted the researcher permission to contact employees and conduct the study with preschool teachers in the school districts. The instrument was distributed to six of the south Mississippi district’s public school prekindergarten teachers. Five (83%) of these teachers responded to the survey. These participants completed a hard copy of the survey. The instrument was also distributed to 41 of the south Alabama district’s public school prekindergarten teachers. Twenty (49%) of these teachers responded to the survey. These participants completed an electronic copy of the survey.

The researcher was granted permission to conduct the study by both of the executive directors of the south Alabama Head Start and the central Mississippi Head Start prekindergarten programs. A hard copy of the instrument was distributed to 25 Head Start prekindergarten teachers in the central Mississippi district. Fifteen (60%) of these teachers responded to the survey. The Alabama Head Start school site directors distributed a hard copy of the instrument to 51 teachers during faculty meetings. Eighteen (35%) of these teachers responded to the survey. The researcher received the responses via United States Postal Service. The researcher randomly excluded eight of the responses in order to have teacher groups of equal size.
The archived student performance data were DIBELS scores from 150 first grade students who began prekindergarten in the fall of 2010 and completed first grade in the spring of 2013. There was no active participation in the study by the students. The researcher requested archived student DIBELS data from two school districts: one in Mississippi and one in Alabama. Once permission was granted by these programs, the researcher sought and received approval from the University of Southern Mississippi’s Institutional Review Board (IRB). The IRB approval document is included as Appendix A.

Instrumentation

As more states begin to implement public school prekindergarten programs to improve student readiness, greater emphasis has been placed on effective assessment of early childhood literacy skills (Invernizzi et al., 2010). Through assessments, the development of early childhood cognitive and language skills can be evaluated for various monitoring purposes such as teacher instruction and student learning (Barnett et al., 2008; Goffreda & DiPerna, 2010; Gormley et al., 2005; Magnuson & Waldfogel, 2005; Rouse & Fantuzzo, 2006). In addition, assessments are one way to evaluate student progress and hold prekindergarten programs accountable for helping children to develop the early literacy skills, monitoring student progress, and ensuring school readiness (Good et al., 2001; Invernizzi et al., 2010).

The instrument used to collect the student data is the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). DIBELS is a benchmark assessment comprised of a set of short standardized measures (Goffreda & DiPerna, 2010). The 2000 National Reading Panel report stated that DIBELS subtests are designed to measure the following literacy skills: fluency, phonics, phonological awareness, and vocabulary (National Institute of Child Health and Human Development, 2000). DIBELS can be used as a universal
screener and can be administered three times per school year (fall, winter, and spring) as subtests to assess student academic achievement levels and to monitor student achievement (Riedel, 2007). DIBELS is also used in schools to identify students who need literacy interventions and to predict future reading problems of students in kindergarten through the third grade (Elliot et al., 2001; Fuchs & Fuchs, 1999; Goffreda & DiPerna; Good et al., 2001). Schools use DIBELS to determine needed intervention for students who are performing below grade level. Early literacy skills assessed by DIBELS that align to the National Reading Panel’s literacy skills are alphabetic knowledge (written symbols representing used to form words), oral reading fluency, phonological awareness, and print concepts (printed letters and words having meaning) (Goffreda & DiPerna, 2010; Invernizzi et al., 2010).

Researchers have concluded that DIBELS is a reliable and valid measure of student growth and progress in developing early literacy skills (Clark et al., 2003; Elliot et al., 2001; Good & Kaminski, 1996; Riedel, 2007). The Oral Reading Fluency (ORF) subtest has the strongest reliability and validity (Rouse & Fantuzzo, 2006). Riedel (2007) identified studies that provided evidence of DIBELS effectiveness and validity in these areas. Riedel’s evaluation found that the ORF subtest is significantly correlated with comprehension scores, although it is not directly related to reading comprehension (Fuchs, Fuchs, Hops, & Jenkins, 2001; Fuchs, Fuchs, & Maxwell, 1998). The Initial Sound Fluency (ISF) is another DIBEL subtest, which measures phonological awareness (Kaminski & Good, 1996). Due to an updated edition of DIBELS (DIBELS Next), the ISF subtest has been renamed the First Sound Fluency subtest. This subtest assesses a child’s ability to recognize and say the initial sound in spoken words (Kaminski & Good,
The ability to recognize and to say the initial sound of spoken words is part of the early literacy skills in phonemic awareness that help students to develop later literacy skills. Permission to present these assessments instruments to committee members was provided by the Dynamic Measurement Group, creators of DIBELS (Appendix B).

DIBELS is the early childhood assessment used by the districts in which the study took place. Archived student DIBELS ORF and ISF subtests data were used to examine the possible impact of school type on student readiness and student success in early reading comprehension. Data from the 2011-2012 school year to the 2012-2013 school year were examined.

The instrument used to assess teacher knowledge of early literacy skills and concepts is entitled the Early Literacy Education Survey (Appendix C). The instrument was adapted for this study by the researcher. Some of the items in the instrument were taken from the Knowledge Assessment: Pretest and Post-test, which was developed by Dr. K. Melanie Schuele to assess phonological awareness skills of speech-language pathologists and educators (Spencer, Schuele, Guillot, & Lee, 2008). The instrument was modified, with permission, for the current study in order to assess the phonological awareness knowledge of prekindergarten teachers. Documentation of permission to adapt the instrument is provided as Appendix D. The instrument surveyed teachers in order to gather information about their educational background (college degree) and experiences (years of experience and professional development participation) as prekindergarten teachers.

Section I of the instrument consisted of educational background items. The first item addressing years of experience in teaching prekindergarten offered the options of: 0-
2 years, 3-6 years, 7-10 years, 11-15 years, and 16 years or more. The second item addressed educational experiences related to college degree and offered the options of associate’s degree in Child Development (or similar), bachelor’s degree in (specify), master’s degree in (specify), PhD or EdD in (specify), and other. The third item addressed educational experiences related to professional development. The options for this item were letter sounds, letter sounds segmentation (encoding), syllabication (decoding), and rhyming.

Each item in Sections II-IV of the instrument had a one-point value. The points in each section were totaled and a percent correct score was calculated for each section. Each section was comprised of phonological awareness (identifying and manipulating individual sounds of spoken letters and syllables) and phonological awareness (breaking words into individual sounds and syllables) skill items.

Section II assessed the knowledge of phonemic awareness. The first part of Section II was comprised of five items that assessed knowledge of letter sounds. The second part of Section II assessed the knowledge of encoding words, requiring the teacher participant to encode the letter sounds of 20 words.

Section III was comprised of phonological assessment items. This section assessed the knowledge of syllabication (decoding) of words. The teacher participants were required to divide 15 words into their syllable parts.

Section IV was comprised of phonological assessment items. This section assessed the knowledge of rhyming words. It required teacher participants to match five word items (words) to a rhyming word(s) in a list.
The validity of the instrument was assessed by an expert panel. The panel consisted of educational professionals with specific knowledge and experience in early literacy skills and development. The panel included a certified academic language therapist, a professor of curriculum and instruction, and a certified reading specialist. The expert panel served to ensure that the instrument assessed prekindergarten teachers’ knowledge of early literacy skills necessary for kindergarten readiness. The expert panel review form is provided as Appendix E. The panel members’ recommendations were used in making final revisions to the instrument.

A pilot test to determine reliability was not conducted. No analysis of the internal consistency of the instrument was conducted because the instrument was scored. As this was a knowledge test, no reliability evaluation was needed.

Procedures for Collecting Data

The procedures followed the collection of the data began with each district superintendent receiving a letter in which the researcher requested permission to conduct the study using the school district’s data and employee’s responses (Appendix F). Each Head Start director was given a similar letter (Appendix G).

The researcher requested archived student DIBELS data from two school districts: one in Mississippi and one in Alabama. Once permission was granted, a district- or school-level employee collected the archived student data. The Alabama school district provided students’ data, but it did not accurately specify all student prekindergarten types: public school prekindergarten, Head Start prekindergarten, and no prekindergarten. These data were thus not usable in the analysis. The central Mississippi school district first agreed to provide student data, then did not deliver the data. The archived student
data used in the study were provided only by the south Mississippi school district. The
district level employee provided 50 students per kindergarten type (public school
prekindergarten, Head Start prekindergarten, and no prekindergarten). This contact
person explained that due to time and personnel available to collect these data, a limited
amount of data sets could be provided. The school district provided data for 50 students
for each prekindergarten type (a total of 150), based on the researcher’s request, as this
was the minimum number of student data sets in each prekindergarten type that was
adequate for the study. This study required the data for a cohort of students who were in
kindergarten in 2011-2012 and in first grade in 2012-2013. The district-level employee
drew the individual student data sets from an alphabetical list of the elementary students
in this cohort. The student data were copied into an Excel (student) spreadsheet, from
each school, in the order in which they were listed. One DIBELS spreadsheet contained
2011-2012 (kindergarten assessment data). The other spreadsheet contained 2012-2013
(1st grade assessment data). The students’ listed in the student file were then compared
to two DIBELS Excel spreadsheets. The students listed in the student file had to be listed
in both DIBELS files because both school years’ data for the student were needed for the
study. As students were identified in both DIBELS files, the DIBELS data were added to
that student’s row in the student spreadsheet. The DIBELS data were added in the same
order that the students were initially copied into the student spreadsheet. Of the students
identified by the schools, only those who had data for both years could be used for the
study.

The student data were organized in a spreadsheet or report format providing a
student identification number, grade-level, ISF and ORF test scores, and score level. Any
information that might identify students was removed once the DIBELS data were collected and before being given to the researcher. A unique number replaced each student’s name. The district level employ provided the data to the researcher in an Excel spreadsheet. The researcher will keep the hard copy data in a secure file for one year, after which they will be shredded.

Prekindergarten teachers received a cover letter and informed consent document (Appendix H), attached to the survey, requesting that they participate in the study on a voluntary basis. These documents provided information about the study and inform teachers that by completing the survey, they provided their consent to participate in the study. The letter also informed respondents that participation was confidential and that there would be no negative consequences for refusing to participate in the study.

The survey was distributed by two methods: as an electronic document, and in hard copy. The electronic document was provided via email (Survey Monkey) and the hard copy was provided to the district level employee or director during a grade-level team or faculty meeting. The district level employees were informed that there were two options for responding to the survey. The two different means of distributing the survey instrument were designed to improve the chances of the participants completing and returning the surveys. The district level employee or director was given a self-addressed stamped envelope to use in returning hard-copy responses to the survey to the researcher. The researcher will keep the hard copy surveys in a secure file for one year, after which they will be shredded. The school districts have the option of obtaining the results of the study. The final results of the study are discussed in Chapter IV.
Analysis

Hypothesis 1 was analyzed using a one-way analysis of variance (ANOVA). Hypotheses 2 and 4 were analyzed using a chi-square procedure. Hypotheses 3 and 5 were analyzed using a Spearman’s Rho correlational analysis. Hypothesis 6 was analyzed using a t-test. Hypothesis 7 was analyzed using a two-way ANOVA. The level of significance was set at .05.

Summary

Chapter III provided details about the research design, research questions, participants, and instrument to be utilized for gathering students and teacher data in the proposed study. The chapter further elaborated on the statistical procedures that were used to analyze participant responses. In a quest to improve student readiness for kindergarten and early literacy skills, many organizations are prompting educators to meet these critical needs earlier and more effectively. Regardless of prekindergarten type, students should be provided with early literacy instruction that prepares them for future reading and academic success. With this in mind, this study aimed to analyze student performance that results from different prekindergarten experiences. In addition, this study analyzed prekindergarten teachers’ educational background and knowledge of critical early literacy development skills that may affect the effectiveness and accuracy of instruction that may impact students’ future reading ability.
CHAPTER IV
RESULTS

The purpose of the study was to evaluate prekindergarten student gains in the development of early literacy skills, depending on their prekindergarten program experience, and to examine explicit prekindergarten teacher knowledge of early literacy skills and concepts. This study examined early literacy skills and reading attainment by focusing on prekindergarten teacher educational background and early literacy skill knowledge, and kindergarten and first grade student academic assessment data. Prekindergarten teachers’ knowledge of early literacy skills taught in prekindergarten was assessed through a survey instrument. Public school prekindergarten and Head Start prekindergarten teachers’ responses were examined to determine if teacher prekindergarten type was linked to a difference in their knowledge of early literacy skills. This study also examined data from a cohort of students to determine if prekindergarten type was linked to early literacy scores. The Dynamic Indicators for Basic Early Literacy Skills (DIBELS) Initial Sound Fluency (ISF) subtest scores and Oral Reading Fluency (ORF) subtest scores were used to measure early literacy and reading skills, providing data for the analysis of whether differences in early literacy reading skills exist among these groups of students.

The results of the study are presented in this chapter. The descriptive statistics from the teacher survey and archived student data are provided. The responses of the research questions and hypotheses for the study are also provided.
Review of Research Design, Instrumentation, and Analyses

The research design with regard to the prekindergarten students and teachers utilized quantitative analysis techniques. Data consisted of archived student data from the Dynamic Indicators for Basic Early Literacy Skills (DIBELS). Students’ kindergarten early literacy skills were measured using the Initial Sound Fluency DIBELS subtest. The students’ first grade early reading skills were measured using Oral Reading Fluency (ORF) DIBELS subtest. All scores were used to analyze kindergarten attainment in early literacy skills, specifically phonological awareness skills, and first grade retention of early literacy skills.

There were four sections in the survey. The prekindergarten teachers’ specialized knowledge of early literacy skills was examined through an instrument that included items addressing educational and professional development background information, and items addressing phonological awareness. Sections II, III, and IV assessed phonological skill variables that are foundational to early literacy.

Hypothesis 1 was analyzed using a one-way analysis of variance (ANOVA). Hypotheses 2 and 4 were analyzed using a chi-square procedure. Hypotheses 3 and 5 were analyzed using a correlation. Hypothesis 6 was analyzed using a t-test. Hypothesis 7 was analyzed using a two-way ANOVA. The level of significance was set at .05. The quantitative results for this study are provided in the following sections.

Descriptive Statistics

The researcher was granted permission from two school districts to distribute surveys to prekindergarten teachers. Public school prekindergarten teachers from a south Mississippi school district and south Alabama school district participated in the survey.
Head Start teachers from the same south Alabama school district and a second Mississippi school district in the central part of the state also participated. Thus, the south Alabama district was the only location from which both public school prekindergarten and Head Start prekindergarten teachers responded. The researcher was granted permission by both of the executive directors of the south Alabama Head Start and the central Mississippi Head Start prekindergarten programs. Response rates for the public school prekindergarten teachers and the Head Start prekindergarten teachers are reported in the Chapter III section entitled Participants in the Study.

The researcher requested archived student DIBELS data from two school districts: one in Mississippi and one in Alabama. The study required the data for a cohort of students who were in kindergarten in 2011-2012 and first grade 2012-2013. The Alabama school district provided students’ data, but it did not accurately specify all student prekindergarten types: public school prekindergarten, Head Start prekindergarten, and no prekindergarten. These data were thus not usable in the analysis. The central Mississippi school district first agreed to provide student data, then did not deliver the data. The archived student data used in the study was provided only by the south Mississippi school district. Of the students identified by the schools, only those who had data for both years could be used for the study. Complete details of the response of the districts and the provision of archived student data are reported in the Chapter III section entitled Procedures for Collecting Data.

Descriptive Statistics for Background Items

Section I addressed teachers’ experience and educational and professional development experiences. Descriptive statistics were analyzed to examine teacher
background experience and knowledge of phonological awareness skills. In Section I, the first background variable addressed in the questionnaire was teacher years of experience as a prekindergarten teacher. The public school prekindergarten and Head Start prekindergarten teachers reported their years of experience teaching prekindergarten. The response options ranged from 0-2 years, 3-6 years, 7-10 years, 11-15 years, and 16 or more. While the years of experience varied somewhat, they were very similar within the ranges between both groups. The percentages and counts of teachers per range for years of experience are listed in Table 1.

Table 1

Percentages and Counts for Years of Experience

<table>
<thead>
<tr>
<th>Number of Years</th>
<th>Head Start</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>0-2</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>3-6</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>7-10</td>
<td>7</td>
<td>28</td>
</tr>
<tr>
<td>11-15</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>16 or more</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>100</td>
</tr>
</tbody>
</table>
The second background variable in Section I was educational background. The survey results revealed that public school prekindergarten teachers had higher levels of education than the Head Start prekindergarten teachers. Ninety-two percent of the public school teachers had a bachelor’s degree or higher in child development (or an early education field educational field similar to child development). Forty-eight percent of the Head Start prekindergarten teachers had a bachelor’s degree or higher in child development (or an early education field similar to child development). Forty-eight percent of the Head Start prekindergarten teachers had only an associate degree in child development (or an early childhood education field similar to child development), while all public prekindergarten school teachers had at least a bachelor’s degree. The percentages of degrees and counts per education degree level are listed in Table 2.

Table 2

*Percentages and Counts for Teacher Educational Background*

<table>
<thead>
<tr>
<th>Group</th>
<th>Head Start</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>College Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associates</td>
<td>12</td>
<td>48</td>
</tr>
<tr>
<td>Bachelors</td>
<td>12</td>
<td>48</td>
</tr>
<tr>
<td>Masters</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>100</td>
</tr>
</tbody>
</table>
The third background variable in Section I was teacher participation in professional development of early literacy skills: specifically letter sounds, letter sound segmentation (decoding), syllabication (encoding), and rhyming. The survey examined prekindergarten teachers’ professional development in the phonological awareness skills in order to compare their participation in the professional development. Participation in professional development on the topic of letter sounds was highest for both public school and Head Start prekindergarten teachers (88.9% for Head Start teachers and 95.2% for public school prekindergarten teachers). The largest difference between the two groups was in syllabication training, with 81% of public school prekindergarten teachers having participated in syllabication training and only 22.2% of Head Start prekindergarten teachers having participated in syllabication training. The accuracy of public school prekindergarten teachers’ responses was low in letter sound recognition and letter sound segmentation, despite the fact that these teachers participated in professional development in more topics of phonological awareness than Head Start prekindergarten teachers. The related instrument item did not measure the amount (e.g. hours) of the training experiences. Percentages and counts of teachers who had training in each skill area are listed in Table 3.
Table 3

Percentages and Counts for Professional Development

<table>
<thead>
<tr>
<th>Group</th>
<th>Head Start</th>
<th>Public School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Professional Development Letter Sound Recognition</td>
<td>16</td>
<td>42.1</td>
</tr>
<tr>
<td>Letter Sound Segmentation</td>
<td>6</td>
<td>15.8</td>
</tr>
<tr>
<td>Syllabication</td>
<td>4</td>
<td>10.5</td>
</tr>
<tr>
<td>Rhyming</td>
<td>12</td>
<td>31.6</td>
</tr>
</tbody>
</table>

Descriptive Statistics for Research Question Variables

Descriptive statistics were analyzed to examine teacher knowledge of early literacy skills that are fundamental to reading kindergartners’ reading readiness. Sections II, III, and IV assessed phonological skill variables that are foundational to early literacy. Each section required participants to respond to items about the early literacy skills by choosing the correct answer or writing or typing the correct response. The survey consisted of a total of 45 items.

Section II of the questionnaire provided 5 items about letter sound recognition and 20 items about letter sound segmentation (decoding). Section III provided 15 items about
syllabication (encoding). Section IV provided 5 items about rhyming. The individual items in each section of the questionnaire were scored based on the respondents providing a correct answer. Each response had a possible score of one point for a correct answer. Each section received a score based on the total number correct out of the total number of possible points for that section. The mean score and standard deviation were calculated for each section. The data are given for each group of teachers: Head Start prekindergarten teachers and public school prekindergarten teachers.

The mean number of items correct out of the 15 assessed for the variable of syllabication was (M = 9.56); this mean was the largest for Head Start prekindergarten teachers. The mean number of items correct out of the 20 assessed for the variable of letter sound segmentation was (M = 8.44); this mean was the largest for public school teachers. The mean number of items correct out of the five assessed for the variable of letter sound recognition was (M = .96); this was the smallest for Head Start prekindergarten teachers. The mean number of items correct out of the 5 assessed for the variable of letter sound recognition was (M = 2.32); this mean was the smallest for public school teachers. The largest difference in mean number of items correct between public school and Head Start prekindergarten teachers was in the variables of syllabication and letter sound segmentation. The total means and standard deviations of each phonological awareness skill for each prekindergarten teacher group are listed in Table 4.
Table 4

*Descriptive Statistics for Phonological Awareness Skills of Participants (N=50)*

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phonological Awareness Skills</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter Sound Recognition (max=5)</td>
<td>25</td>
<td>.96</td>
<td>.93</td>
<td>25</td>
<td>2.32</td>
<td>1.46</td>
</tr>
<tr>
<td>Letter Sound Segmentation (max=20)</td>
<td>25</td>
<td>2.88</td>
<td>3.19</td>
<td>25</td>
<td>8.44</td>
<td>8.07</td>
</tr>
<tr>
<td>Syllabication (max=15)</td>
<td>25</td>
<td>9.56</td>
<td>5.59</td>
<td>25</td>
<td>8.20</td>
<td>7.03</td>
</tr>
<tr>
<td>Rhyming (max=5)</td>
<td>25</td>
<td>2.68</td>
<td>1.60</td>
<td>25</td>
<td>2.84</td>
<td>2.03</td>
</tr>
</tbody>
</table>

*Archived Student Data*

The researcher requested archived student data for a cohort of students and gained permission from two school districts’ superintendents to receive the archived student data. The archived DIBELS data consisted of students’ kindergarten ISF subtest scores and first grade ORF subtest scores. Archived data were provided for 50 students for each group of students: Head Start prekindergarten students, public school prekindergarten students, or students with no prekindergarten experience. Each group of students’ kindergarten and first grade early literacy skills and reading scores were provided in a
Kindergarten student data consisted of beginning-of-the-year (BOY) and middle-of-the-year (MOY) ISF subtest scores. The first grade student data included BOY and end-of-the-year (EOY) ORF subtests.

Kindergarten ISF score gains were calculated by subtracting BOY scores from the MOY scores for each group. Means and standard deviations for these gains were then calculated. The means for each group were similar, with public school prekindergarten students having the highest (M = 8.08). Means and standard deviations of kindergarten score gains are listed in Table 5.

Table 5

*Descriptive Statistics for Kindergarten Student Gains (N=150)*

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Start</td>
<td>50</td>
<td>7.24</td>
<td>11.12</td>
</tr>
<tr>
<td>Public School</td>
<td>50</td>
<td>8.08</td>
<td>9.97</td>
</tr>
<tr>
<td>No Prekindergarten</td>
<td>50</td>
<td>7.74</td>
<td>13.86</td>
</tr>
</tbody>
</table>

First grade ORF score gains were calculated by subtracting the BOY from the EOY for each group. Means and standard deviations for these gains were then calculated. The means for each group were similar; students with no prekindergarten experience had the highest (M = 63.50) and students who attended Head Start
prekindergarten had the lowest mean (M = 53.14). Means and standard deviations of first grade scores are listed in Table 6.

Table 6

*Descriptive Statistics for First Grade Student Gains (N=149)*

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>n</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Start</td>
<td>50</td>
<td>53.14</td>
<td>25.98</td>
<td>49</td>
<td>56.16</td>
<td>30.94</td>
<td>50</td>
<td>63.50</td>
<td>35.84</td>
</tr>
<tr>
<td>Public School</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Prekindergarten</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research Question and Hypothesis Results

This study addressed seven research questions and seven hypotheses. Research Question 1 asked: Are there significant differences among reading score gains (performance) by the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, no prekindergarten)? Hypothesis 1 was associated with Research Question 1 and stated: There are significant differences among reading score gains by the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, no prekindergarten). Archived kindergarten and first grade early literacy reading scores data of a cohort of students’ was used to address this hypothesis. Kindergarten early literacy skills were measured using the ISF DIBELS subtest. The ORF DIBELS subtest was used for the first grade early
literacy analysis. The hypothesis examines the relationship between the students’ scores and their prekindergarten type.

A one-way ANOVA was used to test Hypothesis 1 for kindergarten. The test revealed that there were not significant differences among reading score gains and the type of prekindergarten program that students attended, $F(2, 147) = .065, \ p = .938$ (ISF). See Table 5. An ANOVA was also used to test Hypothesis 1 for first grade. The test showed that there were no significant differences among reading scores gains and the type of prekindergarten programs student attended, $F(2, 146) = 1.458, \ p = .236$ (ORF). See Table 6. This hypothesis was not accepted.

Research Question 2 asked: Is there a significant difference between the educational background of public school prekindergarten teachers and Head Start prekindergarten teachers? Hypothesis 2 was associated with Research Question 2 and stated: There is a significant difference between the educational background of public school prekindergarten teachers and Head Start prekindergarten teachers. Items in Section I of the questionnaire addressed this hypothesis. The hypothesis compared the educational backgrounds of public school prekindergarten teachers and Head Start prekindergarten teachers. A chi-square test was conducted to test Hypothesis 2; this analysis disclosed that there is a significant difference between the educational background of public school prekindergarten teachers and Head Start prekindergarten teachers, $\chi^2(N = 50, \ df = 3) = 22.373, \ p < .001$. This hypothesis was accepted. In Table 2 it can be seen that the majority of the Head Start prekindergarten teachers had associate and bachelor’s degrees, while the majority of the public school prekindergarten teachers had bachelor’s and master’s degrees.
Research Question 3 asked: Is there a significant relationship between the educational background of prekindergarten teachers and their knowledge of phonological awareness? Hypothesis 3 was associated with Research Question 3 and stated: There is a significant relationship between the educational background of prekindergarten teachers and their knowledge of phonological awareness. Items in Section I and Sections II-IV of the questionnaire addressed this hypothesis. A Spearman’s Rho correlation was conducted to test Hypothesis 3. The analysis showed that there was a significant relationship between the prekindergarten teachers’ educational background and their overall knowledge of phonological awareness skills, $r(50) = .290, p = .041$. This means that the more education a teacher had, the greater the knowledge of phonological awareness skills. This hypothesis was accepted. This test also revealed a significant relationship between the prekindergarten teachers’ educational background and each individual phonological awareness skill: letter sound recognition, letter sound segmentation, syllabication, and rhyming. There was a significant relationship between their educational background and letter sound recognition, $r(50) = .573, p < .001$. There was a significant relationship between their educational background and letter sound segmentation, $r(50) = .390, p = .029$. There was not a significant relationship between their educational background and syllabication, $r(50) = .173, p = .215$. There was a significant relationship between their educational background and rhyming, $r(50) = .353, p = .012$. These results indicate that the educational background of the teacher is positively related to all phonological awareness skill variables except syllabication.

Research Question 4 asked: Is there a significant difference between the educational experience of public school prekindergarten teachers and Head Start
prekindergarten teachers? Hypothesis 4 was associated with Research Question 4 and stated: There is a significant difference between the educational experience of public school prekindergarten teachers and Head Start prekindergarten teachers. Items 1 and 2 in Section I of the survey addressed this hypothesis. First, the teachers’ number of years of experience as prekindergarten teachers was examined. These data are outlined in Table 1. A chi-square test was conducted to test Hypothesis 4; it found no significant difference between the years of experience of public school prekindergarten teachers and Head Start prekindergarten teachers, $\chi^2(N = 50, df = 4) = 1.496, p = .827$. The hypothesis was not accepted for teachers’ number of years. The level of significance was set at .05.

Second, teachers’ previous professional development in the phonological awareness skills assessed in the survey was examined. A $t$-test was performed to determine if there was a difference in the prekindergarten teachers’ participation in professional development related to selected phonological awareness skill topics. It disclosed a significant difference between the public school prekindergarten and Head Start prekindergarten teachers’ participation in professional development, $t(48) = -3.317, p = .002$. Public school prekindergarten teachers participated in professional development in more of the phonological awareness skill topics than Head Start prekindergarten teachers. The hypothesis was accepted for teachers’ previous professional development. See Tables 3 and 7 for the related descriptive data results.
Table 7

*Descriptive Statistics for Professional Development of Participants (N=50)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Head Start</th>
<th>Public School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
</tr>
<tr>
<td>Professional Development Participation</td>
<td>25</td>
<td>1.52</td>
</tr>
</tbody>
</table>

Research Question 5 asked: Is there a significant relationship between the educational experience of prekindergarten teachers and their knowledge of phonological awareness? Hypothesis 5 was associated with Research Question 5 and stated: There is a significant relationship between the educational experience of prekindergarten teachers and their knowledge of phonological awareness. Items in Section I and Sections II – IV of the questionnaire addressed this hypothesis. First, teachers’ number of years of experience as prekindergarten teachers was examined. A Spearman’s Rho correlation was conducted to test Hypothesis 5. The results indicated that there was no significant relationship between the years of experience of prekindergarten teachers and their overall knowledge of phonological awareness, $r(50) = .141$, $p = .330$. The data explained that there was not a significant relationship between prekindergarten teacher years of experience and any of the individual phonological awareness skills. This means that
teachers’ years of experience had minimal impact on their knowledge of phonological awareness skills. The hypothesis was not accepted for number of years of experience.

Second, teachers’ previous professional development in the phonological awareness skills assessed in the questionnaire was examined. A Spearman’s Rho correlation was conducted to test this relationship for Hypothesis 5. For Head Start prekindergarten teachers, the correlation showed that there was a significant inverse relationship between teachers’ participation in professional development involving the phonological awareness skill variables and their knowledge of the same skills, $r(50) = - .413, p = .040$. The test showed that the more topics in which teachers received training related to the phonological awareness skill variables, the lower their knowledge of phonological awareness skill variables. For public school prekindergarten teachers, the results showed that there was not a significant relationship between the number of professional development topics in which teachers participated and their knowledge of phonological awareness skill variables, $r(50) = .203, p = .331$. The hypothesis was not accepted for previous participation in professional development.

Research Question 6 asked: Is there a significant difference between the knowledge of phonological awareness of public school prekindergarten teachers and the knowledge of phonological awareness of Head Start prekindergarten teachers? Hypothesis 6 was associated with Research Question 6 and stated: There is a significant difference between the knowledge of phonological awareness of public school teachers and the knowledge of phonological awareness of Head Start prekindergarten teachers. Items in Sections II-IV addressed this hypothesis. The skills assessed included: letter sound recognition, letter sound segmentation, syllabication, and rhyming.
A *t*-test was conducted for the analysis of Hypothesis 6. For letter sound recognition, the test indicated a significant difference in public school prekindergarten teacher and Head Start prekindergarten teacher knowledge of phonological awareness skills, *t* (48) = -3.915, *p* < .001. The hypothesis was accepted for letter sound recognition. Public school prekindergarten teachers responded correctly to more items than the Head Start prekindergarten teachers. The public school prekindergarten teachers had greater knowledge of this skill than the Head Start prekindergarten teachers. The level of significance was set at .05. See Table 4 for the related descriptive data results.

The *t*-test reported a significant difference between public school prekindergarten teacher and Head Start prekindergarten teacher knowledge of letter sound segmentation, *t* (48) = -3.2002, *p* = .002. The hypothesis was also accepted for letter sound segmentation. The public school teachers responded with more correct answers than Head Start prekindergarten teachers. The *t*-test revealed that there was no significant difference in public school prekindergarten teacher and Head Start prekindergarten teacher knowledge of syllabication, *t*(48) = .757, *p* = .453, and rhyming, *t* (48) = -.285, *p* = .777. The level of significance was set at .05. The hypothesis was not accepted for syllabication or rhyming. See Table 4 for the related descriptive data results.

Research Question 7 asked: Are differences between male and female literacy achievement scores related to the type of pre-Kindergarten program in which a student participates (public school prekindergarten, Head Start, and no program)? Hypothesis 7 was associated with Research Question 7 and stated: Differences between male and female achievement scores are related to the type of prekindergarten program in which a student participates (public school prekindergarten, Head Start, and no program).
Archived kindergarten and first grade early literacy reading score data of a cohort of students’ was used to address this hypothesis. A two-way univariate analysis of variance (ANOVA) was conducted to test Hypothesis 7. The two-way ANOVA disclosed that there was no significant difference between male and female scores, $F(1, 144) = .000, p = .998$. There was also no significant difference regardless of prekindergarten type for each gender, $F(2, 144) = .631, p = .534$. The hypothesis was not accepted. See Table 8 for the related descriptive data results.
Table 8

*Descriptive Statistics for Student Gender-Kindergarten Achievement Scores (N=150)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Gender</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>71.16</td>
<td>41.40</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>None</td>
<td>Male</td>
<td>76.28</td>
<td>31.55</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>73.72</td>
<td>36.52</td>
<td>25</td>
</tr>
<tr>
<td>Female</td>
<td>81.23</td>
<td>60.57</td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>Head</td>
<td>Male</td>
<td>80.25</td>
<td>57.14</td>
<td>24</td>
</tr>
<tr>
<td>Start</td>
<td>Total</td>
<td>80.76</td>
<td>58.58</td>
<td>50</td>
</tr>
<tr>
<td>Female</td>
<td>76.74</td>
<td>55.63</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>Public</td>
<td>Male</td>
<td>72.65</td>
<td>45.57</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>74.86</td>
<td>51.30</td>
<td>50</td>
</tr>
<tr>
<td>Female</td>
<td>76.45</td>
<td>34.71</td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>Male</td>
<td>76.44</td>
<td>32.30</td>
<td>72</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>76.45</td>
<td>33.46</td>
<td>150</td>
</tr>
</tbody>
</table>

A two-way ANOVA was also conducted with the first grade scores of these students. The test revealed that there was not a significant difference between male and female scores, $F(1,143) = .642, p = .424$. There was also no significant difference,
regardless of prekindergarten type, between the genders, $F(2, 143)= .2.593, p= .078$. The hypothesis was not accepted. See Table 9 for the related descriptive data results.

### Table 9

*Descriptive Statistics for Student Gender-First Grade Achievement Scores (N=149)*

<table>
<thead>
<tr>
<th>Group</th>
<th>Gender</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>42.50</td>
<td>67.09</td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>None</td>
<td>Male</td>
<td>40.75</td>
<td>65.65</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>41.66</td>
<td>65.73</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Female</td>
<td>19.35</td>
<td>60.57</td>
<td></td>
<td>26</td>
</tr>
<tr>
<td>Head Start</td>
<td>Male</td>
<td>9.57</td>
<td>57.14</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>14.76</td>
<td>58.58</td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>Female</td>
<td>34.04</td>
<td>55.63</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Public</td>
<td>Male</td>
<td>22.14</td>
<td>45.57</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>28.80</td>
<td>51.30</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Female</td>
<td>32.01</td>
<td>61.10</td>
<td></td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>Male</td>
<td>24.42</td>
<td>57.68</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td>28.50</td>
<td>59.46</td>
<td></td>
<td>149</td>
</tr>
</tbody>
</table>
Summary

The purpose of the study was to evaluate prekindergarten student gains in the development of early literacy skills, depending on their prekindergarten program experience, and to examine explicit prekindergarten teacher knowledge of early literacy skills and concepts. To fulfill these purposes, the study tested seven hypotheses. Descriptive statistics, $t$-tests, Spearman Rho’s correlations, and ANOVA analyses were used to identify statistically significant differences and relationships among the variables. Counts from the survey indicated that 50% of the respondents were public school prekindergarten teachers and 50% of the respondents were Head Start prekindergarten teachers. The prekindergarten teachers had very similar years of experience within the specified ranges.

The archived student data consisted of 50 (33.33%) public school prekindergarten data, 50 (33.33%) Head Start prekindergarten data and 50 (33.33%) no prekindergarten experience data. The data analysis for the archived student data included ISF kindergarten scores and ORF first grade scores for students who were divided among three groups depending upon their prekindergarten experience. There was no significant difference among the reading score gains in early literacy skills among the groups based on prekindergarten experience. The data also disclosed that there was no significant difference between male and female student scores.

The analysis of the data from the prekindergarten teacher survey indicated that there was a significant difference between the educational background of public school prekindergarten teachers and Head Start prekindergarten teachers. Analysis also indicated that there was a significant relationship between prekindergarten teachers’
educational background and their overall knowledge of phonological awareness skills. There was also a significant relationship between prekindergarten teachers’ educational background and their knowledge of the individual phonological awareness skill topic of letter sound recognition, letter sound segmentation, and rhyming. There was no significant relationship between prekindergarten teachers’ educational background and their knowledge of the individual phonological awareness skill of syllabication.

The analysis of the data from the prekindergarten teacher survey indicated that there was no significant difference between the years of experience of public school prekindergarten teachers and Head Start prekindergarten teachers. The analysis also disclosed that there was a significant difference between public school prekindergarten teachers and Head Start prekindergarten teachers’ frequency of participation in professional development in the topic of the phonological awareness skill variables; Head Start prekindergarten teachers participated in fewer professional development topics than the public school prekindergarten teachers. The analysis also indicated that, for both groups of teachers, there was no significant relationship between the years of experience of prekindergarten teachers and their knowledge of phonological awareness skills. For Head Start prekindergarten teachers, the analysis indicated that there was an inverse significant relationship between the frequency of their participation in professional development topics and their phonological awareness skills.

Lastly, the study examined differences between the two groups of teachers relative to their knowledge of phonological awareness skills. The analysis of the prekindergarten teacher survey data indicated that there was a significant difference in public school prekindergarten teacher and Head Start prekindergarten teacher knowledge
of letter sound recognition and letter sound segmentation. It disclosed that there was no significant difference between the two groups’ knowledge of syllabication and rhyming.
CHAPTER V
DISCUSSION, CONCLUSIONS, RECOMMENDATIONS

The purpose of the study was to evaluate prekindergarten student gains in the development of early literacy skills, depending on the nature of their prekindergarten program. This study examined archived DIBELS assessment data of kindergarten and first grade students, of the same cohort. This study also examined explicit prekindergarten teacher early literacy skill knowledge, their educational background and experiences. Survey responses by public school prekindergarten teachers and Head Start prekindergarten teachers from Mississippi and Alabama were examined. Their responses were used to determine if teacher prekindergarten type and educational background was linked to a difference in their knowledge of early literacy skills. The instrument yielded quantitative data used for the study. This chapter provides a summary of procedures and findings, provides a discussion of the results, and addresses recommendations for policy, practice, and future research.

Summary of Procedures

A prekindergarten teacher survey instrument was used, with the author’s permission, and modified for the study. As a validation measure, an expert panel reviewed the instrument. A request was made to public school districts and Head Start organizations to distribute the survey to prekindergarten teachers. A request was also made for permission to receive archived student early literacy assessment data. In that request, the researcher asked that any information that might identify students be removed before being given to the researcher and that a unique number replaced each student’s name.
The researcher requested permission to distribute the survey instruments to prekindergarten teachers via hard copy or electronic copy. The researcher was granted permission from three locations to distribute surveys and the researcher received prekindergarten teacher responses from these three locations. Public school prekindergarten teachers from a south Mississippi school district and south Alabama school district participated in the survey. Head Start teachers from the same south Alabama school district and a second Mississippi school district in the central part of the state also participated. Thus, the south Alabama district was the only location from which both public school prekindergarten and Head Start prekindergarten teachers responded. Once permission was granted by these programs, the researcher sought and received approval from the University of Southern Mississippi’s Institutional Review Board (IRB). The approval letter is attached as Appendix A. A pilot test to determine reliability of the survey instrument was not conducted. Conducting an internal analysis of consistency of the instrument was unnecessary because the instrument was scored. This was a knowledge test; therefore, no reliability evaluation was needed.

The survey data collected for this research came from 50 responses that were completed by public school prekindergarten teachers and Head Start prekindergarten teachers. The survey instrument was distributed by two methods: delivery as a hard copy or emailed as an electronic copy. Hard copies of completed surveys were either collected by the researcher or returned through the United States Postal Service (USPS). Hard copies were sealed in a security envelope by the participant before being sent to the researcher. Electronic surveys were compiled in an electronic database through Survey Monkey. The researcher printed each completed electronic survey. Each completed
survey, whether submitted by hard copy or via Survey Monkey, was numbered and the quantitative data were entered into a Microsoft Office Excel spreadsheet.

The archived student data were provided to the researcher in a Microsoft Office Excel spreadsheet in December 2014. No student identification information was provided to the researcher and a unique number replaced each student’s name. The data file included archived DIBELS subtests data for the students’ kindergarten and first grade experiences. Data were compiled and analyzed by the researcher. The quantitative data were analyzed using descriptive statistics, Spearman’s Rho correlation, ANOVA and a t-test analysis.

Major Findings

The questionnaire participants were prekindergarten teachers who taught in either public school or Head Start. Of the 50 participants, 25 were public school teachers and 25 were Head Start teachers. The public school prekindergarten teachers and the Head Start prekindergarten teachers taught in the Mississippi and Alabama school districts. The archived student data were provided by a Mississippi school district. These data included DIBELS subtest scores for students who had three types of prekindergarten experience: public school prekindergarten, Head Start prekindergarten, and no prekindergarten.

Descriptive statistical summaries indicated specific information related to the educational experiences of Head Start prekindergarten teachers and public school prekindergarten teachers. Similar summaries outlined specific information related to student gains in early literacy skills, depending on their prekindergarten program experience. Archived DIBELS data consisted of students’ kindergarten and first grade
subtest scores. The kindergarten data consisted of MOY and EOY ISF subtest scores. The first grade data consisted of MOY and EOY ORF subtest scores. The data were provided for 50 students for each prekindergarten type: public school prekindergarten, Head Start prekindergarten, or no prekindergarten experience.

Results of the analysis related to Hypothesis 1 indicated that there was not a significant difference in reading score gains among the student groups, depending on the type of prekindergarten program that the student attended. The student prekindergarten type had no impact on the students’ kindergarten performance on the early literacy assessment. The student prekindergarten type had no impact of the students’ first grade performance on the early literacy assessment.

Hypothesis 2 addressed the educational backgrounds of the participants. The related analysis indicated that there was a significant difference between the educational background (college education) of public school prekindergarten teachers and Head Start prekindergarten teachers. Public school teachers had higher levels of education than Head Start teachers.

Results of the analysis related to Hypothesis 3 indicated that there was a significant relationship between educational background (college education) and knowledge of all phonological awareness skills that were assessed in the items. There was also a significant relationship between the educational background of participants and their knowledge of the individual phonological awareness skills: letter sound recognition, letter sound segmentation, and rhyming. There was no significant relationship between the educational background and their knowledge of the phonological skill of syllabication.
Results of the analysis related to Hypothesis 4 indicated that there was no significant difference in the years of experience of public school teachers and Head Start teachers. The analysis disclosed that there was a significant difference between public school prekindergarten teachers and Head Start teachers’ participation in the professional development. Public school prekindergarten teachers participated in more professional development topics related to phonological awareness skills than Head Start teachers.

Results of analysis related to Hypothesis 5 indicated that there was no significant relationship between the years of experience of prekindergarten teachers and their overall knowledge of phonological awareness skills. Prekindergarten teachers’ years of experience had a minimal relationship to their knowledge of phonological awareness skills. Analysis also indicated that there was a significant inverse relationship between Head Start prekindergarten teacher participation in professional development involving phonological awareness skill variables and their knowledge of the same skills. This means that the more professional development in the topics in which these teachers had participated, the lower their knowledge of the related skills. There was no significant relationship between public school prekindergarten teachers’ participation in professional development in the phonological awareness skill variables and their knowledge of the same variables.

Hypothesis 6 addressed the difference between the knowledge of phonological awareness of public school prekindergarten teachers and the knowledge of phonological awareness of Head Start prekindergarten teachers. Analysis indicated that there was a significant difference between public school prekindergarten teacher and Head Start
prekindergarten school teachers’ knowledge of phonological awareness skills. There was also a significant difference between public prekindergarten teacher and Head Start teacher knowledge of the specific phonological awareness skills of letter sound recognition and letter sound segmentation. There was no significant difference between public prekindergarten teacher and Head Start teacher knowledge of the specific phonological awareness skills of syllabication or rhyming.

Results of analysis related to Hypothesis 7 addressed male and female literacy achievement scores related to the type of pre-Kindergarten program in which a student participated (public school prekindergarten, Head Start prekindergarten, and no program). The analysis disclosed no significant difference between the genders, regardless of prekindergarten type.

Discussion

The United Stated Department of Education’s allocation of $2 billion into early childcare draws attention to the significance of prekindergarten education in the life of a child (United States Department of Education, 2009). On the other hand, state funding for prekindergarten programs, on the other hand, has been sparse. Although Mississippi school districts are making some effort to implement prekindergarten programs, the lack of funding from the state government continues to hinder the implementation of high quality prekindergarten programs (Canter, 2012a). Advocates of prekindergarten have urged the government to implement initiatives for early childhood education based on the need to provide high-quality childcare to improve school readiness (Barnett et al., 2003; Cohen, 1996; Magnuson & Waldfogel, 2005). Studies have shown that public school prekindergarten programs are of higher quality than prekindergarten programs such as
Head Start; such studies have found that the public school programs have a stronger impact on student preparation for kindergarten (Chien et al., 2012; Huang et al., 2012; Magnuson et al., 2007).

In light of the debate concerning the relative merits of various prekindergarten programs, it is instructive to contrast the current findings with those in extant research. The present study found no differences among reading score gains relative to the type of prekindergarten program in which the student participated. This finding is inconsistent with recent literature, which found higher gains in reading skills for students who participated in public school prekindergarten than students who participated in other types of prekindergarten programs (Henry et al., 2003, Magnuson et al., 2007; Magnuson & Waldfogel, 2005). This finding also runs counter to others that have found that, while Head Start students show significant gains in early literacy skills, they remain below the national average of students participating in other prekindergarten programs, specifically public school prekindergarten (Administration for Children and Families, 2006; Henry et al., 2003).

In the present study, there was a significant difference between the educational background, specifically degree attainment, of public school prekindergarten teachers and Head Start prekindergarten teachers. While the majority of Head Start prekindergarten teachers had associate degrees, the majority of public school prekindergarten teachers had bachelor’s and master’s degrees. The results of this study further disclosed a significant relationship between teachers’ educational background and their overall knowledge of phonological awareness skills. Research has found that teacher education has had a significant impact on the quality of their instruction of early literacy skills. Typically, the
higher the educational degree, the higher the quality of teacher knowledge and instruction of early literacy skills (Administration for Children and Families, 2006). Some research has found that teachers with a degree higher than a bachelor’s degree had higher quality classrooms than teachers with a bachelor’s degree. However no significant difference was found in the instruction quality of teachers with a bachelor’s degree in childhood education or child development and teachers with more than a bachelor’s degree in child education or child development (Early et al., 2006). However, the same study, found no difference in the quality of the classroom between teachers with a bachelor’s degree and those with less than a bachelor’s degree (not specifically in child education or child development) (Early et al., 2006). Other research has found that teacher education had little or no impact on a teachers’ instruction of early literacy skills, despite teacher education being one of the benchmark quality standards for prekindergarten programs (Burchinal et al., 2008; Early et al., 2007; National Association for the Education of Young Children, 2005).

The results from this study also revealed no significant relationship between teachers’ years of experience and their knowledge of early literacy skills that are understood to impact the quality of their instruction and student achievement. This finding is consistent with literature that found that teachers’ years of experience have little impact on their knowledge of and instruction in of early literacy skills (Burchinal et al., 2008; Early et al., 2007; Howes et al., 2008).

The results from this study also suggest that there was no significant relationship between the number of professional development topics in which public school prekindergarten teachers’ phonological awareness skills were addressed and their
knowledge of the same skills. For Head Start prekindergarten teachers, the study suggested that there was actually a significant inverse relationship between their participation in professional development involving the phonological awareness skills and their knowledge of such skills. This finding may be an artifact of the way that the item from the survey instrument that addressed participation in professional development was constructed. This item addressed the number of topics in which respondents had participated. The instrument did not measure the amount (e.g. hours) of the training experiences. This study does not provide insight into the extent of the training within topics. These things considered, the findings in this study contradict recent research that reports that early literacy professional development positively impacts teachers’ knowledge of early literacy skills, which positively impacts student learning (Andrew, Kwang, Pei, Cronen, & Garet, 2008; Early et al., 2006; Powell, Diamond, Burchinal, & Koehler, 2010).

The results from this study suggest that there is no significant difference between male and female prekindergarten student literacy achievement scores related to the type of pre-Kindergarten program in which a student participates (public school prekindergarten, Head Start prekindergarten, and no program). This finding is inconsistent with research that found that female students outperformed male students in early literacy assessments (Gullo, 1991; Gullo & Clements, 1984; Henry et al., 2003). Research findings specific to DIBELS subtests have found that kindergarten female students scored significantly higher than males (Below, Skinner, Fearrington, & Sorrell, 2010).
Limitations

There were some factors that limited the generalizability of this study’s findings. Participants in the study were limited to public school prekindergarten teachers and Head Start prekindergarten teachers. The public school prekindergarten teachers were limited to those who taught in one public school district in south Mississippi and one public school district in south Alabama, with the majority of the responses coming from south Alabama. Head Start prekindergarten teachers were limited to those who taught in one regional program located in central Mississippi and one regional program in South Alabama. Readers should refrain from generalizing the conclusions of this study to other geographic regions. The size of the public school districts and Head Start programs within the study was an additional limitation.

Prekindergarten teachers from Head Start programs in both south Alabama and the central Mississippi district participated in the study. The sample included a total of 15 respondents from Mississippi and a total of 18 respondents from Alabama. An additional limitation involved the 18 Alabama respondents as the researcher randomly excluded eight of the Alabama responses in order to have teacher groups of equal size. However, it is not likely that the responses of the randomly excluded participants would have significantly changed the results.

While the response rates within the participating school districts and Head Start programs was high and provided sufficient respondents for the analyses, the participation of more school districts and Head Start programs was desired. A larger number of respondents might impact the findings, and would certainly enhance the degree to which the findings might be generalized.
The archived student data used in the study were provided only by the south Mississippi school district. A district level employee provided data for 50 students for each prekindergarten type (public school prekindergarten, Head Start prekindergarten, and no prekindergarten). Data for a total of 150 students’ were provided based on the researcher’s request, as this was the minimum number of student data sets in each prekindergarten type that was adequate for the study. This contact person explained that due to time and personnel available to collect these data, a limited amount of data sets could be provided; this individual agreed to provide the minimum of 150 students needed. Since the students were selected from an alphabetical roster, it is unlikely that the scores of students that were not included would have had a significant impact on the results calculated by the researcher.

The phonological awareness skills were chosen as independent variables for this study based on their relationship in the literature with children’s development of early literacy skills. While these variables are foundational skills on which kindergarten and first grade students build their knowledge to attain reading success, there are other phonological awareness skills that are just as important. Not all phonological awareness skills were assessed in this study.

The Dynamic Indicators for Basic Early Literacy Skills (DIBELS) assessment contains several subtests. This study analyzed student results from two of the subtests only. The kindergarten subtests, Initial Sound Fluency and Oral Reading Fluency, were used, as this study addressed early literacy readiness. The student data were limited to those gathered for the 2011-2012 and 2012-2013 school years from one Mississippi public school district. DIBELS is only one measure of early literacy skills and reading
attainment and was used to ensure a common achievement metric for all schools that participated in the study. Other measures of early literacy skills and reading attainment exist.

Some of the data from the survey instrument addressed prekindergarten teacher professional development as the number of topics in which respondents had participated. The instrument did not measure the amount (e.g. hours) of the training experiences. This study does not provide insight into the extent of the professional development within topics.

Recommendations for Policy and Practice

Prekindergarten students deserve a high-quality prekindergarten program experience that develops their early literacy skills and reading attainment. Such early learning dramatically impacts students’ futures. The success of kindergarten students requires the development of foundational early literacy skills that are taught in prekindergarten (Crim et al., 2008; Moats, 1994; Rouse & Fantuzzo, 2010; Scarborough, 2001). Research has shown that a public school prekindergarten experience results in higher gains in early literacy skills than other preschool experiences; however, students should experience high quality instruction regardless of their prekindergarten type. High-quality prekindergarten programs have a greater impact than low-quality programs on developing early literacy skills (Vandell, 2004). Providing a high-quality prekindergarten experience requires an examination of the various components of a prekindergarten program. While research-based quality standards have been set as benchmarks for prekindergarten programs, individual programs should take steps to determine areas of weakness that negatively impact student mastery of foundational early literacy skills.
Once these areas are identified, it will be the responsibility of policymakers and administrators to ensure that procedures are established and that research-based classroom strategies are implemented to improve these areas. The goal should not be to simply provide prekindergarten but instead to provide a prekindergarten program that meets the needs of the children by providing high-quality instruction and classroom experiences that result in student proficiency in early literacy skills.

Prekindergarten teachers should be knowledgeable in early literacy skills in order to effectively teach students the skills necessary for future reading success (Hamre & Pinata, 2005). Prekindergarten teachers’ knowledge of early literacy skills is critical for effective instruction to impact student achievement (Burchinal et al., 2008; Howes et al., 2008). There is a need to address knowledge of specific developmental skills in order to provide instruction that will result in students’ comprehension of the skills (Burchinal et al., 2008; Dickinson & Caswell, 2007). Administrators and policymakers should ensure that prekindergarten teachers have these skills, regardless of their educational background. Although it is often assumed that teachers receive the necessary training to teach early literacy skills while in college, this may not be the case. Prekindergarten teachers can be given pre-assessments to determine their knowledge and understanding of these skills in order. If pedagogical gaps in these skills exist, prekindergarten teachers can then receive the specific training needed for improved instruction. This could reduce instances of stress, frustration, unnecessary interventions or re-teaching, and possibly student retention that may result from inadequate teacher knowledge.

Effective professional development can impact teachers’ capacity by improving their instructional quality in order to positively impact student attainment of early literacy
skills. Professional development is a NIEER quality standard for prekindergarten programs (Barbarin et al., 2008; Canter, 2012a). To be effective, schools should focus on the content, skills, and concepts that will build teachers’ knowledge in order to improve instruction and student achievement (Carpenter et al., 1989). Professional development should be personalized so as to meet the needs of targeted groups of participants with respect to qualities such as training engagement, the duration of training, provision of resources for classroom implementation, in-class coaching, follow-up training, sufficient monitoring, and feedback. This would hopefully increase the teachers’ attention to the presented information, knowledge of the skills and concepts taught, and ability to transfer these to students. Professional development activities specifically designed for the intended participants may be more beneficial than offering professional development based on mandates, teacher preferences, or the needs of a general population of teachers (Choy, Chen, & Bugarin, 2006). The NIEER standards also include the component of having specialized training in early childhood. Providing professional development focused on the early literacy skills that are foundational for reading attainment would positively impact student reading success. Allocating funding for professional development should be a priority. It is also important to ensure that quality professional development be provided. Professional development should offer research-based strategies and provide information that has been shown to significantly impact student learning.
Recommendations for Future Research

Based on the findings of this study, four recommendations for future research that might further inform the processes for improving students’ development of early literacy skills are provided.

1. Replicate this study to include a larger sample of public school and Head Start prekindergarten teacher participants from a larger number of public school districts and Head Start programs.

2. Replicate this study with a larger population of students. Researchers should examine archived DIBELS data for a larger cohort of students from multiple districts within the three prekindergarten types to further validate the present results. This study’s archived student data came from a single Mississippi school district, and the number of students for whom data were examined in each subgroup was limited to 50.

3. Analyze student data beyond first grade to determine if the gains in early literacy skills change over the years. This study only examined the kindergarten and first grade DIBELS scores of a cohort of prekindergarten students form three different prekindergarten types.

4. Include a qualitative analysis of prekindergarten (Head Start and public school) and kindergarten teachers’ perceptions of their knowledge of early literacy skills in order to provide additional depth of insights into data from quantitative analyses such as those conducted in this study.

5. Include qualitative and quantitative analyses in which administrators address the specific early literacy skills professional development offered and that
prekindergarten teachers received in the past three years, including the
duration of the professional development, follow-up training, resources
provided, timeframe for implementation, and coaching provisions. This study
only compared the number of professional development topics in which public
school prekindergarten teachers and Head Start prekindergarten teachers
participated. It did not examine the amount of professional development of
each group. This information would be beneficial in analyzing the
effectiveness (or lack) of the professional development in improving
prekindergarten teacher knowledge.

Summary

The purpose of the study was to evaluate prekindergarten student gains in the
development of early literacy skills, depending on the nature of their prekindergarten
program. This study also examined explicit prekindergarten teachers’ early literacy skill
knowledge, their educational background, and their experiences. Previous literature
discussed the impact of different prekindergarten types, prekindergarten program quality,
early childhood literacy, and teacher impact.

The study found no differences among reading score gains relative to the type of
prekindergarten program in which students participated. The study found a significant
difference between the educational background and educational experiences in
professional development of public school prekindergarten teachers and Head Start
prekindergarten teachers. The study also found a significant difference between the
knowledge of phonological awareness skills of public school prekindergarten teachers
and the knowledge of phonological awareness skills of Head Start prekindergarten
teachers. The study further disclosed a significant relationship between the educational background of prekindergarten teachers and their knowledge of phonological awareness skills. The study also found a significant inverse relationship between the number of professional topics in which Head Start teachers’ participated and their knowledge of phonological awareness skills.

Although prekindergarten teachers’ educational background may impact their knowledge of critical early literacy skills, it is the responsibility of educational administrators and prekindergarten teachers to build their capacity in those areas in order to effectively teach students. Early literacy skills such as phonological awareness skills are strong predictors of reading achievement and have a significant relationship with later literacy skills such as reading, spelling, and comprehending, and are necessary for successful progression to kindergarten (Crim et al., 2008; Rouse & Fantuzzo, 2010; Moats, 1994; Scarborough, 2001).

All students deserve a prekindergarten experience that prepares them for their short-term and long-term futures. It should not be the case that the prekindergarten experience in one type of program is often deemed to be a gauge by which to predict students’ future success when comparing them to students from another prekindergarten type. Also, providing high-quality programs should not be a matter of whether or not funding is available (Canter, 2012a). Hopefully, this study and similar studies will prompt leaders, policymakers, and educational administrators to collaboratively agree on plans to provide high-quality prekindergarten experiences to positively impact the students’ futures.
NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 21, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 14081402
PROJECT TITLE: A Study of Pre-kindergarten Impact on Early Literacy Readiness
PROJECT TYPE: New Project
RESEARCHER(S): Lakelsha Stokes
COLLEGE/DIVISION: College of Education and Psychology
DEPARTMENT: Educational Leadership and School Counseling
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 09/15/2014 to 09/14/2015

Lawrence A. Hosman, Ph.D.
Institutional Review Board
Fwd: Permission to use reports as an example

Lakeisha Stokes <lakeisha.stokes@eagles.usm.edu> 3:41 PM (1 minute ago)

Hi Lakeisha,

I spoke to Dr. Roland Good and he said it’s fine to include sample DIBELS materials in your proposal if your requirements state that. It’s just in the final dissertation itself that you wouldn’t typically include published assessments for dissemination.

Joshua Wallin
Director of R&D Operations
Dynamic Measurement Group

On Wed, 12 Feb 2014, lakeisha.stokes@eagles.usm.edu wrote:
> Hi Mr. Wallin,
>
> Thank you for speaking with me. I am sending this email in response to our conversation this morning.
> You explained that normally, published assessments are presented to a doctoral committee, but not in a final dissertation.
> We also discuss that once you speak with the gentleman you mention in our conversation, I may be granted permission to include the published FSF and
APPENDIX C

EARLY LITERACY EDUCATION SURVEY

Early Literacy Education Survey
Compiled by: Lakeisha Stokes, University of Southern Mississippi
(Modified from Schuele, 2008)

SECTION I- Educational Background

Please complete the following information:

1. Check the appropriate number of years that you have taught prekindergarten:
   - [ ] 0-2 years
   - [ ] 3-6 years
   - [ ] 7-10 years
   - [ ] 11 -15 years
   - [ ] 16 years or more

2. Check the appropriate box that applies to you:
   - [ ] I have an associate’s degree in Child Development (or similar)
   - [ ] I have a bachelor’s degree in __________________________
   - [ ] I have a master’s degree in __________________________
   - [ ] I have a Ph.D. or Ed.D. in __________________________
   - [ ] Other: __________________________

3. Check the appropriate box to indicate the coursework, training, and/or workshops you have taken, in addition to your degree program, in Phonological Awareness:
   - [ ] Letter Sounds
   - [ ] Letter Sound Segmentation (Encoding)
SECTION II

LETTER SOUND RECOGNITION (Matching)

Read the first word in each line and note the sound that is represented by the underlined letter(s). Then circle the word or words that contain the same sound.

pull  sugar  tune  cup  fuse
weight  height  friend  cake  paid
nose  rays  buzz  hiss  face
pretend  basket  baked  thing  battle
wing  think  candle  sign  hang

LETTER SOUND SEGMENTATION

Count the number of sounds you perceive in each of the following words. Then, underline the sounds in each word.

Example:  maple: m a p l e  3

cat:       power:       girl:
box:       stretch:      nerve:
show:      plum:        camp:
chat:      cloud:        plant:
stop:      blue:         beach:
smash:     squid:        with:
lunch:     verb:        
SECTION III: SYLLABLE DIVISION (ENCODING)

Syllabicate (divide) the following words. You can also label each vowel as *closed* (Cl) or *open* (O). You can show your labeling of vowels and consonants, below each letter, in completing the syllabication.

Example: contralto

\[
\begin{array}{c|c|c|c|c}
\text{Cl} & \text{Cl} & \text{O} \\
\text{c} & \text{o} & \text{n} \\
\text{v} & \text{c} & \text{v} & \text{c} & \text{v}
\end{array}
\]

bathtub: trodden:

pigpen: plummet:

cannot: lemniscus:

topaz: encampment:

latex: Atlantic

cupid: Tennessee:

hiccup: commitment:

limbo:
SECTION IV: RHYMING

Circle the word(s) in each line below that rhyme with the first word in that line.

**reign**
- mane
- slain
- plaid

**thread**
- plead
- greed
- bread

**shade**
- played
- glad
- raid

**most**
- cost
- roast
- cast

**green**
- scene
- vein
- bean
APPENDIX D

PERMISSION TO ADAPT THE SURVEY INSTRUMENT

Schuele, C. Melanie <melanie.schuele@vanderbilt.edu>  9/13/13

to me

yes you can use the survey.

On Sep 13, 2013, at 10:58 AM, Lakeisha Stokes <lakeisha.stokes@eagles.usm.edu> wrote:

Dr. Schuele,

I apologize for another email, but my dissertation committee member said that I need a response from you stating that I have permission from you, as part of the research team that conducted the study, to use the survey. Will you respond with a statement as such? Thank you.

On Thu, Sep 12, 2013 at 12:15 PM, Schuele, C. Melanie <melanie.schuele@vanderbilt.edu> wrote:

I know that I sent this. Not sure why you did not receive it. I'll find it again and send to you.

On Sep 12, 2013, at 11:35 AM, Lakeisha Stokes <lakeisha.stokes@eagles.usm.edu> wrote:

Good morning Dr. Shuele,

My name is Lakeisha Stokes. I am a doctoral student who contacted Dr. Spencer this summer about the use of the survey discussed in the article, *Phonemic Awareness Skill of Speech-Language Pathologists and Other Educators*. Dr. Spencer responded to my request stating that she would contact you about sending me a copy of the survey.

Will you please contact me in reference to the survey? I would like to include it in my dissertation proposal that I am in the process of completing. I know that your time is valuable and thank you in advance. I look forward to your response.

---------- Forwarded message ----------
From: Spencer, Elizabeth <spencer.400@osu.edu>
Date: Mon, Jul 29, 2013 at 1:49 PM
Subject: RE: Request from a Doctoral Student- Lakeisha Stokes
To: Lakeisha Stokes <lakeisha.stokes@eagles.usm.edu>
APPENDIX E

EXPERT PANEL REVIEW FORM

Your assistance in reviewing my instrument, Kindergarten Readiness-Early Literacy Development Survey, is greatly appreciated. The instrument asks prekindergarten teachers questions about their educational background and knowledge of phonemic awareness skills relevant to early literacy development. Please review each section of the instrument: Educational Background, Letter Sounds (encoding), and Syllabication (decoding). I ask that you analyze the instrument for its reliability and validity in assessing teachers’ educational background and knowledge of phonemic awareness.

Please answer the questions on the following page once you have analyzed the instrument. Contact me with any comments or concerns. Again, thank you for your time and attention to my request.

___________________________________________________
Reviewer’s Name

___________________________________________________
___________________________________________________
___________________________________________________

Reviewer’s Credentials

1. Is this instrument reliable for the purpose of assessing prekindergarten teachers’ knowledge of phonemic awareness skills?

___________________________________________________
2. Is this instrument valid for the purpose of assessing prekindergarten teachers’ knowledge of phonemic awareness skills?

3. Are any of the questions and/or skill assessment items too difficult for a prekindergarten teacher to answer, based on what knowledge and skills they should have in order to effectively teach their students phonemic awareness? If so, please explain.

4. Are there any suggestions for modifying the instrument to better fulfill its purpose? If so, please provide suggestions below.
APPENDIX F

SUPERINTENDENT’S PERMISSION TO CONDUCT RESEARCH LETTER

Date:

Name of Superintendent

Name of School District

Dear ______________________:

My name is Lakeisha Stokes and I am a doctoral student in the College Educational Leadership at the University of Southern Mississippi. I am in the proposal process and will soon begin conducting research to complete the requirements for my dissertation. My research is a study of the impact of different prekindergarten types on school readiness in the area of early literacy and prekindergarten teacher knowledge of early literacy skills critical to reading development. The study will focus on evaluating students’ Dynamic Indicators of Basic Early Literacy Skills (DIBELS) scores to analyze their preparedness in the area of early literacy for kindergarten and first grade. The study will also incorporate a survey for prekindergarten teachers. The survey will ask basic questions related to the teachers’ knowledge of phonemic and phonological awareness, which is a foundational for the development of early literacy skills necessary for future success in reading comprehension.

My request involves the collection of archived public school student data and gathering survey data from prekindergarten teachers. With this in mind, I am requesting that you designate an individual who can provide me with access to student DIBELS performance data in a manner that protects student confidentiality. Student data will be assembled by this designee via electronic data export on a spreadsheet or reports and will include a student identification number assigned solely for the purpose of this study, grade-level, and DIBELS scores ((beginning-of-year (BOY), middle-of-year (MOY), and end-of-year (EOY)). In addition, the students’ prekindergarten type (Head Start, public school prekindergarten, or no prekindergarten) and gender will be documented. Any information that might identify students, including the student identification number, will be removed once the DIBELS data are collected and before the researcher receives it.

The prekindergarten teacher survey consists of multiple-choice and performance-based questions pertaining to the teacher’s understanding of early literacy skills. There is
also a section requesting information about their educational background, number of years of teaching experience, and previous training specific to phonemic and phonological awareness. With your consent, the survey will be distributed to the teachers in a hard copy and electronic format. The teachers will be informed that the survey is voluntary and confidential. They will also be informed that there are no negative consequences for refusing to participate in the study. No identifying information will be requested on the survey or by the researcher. Neither the district nor the participants will be identified in any of the reports.

Early childhood literacy is a foundational concept that determines the trajectory of future academic success. Prekindergarten provides necessary cognitive and early literacy skills that promote successful development that is critical for school readiness. The results of this study will serve as a resource to support policymakers, experts, and educators in decision-making that impacts the development of early literacy skills of students. Once the study is complete, I would be honored to share the findings with those who are interested.

If you grant me permission to conduct this research in your district please copy and paste the content of the enclosed consent form to your district’s letterhead, sign it, and return it in the self-addresses, stamped envelope. If you prefer, you may scan and email it to lakeisha.stokes@eagles.usm.edu.

If you have any questions please feel free to contact me via email or telephone at 832-407-7837. My doctoral committee chairperson, Dr. David Lee, can be contacted at david.e.lee@usm.edu.

Thank you in advance for your time and consideration.

Sincerely,

Lakeisha S. Stokes  
Doctoral Candidate, University of Southern Mississippi  
Enclosure  
Cc: Dr. David Lee, Committee Chair
SUPERINTENDENT’S PERMISSION TO CONDUCT RESEARCH: CONSENT FORM

As superintendent of ________________, I give Lakeisha Stokes permission to conduct educational research in the district during the 2014 spring semester. This research will involve analyzing prekindergarten teachers’ knowledge of early literacy skills. This research also will be conducted to analyze student kindergarten readiness. It will involve analyzing archived student DIBELS data from the 2012-2013 kindergarten school year and current data from the 2013-2014 first grade school year. Permission is granted to collect archived DIBELS data. Permission is also granted to distribute survey instruments to teachers within the school district. I understand that participation in the study is voluntary. Neither the district nor individual participants’ responses will be identified in any of the reports.

__________________________________________  __________________
Superintendent’s Signature     Date
APPENDIX G
DIRECTOR’S PERMISSION TO CONDUCT RESEARCH LETTER

Date:

Name of Director

Name of Organization

Dear ______________________:

My name is Lakeisha Stokes and I am a doctoral student in the College Educational Leadership at the University of Southern Mississippi. I am in the proposal process and will soon begin conducting research to complete the requirements for my dissertation. My research is a study of the impact of different prekindergarten types on school readiness in the area of early literacy and prekindergarten teacher knowledge of early literacy skills critical to reading development. The study will focus on evaluating students’ Dynamic Indicators of Basic Early Literacy Skills (DIBELS) scores to analyze their preparedness in the area of early literacy for kindergarten and first grade. The study will also consist of a survey for prekindergarten teachers during the 2014 spring semester. The survey will ask foundational questions related to the teachers’ knowledge of phonological awareness, which is foundational for the development of early literacy skills necessary for future success in reading comprehension.

My request involves an opportunity to examine prekindergarten teachers academic background and knowledge of phonemic and phonological awareness. The survey focuses on foundational early literacy skills and concepts necessary for kindergarten readiness and future literacy success. The prekindergarten teacher participants will be asked to respond to the questions about their educational background, educational experiences, and knowledge of phonemic awareness.

The prekindergarten teacher survey consists of multiple choice and fill-in-the-blank questions pertaining to their understanding of early literacy skills. There is also a section requesting information about their educational background, number of years of teaching experience, and training specific to phonological awareness. With your consent, the survey will be distributed to the teachers in a hard copy or electronic format. The teachers will be informed that the survey is voluntary and confidential. They will also be informed that there are no negative consequences for refusing to participate in the study.
No identifying information will be requested on the survey or by the researcher. Neither the organization nor the participants will be identified in any of the reports.

Early childhood literacy is a foundational concept that determines the trajectory of future academic success. Prekindergarten provides necessary cognitive and early literacy skills that promote successful development that is critical for school readiness. The results of this study will serve as a resource to support policymakers, experts, administrators, and educators in decision-making that impacts the development of early literacy skills of students. Once the study is complete, I would be honored to share the findings with those who are interested.

If you grant me permission to conduct this research in the four-year old Head Start prekindergarten classes, please copy and paste the content of the enclosed consent form to your organization’s letterhead, sign it, and return it in the self-addresses, stamped envelope. If you prefer, you may scan and email it to lakeisha.stokes@eagles.usm.edu.

If you have any questions please feel free to contact me via email or telephone at 832-407-7837. My doctoral committee member, Dr. David Lee, can be contacted at david.e.lee@usm.edu.

Thank you in advance for your time and consideration.

Sincerely,

Lakeisha S. Stokes
Doctoral Candidate, University of Southern Mississippi
Enclosure
Cc: Dr. David Lee, Committee Chair
DIRECTOR’S PERMISSION TO CONDUCT RESEARCH: CONSENT FORM

As director of ________________________________, I give Lakeisha Stokes permission to conduct educational research during the spring semester of the 2013 – 2014 school year.

This research will be conducted to analyze prekindergarten teachers’ knowledge of early literacy skills. The research will also gather information about their educational background and experiences in phonemic awareness.

Permission is granted to distribute survey instruments to four-year-old prekindergarten teachers within the Head Start organization. I understand that participation in the study is voluntary. All responses will be kept confidential. No identifying information will be requested on the survey or by the researcher. Neither the organization nor the participants will be identified in any of the reports.

__________________________________________  __________________
Director’s Signature     Date
APPENDIX H

LETTER TO ACCOMPANY SURVEY INSTRUMENT

Dear Participant,

I ask for your assistance by completing this survey provided to you. Your participation is needed and very important to the success of this research. The purpose of this survey is to gather information in order to examine the early literacy education students receive in prekindergarten. The survey asks teachers questions about their educational background, educational training, and basic knowledge of phonological awareness. Taking part in this study is voluntary.

The enclosed survey will only take a few moments to complete. It should take no longer than 20 minutes. Your completion of this survey verifies your consent to participate in this study. The survey is divided into four parts. Section I items asks for previous educational and training information. Section II is comprised of question items pertaining to letter sounds. Section III is comprised of question items pertaining to syllable division. Section IV is comprised of question items pertaining to rhyming words.

Your completion of the survey instrument signifies your consent to participate. Your participation and responses to the survey will be anonymous. No identifying information will be requested on the survey or at any time. You may refuse to participate, you may refuse to answer any specific question, and you may withdraw at any time without penalty or prejudice. There are no consequences or rewards for participating. Your assistance in completing this survey is greatly appreciated and will be beneficial in impacting student success in early literacy skills development.

This research has been examined and approved by the Human Subjects Protection Review Committee, which ensures that all research adheres to the federal guidelines for including human subjects in this study. Any questions or concerns about your rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-001, 601-266-6820.

If you have any questions please feel free to contact me via email (lakeisha.stokes@eagles.usm.edu) or telephone (832-407-7837). My doctoral committee member, Dr. David Lee, can be contacted at david.e.lee@usm.edu.

Thank you in advance for your cooperation and assistance in this endeavor.

Sincerely,

Lakeisha Stokes

Doctoral Candidate, USM
Consent to Participate in a Research Study

Title of Study: A STUDY OF PREKINDERGARTEN IMPACT ON EARLY LITERACY READINESS

Researcher: Lakeisha Stokes

Email Address: lakeisha.stokes@eagles.usm.edu

Committee Chair: Dr. David Lee (david.e.lee@usm.edu)

What are some general things you should know about this research study?
You are asked to participate in a doctoral research study. Your participation in this study is completely voluntary and you may decline or withdraw from participation. To do so will not result in any penalty.

This research is designed to gather specific information for a study that will be used to benefit current and future educators, policymakers, and stakeholders. There is no specific benefit to you as an individual; however, risks are sometimes associated with participating in research. For this particular research, the risks are very minimal and are described in this document.

More details about this study are provided below. So that you can make a well-informed decision about your participation, please read the information. You can contact the researcher listed above if you have any questions or concerns.

What is the purpose of this study?
The purpose of the study is to examine teacher knowledge of early literacy skills and kindergarten (school) readiness of students relative to literacy. This study requires review of archived student reading performance data and a survey of prekindergarten teachers.

How many people will take part in this study?
If you decide to participate in this research, you will be one of approximately 80 participants in the study.

How long will your participation in this study last?
You will be asked to complete a survey. Your completion of this survey should take no more than 20 minutes. If you would like, you may request a report of the results at the end of this study by emailing me at lakeisha.stokes@eagles.usm.edu.

**What will happen if you take part in the study?**
You will be asked to complete a survey. A completed and returned survey will indicate that you consent to your anonymous participation in this study. An envelope will be provided in which you can confidentially secure your completed survey. A self-addressed stamped envelope will be provided to a school designated employee to return all responses to the researcher. To ensure confidentiality, all responses will be locked in a secure file cabinet during the study and destroyed once the research is complete.

**What are the possible benefits of participating in this study?**
Your participation and responses in this study will assist in providing guidance to policymakers, practitioners, higher education instructors, and teachers in improving the quality of administrator and teacher training, public school prekindergarten programs, and Head Start programs. Your participation and responses in this study will also assist in providing guidance in effective early literacy instruction. The information can be used by higher education programs and school districts to guide implementation of effective courses, training, and professional development for classroom teachers.

**What are the possible risks or discomfort involved with being in this study?**
Risks associated with this study are minimal. Risks could possibly be that participants may not feel comfortable responding to questions about early literacy development. To relieve this risk of discomfort, the researcher will ensure that your participation is anonymous and confidential. Only the researcher and the researcher’s university advisors will have access to the responses for the duration of the study. Once the survey responses are collected, they will be locked in a secure file cabinet during the study and destroyed once the research is complete.

**How will your privacy be protected?**
No personal information to identify participants will be required for this survey. No personal information or other information that may identify participants will be included in any report or publication about this study. Only the researcher and the researcher’s university advisors will review the actual surveys. After the surveys are reviewed they will be securely stored then shredded after one year.

**What if you have questions about this study?**
You have the right to contact the researcher and the committee chair with any questions that you may have about this study. The researcher and committee chair are listed at the beginning of this document and can be contacted regarding any questions or concerns.

**What if you have questions about your rights as a research participant?**
This study has been reviewed by the Human Subjects Protection Review Committee. This committee ensures that all research fits the federal guidelines for involving human subjects. Any questions or concerns about your rights as a research participant should be
directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-001, (601) 266-6820.
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