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# AN EVALUATION OF THE EFFICACY OF PRESCHOOL PARTICIPATION UPON KINDERGARTEN READINESS

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AN EVALUATION OF THE EFFICACY OF PRESCHOOL PARTICIPATION  
UPON KINDERGARTEN READINESS

By

SIMONE SELLERS

A doctoral dissertation submitted to the  
College of Education  
in partial fulfillment of the requirements  
for the degree Doctor of Education  
in Curriculum and Instruction

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February 2018

AN EVALUATION OF THE EFFICACY OF PRESCHOOL PARTICIPATION  
UPON KINDERGARTEN READINESS

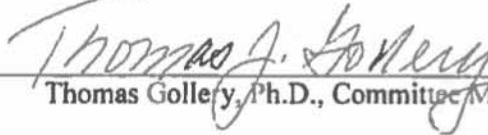
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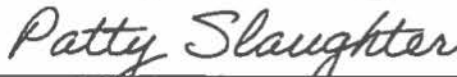
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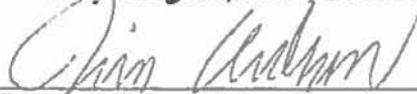
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## DEDICATION

“The greatest accomplishment is not in never falling, but in rising after you fall.”

Vince Lombardi

This journey has been very challenging and rewarding. There were many times I wanted to give up; however, I worked through the process and what life threw at me. I would like to dedicate this page to my daughters, Isabella and Devona. I love you both more than anything in the world. We have been through some tough times the past few years, but we all persevered through these times. Mommy finally has achieved her long-term dream and goal of acquiring a doctorate. Never give up! Nothing is impossible!

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Louisa, thank you for taking care of my baby every weekend so I could go work on my doctorate.

Shannon, thank you for all of your help and friendship.

Beau, you helped me through some hard times and encouraged me to finish. Thank you!

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## ABSTRACT

The purpose of this quantitative study was to explore whether children who attended a full day of preschool were better prepared for kindergarten than those who attended a part-time program or no program at all. Two levels of the independent variable, preschool participation, were utilized: (a) full-time participation and (b) part-time or no participation. Readiness rates among children who attended a public preschool in a large school district in Florida were examined using standardized academic achievement scores as dependent variables. When looking at kindergarten readiness, males who attended preschool scored higher academic levels than males who attended no preschool. However, female participants outscored male participants in comparisons where neither gender attended preschool. The results show that children would profit by attending some preschool program, as their attendance improves the probability of actual readiness for kindergarten.

*Keywords:* preschool, kindergarten readiness

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## CHAPTER 1: INTRODUCTION

Students entering kindergarten without adequate academic and social skills may be at risk for falling behind in the foundational skills taught in kindergarten (Barnett et al., 2016). Many of the basic academic, social, and behavioral skills that help the student begin the educational journey in kindergarten are taught in the preschool classroom (Barnett et al., 2016). Publicly funded preschool programs have received considerable attention in the past several years for their role in promoting kindergarten readiness, which has led to the dramatic growth in state-funded preschool programs (Barnett et al., 2016). Mitchell (2001) found that, “state-funded pre-K [prekindergarten] programs grew from \$25 million in 1970 to \$190 million in 1988 to more than \$2 billion” in 2001 (p. 1). In 2012, a total of 40 states were serving almost 1.3 million children in various preschool settings, including private and state-funded (Hill, Gormley, Adelstein, & Willemin, 2012).

The National Institute for Early Education Research publishes an annual report titled, *The State of Preschool*. This comprehensive report evaluates preschools in every state as well as the United States territories of Puerto Rico, the U.S. Virgin Islands, and Guam. The report stated that preschool programs continued to improve during the 2014-2015 school year regarding increased enrollment and per-child expenditures (Barnett et al., 2016). Additionally, states met higher quality standards as established by the National Institute for Early Education Research. The evaluation by Barnett et al. (2016) concluded that many states do not invest much money in preschool programs, resulting in low-quality education. “If young children are to receive the high-quality education that leaves a sustained impact, state policies will have to change” (Barnett et al., 2016, p. 8). Children who attend high-quality preschool enter kindergarten with better pre-

reading skills, richer vocabularies, and stronger basic math skills than those who do not (Barnett et al., 2016). In 2016, 32% of the national population of 4-year-olds were enrolled in state preschool programs (Barnett et al., 2017). As public schools are facing more rigorous standards, demands, and responsibilities in today's society, preschool has emerged as a vital intervention that promotes school readiness along with helping close the achievement gap in elementary school (Cannon & Karoly, 2007).

### **Background**

High-quality early childhood education has positive effects on cognitive, linguistic, and social and emotional outcomes (Ramey & Ramey, 2010). Quality preschool programs are defined as having small class sizes, teachers with the proper education and training, a developmentally appropriate curriculum, and parental involvement (Conway, 2010). The evidence has led to sustainable investment in preschool programs (Ramey & Ramey, 2010). According to Robin, Frede, and Barnett (2006), an essential question in the design of public preschool programs is whether learning increases as time in preschool is increased. Understanding the importance of preschool could be instrumental in providing the appropriate readiness skills children need to enter kindergarten (Litty & Hatch, 2006). According to Barnett (2008), "Nationally, the largest public investment in early education is for child care subsidies, state Pre-K, Head Start, and preschool special education" (p. 5). About 75% of the nation's 4-year-olds attend some preschool center, according to Barnett (2008). However, children have different experiences at each program. Ackerman and Barnett (2006) discovered that "due to different prekindergarten education experiences and irregular and episodic development, children enter kindergarten with widely varying skills, knowledge, and levels of preparedness" (p. 1).

## **Types of Early Childhood Programs**

Preschool programs differ and include Head Start, School Readiness, private programs, and parochial schools. Head Start began as a part of President Johnson's War on Poverty in 1965 (Barnett & Hustedt, 2005). Head Start is a preschool program created by the federal government for children ages 3–5 and offers intensive interventions to help families with education, nutrition, and health screenings along with providing support services (O'Brian & Dervarics, 2007). A recent study for the Brookings Institution indicated that, for Black attendees, in particular, long-term benefits of Head Start included increased self-esteem, educational outcomes, parenting practices (Schanzenback & Bauer, 2016).

One of the most influential studies that helped promote preschool programs was the High/Scope Perry Preschool Study. The study's importance was emphasized by Schweinhart (2003), who explained,

The study was one of the first studies of the effects of preschool education on children living in poverty and was one of the first to identify lasting effects on participants' later educational achievement, academic success and avoidance of criminal activity; and to find a return to public investment in the program. (p. 2)

The study was based on two groups: one group attended a high-quality preschool program, and the other group attended no program. Data were collected from age three and up until participants were the age of 41. Many variables were assessed, such as "demographic characteristics, socioeconomic success, personal development, characteristics, test performance, crime and school success" (Schweinhart 2003, p. 4). The results of the study showed a high-quality preschool program for children who live in poverty helped to improve their lives and educational performance and to reduce criminal mischief (Schweinhart, 2003). Schweinhart (2003) discovered that,

By age 27, the group that had experienced preschool had a significantly higher level of schooling than that of the group that did not attend preschool. 71% of the program group, but only 54% of the no-program group, graduated from either a regular or adult high school. (p. 4)

Ongoing research on the Chicago Child-Parent Centers (CPCs) has shown the benefit of preschool. CPCs opened in the 1960s in the poorest Chicago neighborhoods, serving over 100 low-socioeconomic ethnic-minority children. The program consisted of three major components: development of reading, language skills, and parent involvement (Reynolds, Temple, Robertson, & Mann, 2002). Reynolds et al. (2002) reported children receiving 2 years of preschool demonstrated improved school readiness skills and were less likely to be in a special education class. These students were also more likely to graduate from high school. More than 20 years later, researchers continued to collect data showing the benefits of the CPC program. Reynolds et al. (2002) reported children who received 2 years of preschool demonstrated improved readiness skills and higher math and reading scores through the ninth grade.

The last landmark preschool project was the Carolina Abecedarian project, an early intervention program in North Carolina in the mid-1970s (Ramey, Bryant, & Suarez, 1985). The project was “a randomized control study of the effect of high-quality, full-time child care for low-income children” (Nelson, 2006, p. 7). The purpose of the project was to improve language development in rural low-socioeconomic children. The program consisted of 111 low-socioeconomic 4-year-olds who attended individual 45-minute teaching sessions focused on pre-phonics skills, twice per week for 45 weeks (Ramey et al., 1985). The project conducted follow-up studies on the preschool children at ages 12, 15, and 21. In doing so, the Frank Porter Graham Child Development Institute (2016) found the following:

Through age 15, IQ scores for the children who received the birth-to-age-5 Abecedarian intervention were higher than those of the randomly assigned control group. The Abecedarian children also scored higher on achievement tests in math and reading during their elementary and secondary school years. This same group also attained more years of education. (para. 12)

### **Contemporary Preschool Programs**

In 1993, Georgia was the first state to institute a lottery-funded preschool program for 4-year-olds. This program was the nation's first universal pre-K program entirely funded by the state lottery. Initially, the program focused on low-income families, then increased the eligibility to the middle class, and finally expanded to all children 4 years of age regardless of their socioeconomic status. The program operates 5 days a week for 6.5 hours a day. According to the Georgia Department of Early Care and Learning (2016),

A significant milestone was reached during the 2009-2010 school year when Georgia became the first state in the nation to serve more than one million preschool children in a voluntary, universal, lottery-funded program. During the current 20th year of the program, more than 83,000 children are being served in every county in the state. The Georgia preschool program has moved from serving a few hundred children a decade ago and has become the most successful prekindergarten effort in the nation today. (para. 4)

An evaluation was conducted on the effects of Georgia's Pre-K Program. The quasi-experimental research study was carried out by researchers at the University of North Carolina at Chapel Hill (Peisner-Feinberg, Schaaf, LaForett, Hildebrandt, & Sideris, 2014). The study compared two different groups of children. The first group, called the treated group, were children who completed Georgia's Pre-K Program. The second group was the untreated group of children who did not attend Georgia's Pre-K Program (Peisner-Feinberg et al., 2014). The

sample consisted of 1,181 children, 611 in the treated group and 570 in the untreated group. Both samples were similar on most demographic characteristics. The children were given an assessment that consisted of 10 measures across five areas. The evaluation measured child outcomes, language and literacy, math skills, general knowledge, and behavior skills (Peisner-Feinberg et al., 2014). The results indicated the children who attended Georgia's Pre-K Program significantly improved in readiness skills across all of the five domains compared to the children who had not participated in the program.

Since 1998, Oklahoma has offered a high-quality preschool education on a voluntary basis (Hill et al., 2012). Teachers of these children were required to have a bachelor's degree in early childhood education and were paid the same as kindergarten through Grade 12 public school teachers. Georgetown University conducted a study to determine any effects of Oklahoma's preschool program on third-grade test scores (Hill et al., 2012). These scores were based on the Oklahoma Core Curriculum Test. Two groups of children were used; one group attended the state preschool program, and the other group attended childcare elsewhere. Students who participated in pre-K in the 2000-2001 school year showed better math scores on the third-grade test, particularly among boys and low-socioeconomic students (Hill et al., 2012).

The Florida Voluntary Prekindergarten (VPK) was created as a result of the election in 2002 when voters approved an amendment to the state's constitution to provide a high-quality pre-K program for every 4-year-old (Goldsmith & Meyer, 2006). The program began operating in 2005, serving approximately 100,000 children and increased to more than 175,000 children by 2015 (Barnett et al., 2016). According to the Florida Department of Education (FLDOE) Office of Early Learning (2016), the VPK program is a free pre-K program for 4 and 5 year-olds residing in Florida. Participating children must be four years of age on or before September 1 of the enrolling school year. A statute passed in 2016 allowed parents to wait until the following



year when their child was five to enroll the child in the state's free VPK education program (FLDOE Office of Early Learning, 2016). The program consists of 540 hours of instructional time in one school year or 300 hours of instructional time in the summer, according to the FLDOE Office of Early Learning (2016). The VPK program may be offered in public, private, or faith-based educational institutions. Approved VPK providers are given a reimbursement for each child enrolled in the school's VPK program. The VPK program must comply with all state statutes about the preschool program.

### **Purpose Statement**

The purpose of this study was to explore whether children who attended a full day of preschool were better prepared for kindergarten than those who attended a part-time program or no program at all. This study examined test scores to determine readiness rates among children who attended a public preschool in the South.

### **Research Questions**

Three research questions guided the study:

1. What are the differences, if any, in kindergarten readiness, measured by the VPK Assessment, among kindergarten students who attended full-time preschool, part-time preschool, or no preschool?
2. What are the differences, if any, in kindergarten readiness, measured by the Pre-Kindergarten Screen (PKS), among kindergarten students who attended full-time preschool, part-time preschool, or no preschool?
3. What effect, if any, does the gender of participant exert upon academic achievement on the PKS by the amount of preschool programming enrolled?

### **Quantitative Research Hypotheses**

Based on the three research questions, four hypotheses were developed:

1. Children who attended a full day of preschool will have better readiness skills, as measured by the VPK Assessment, upon entering kindergarten compared to children who attended a part-time program or no program.
2. Children who attended a full day of preschool will have better readiness skills, as measured by the PKS, upon entering kindergarten compared to children who attended a part-time program or no program.
3. Children who attended a part-time program will have better readiness skills, as measured by the PKS, upon entering kindergarten compared to children who attended no preschool program.

### **Limitations and Delimitations**

This study used nonprobability sampling, specifically convenience and purposive sampling. The study was delimited to students at two elementary charter schools in Central Florida. Further, the three groups compared were not equivalent; the number of students who attended full-time preschool was much greater than those who attended part-time or no preschool.

### **Definitions**

*Florida Voluntary Prekindergarten (VPK)* is a free pre-K program for every 4-year-old in Florida (FLDOE Office of Early Learning, 2016). The program consists of 540 hours of instructional time in one school year or 300 hours of instructional time in the summer. The VPK program may be offered in public, private, or faith-based educational institutions.

The *Pre-Kindergarten Screen (PKS)*, created by Webster and Matthews (2000), focuses on a child's readiness for entering kindergarten. The screener has eight subtests: fine motor skills, gross motor skills, language comprehension, visual perception and discrimination, beginning letter recognition, number recognition, and impulse control.

The *Voluntary Prekindergarten (VPK) Assessment* is administered three times a year to every 4- or 5-year-old who attends a Florida VPK program at any public, private, or faith-based educational setting (FLDOE Office of Early Learning, 2016). The VPK Assessment includes measures in four areas: print knowledge, phonological awareness, mathematics, and oral language and vocabulary.

### **Methods**

This quantitative study examined the effects of preschool experiences of children who attended full-time preschool, part-time preschool, or no preschool on a child's readiness to begin kindergarten. The population of the study was composed of preschool students attending two public charter schools in the South. The researcher evaluated results on the participating students' VPK Assessment and the PKS with the focus on the 2017-2018 school year. Participating students were assigned to groups based on the amount of time they spent in preschool: full-time, part-time, or no preschool. The sample consisted of 162 preschool students five or six years of age entering kindergarten at two different public charter schools in the South. The ethnicity and socioeconomic status of the students.

The VPK Assessment is administered to every 4- or 5-year-old who attends a Florida VPK program at any public, private, or faith-based educational setting. The assessment must be given at least two times per year, as mandated by the FLDOE Office of Early Learning (2016). Classroom teachers administer the evaluation. For the purpose of this study, the VPK Assessment was only used with the students who attended a preschool program at two specific public charter schools. All incoming students who were four or five years of age and attending kindergarten at one of the two public charter schools were given the PKS 3 months before entering kindergarten. The kindergarten teachers at the public school administered the screener.

Parents signed up for a 20-minute time slot to bring their child to the public school for the assessment.

### **VPK Assessment**

The data from the VPK assessment were entered into the Bright Beginnings website at the FLDOE Office of Early Learning (2016), created to be used as an online reporting system in which all the VPK data are stored. According to the Office of Early Learning, the VPK Assessment includes measures in four areas: print knowledge, phonological awareness, mathematics, and oral language and vocabulary. All four aspects of the assessment are aligned to the VPK Standards for 4-year-olds. Print knowledge assesses a child's ability to recognize letters or words. Print knowledge also allows the child to demonstrate knowledge of upper and lower case letter names and the corresponding sound. The print knowledge portion includes 12 assessment items and two practice items. Phonological awareness is the knowledge and manipulation of different sounds in a word. The phonological awareness measure assesses the child's ability to blend a word when broken into smaller sounds or syllables, blend a compound word, and recognize the remaining word when part of the word is taken away (FLDOE Office of Early Learning, 2016). The phonological awareness measure includes 14 assessment items and two practice items. The mathematics portion of the evaluation measures early numeracy skills across three areas: counting skills, numerical relations skills, and arithmetic reasoning skills. The mathematics portion includes 18 assessment items. The oral language and vocabulary assessment measures expressive and receptive language and targets the child's knowledge of verbs, adjectives, verb tenses, nouns, and prepositions. The oral language and vocabulary measure includes 22 assessment items in Evaluation Period 1 and 23 assessment items in Evaluation Periods 2 and 3 (FLDOE Office of Early Learning, 2016). The VPK Assessment is given three times a year: the beginning, middle, and end of the school year. The FLDOE (2009)

stated that the reliability estimate for all four areas of the VPK Assessment has a precision greater than or equal to .80.

## **PKS**

The PKS, created by Webster and Matthews (2000), focuses on a child's readiness for entering kindergarten. The purpose of the evaluation is to determine if a student has the early readiness skills to be successful in the early school years, or if the child will encounter difficulties or even failure. The screener has eight subtests: fine motor skills, gross motor skills, language comprehension, visual perception and discrimination, beginning letter recognition, number recognition, and impulse control. The sum of the child's scores is taken from each of the subsets and converted into standard scores. Any score that falls between 82 and 90 indicates the child should be monitored upon entering kindergarten, and any score below 82 requires further testing, indicating the child may not be ready to enter kindergarten (Webster & Matthews, 2000).

According to Webster and Matthews (2000), the interrater reliability of the PKS has 48 ratings. These ratings were computed for a total score on the PKS and an overall concordance rate of 92%. Correlations of .99 were also obtained for all possible pairs examined (Anastasi, as cited in Webster & Matthews, 2000). A retest was given to 58 children who were randomly selected. An overall coefficient of .78 was obtained, slightly below the recommended score of .80 (Webster & Matthews, 2000). To assess the content validity of the PKS, examiners were required to have at least 10 years of experience in early childhood education. A panel of eight teachers and four psychologists measured appropriateness using preschool and kindergarten-age children. Construct scores increased with age of the student.

## **Analysis**

To address Research Question 1, VPK Assessment scores were analyzed using a one-way analysis of variance (ANOVA) to determine if there was an omnibus effect. If significant at the

.05 level, follow-up pairwise comparisons with a Tukey's adjustment for Type 1 error inflation were conducted to assess the differences between the three groups: full-time preschool students, part-time preschool students, and students not attending preschool.

To address Research Question 2, PKS scores were analyzed using a one-way ANOVA. Similar to Research Question 1, follow-up pairwise comparisons were conducted among the three student groups.

To address Research Question 3, A 2 x 2 factorial ANOVA was conducted on PKS scores. The specific foci of the analysis were to assess the main effects of participant gender and type of preschool program enrollment and the interaction effect between participant gender and preschool program enrollment.

### **Summary**

The dissertation presented was an evaluation of kindergarten readiness skills among children who attended full-time preschool, part-time preschool, or no preschool program. The assessment was designed to determine whether or not children who attended a full day of preschool were better prepared for kindergarten than those who attended a part-time preschool program or no preschool program. The literature presented in the dissertation summarized how preschool has grown since the early 1960s and the importance of preschool education in today's society.

## CHAPTER 2: LITERATURE REVIEW

In 2013, President Obama called for \$10 billion in federal funds to invest in state preschool programs (Mongeau, 2016). As of 2012, 40 states were serving almost 1.3 million children in preschool (Hill et al., 2012). Publicly funded preschool programs have received considerable attention in the past several years for their role in promoting kindergarten readiness, which has led to the dramatic growth in state-funded preschool programs (Barnett et al., 2016). According to Barnett et al. (2017), “State funded preschool continued to grow in access, spending and supports for quality in the 2015-2016 school year. Both enrollment and spending per child increased, as did states’ total investment in preschool” (p. 6).

### **Theoretical Foundation of Preschool**

Schools of education have been around since the early philosophers, Confucius, Aristotle, and Plato began questioning the world and existence. Edgar (2012) stated, “The process of learning has been an important consideration for early philosophers and educators that continues today” (p. 1). Many of their ideas and beliefs still exist in schools across the world. Some of these schools are dedicated to one specific theory, whereas others use a combination of theories and pedagogy. Understanding educational theories from the past allows one to appreciate the field of education today entirely (Edgar, 2012).

### **Friedrich Wilhelm Froebel**

A philosopher who greatly influenced early childhood education was Friedrich Wilhelm Froebel. Froebel is known as the “Father of Kindergarten” (Morrison, 2004). He is credited with opening a school for young children in 1837. He called this school *Kindergarten*, meaning garden of children (Morrison, 2004). This philosopher cared for children and, in doing so, rejected the view that children were merely small adults. In addition to instruction, he felt that children needed care and protection (McCarthy & Houston, 1980). According to Morrison

(2004), “Froebel knew from experience, however, that unstructured play represented a potential danger . . . [and] a child left to his own devices might not learn much” (p. 88). Froebel maintained that children needed proper guidance and direction to learn. He stated this guidance was the responsibility of the teacher and created a systematic, planned curriculum (Morrison, 2004). Morrison stated, “Its bases were gifts, occupations, songs he composed and educational games” (p. 88). Gifts were sets of learning materials designed to help children learn through play and manipulation. Occupations were materials designed to engage children in various learning activities (Morrison, 2004).

Froebel recognized that education began in infancy (Morrison, 2004). Froebel saw mothers as the ideal first teachers of humanity. Froebel believed that women were best suited to nurture children, and so they became the teachers for his schools. As such, the Froebel Kindergarten offered some of the first significant careers for women outside the home. At that time, women were not expected (or often allowed) to work professionally. The Froebel Kindergarten attracted ambitious, intelligent women, who received advanced educations and developed businesses of their own. The more famous women who advanced Froebel’s cause included Helen Keller, Kate Douglas Wiggin, Elizabeth Peabody, Phoebe Hearst, Jane Stanford, Frances Cleveland, and Elizabeth Harrison (Bultman, 2008; Morrison, 2004).

Froebel originated the idea of a structured curriculum for preschool children. Further, Froebel maintained that teachers should have a keen sense for observing their students and understanding an individual child’s development (Liebschner, 2001). Froebel communicated with the young children he taught and demonstrated his teaching abilities to the people who might financially support his kindergarten (Liebschner, 2001).



## **John Dewey**

Another philosopher who influenced the idea of early education developmental curriculum is John Dewey. Dewey was a professor, writer, psychologist, and educator as well as an educational activist, who according to Morrison (2004), did more than any other person to redirect education in the United States. Morrison stated, “Dewey’s theory of schooling, usually called progressivism, emphasizes the children and their interests rather than the subject matter” (p. 92). The progressive education philosophy prepares children for the realities of today than with what might happen in their future (Morrison, 2004). Dewey (as cited in Morrison, 2004) felt that education was for living in the present, not for preparing for an unknown future. He maintained that children should learn how to live out their daily lives through various activities and life skills (Morrison, 2004).

According to Morrison (2004), “In a classroom based on Dewey’s ideas, children are involved in physical activities, utilization of things, intellectual pursuits, and social interaction” (p. 93). The physical activities involve skipping, running, and being actively involved in outdoor play. During the physical activity, the children form the basis for learning, doing, and getting along with others. In early childhood education, the everyday experiences that a child has in the classroom and on the playground at school are crucial to developmental growth. Dewey argued that children learn something from everyday experience, whether it is negative or positive (Morrison, 2004). According to Morrison, “Dewey also believed that social interest, referring to interactions with people, was encouraged in a democratically run classroom” (p. 4). Dewey stated the curriculum should be built around the children’s interests. The teachers were responsible for capitalizing on opportunities to integrate traditional subject matter through these interests. Morrison stated, “Dewey did believe that traditional educational strategies imposed

knowledge on children, whereas their interests should be a springboard for involvement with skills and subject matter” (p. 93).

### **Lev Vygotsky**

Leo Vygotsky was a Russian psychologist who viewed children as active participants in their learning (Vacca et al., 2006). According to Vygotsky’s (1978) theory, children acquire ways of thinking and behaving through their culture. Learning is largely a social process with assisted discovery by a teacher or parent (Berk, 2006). Vygotsky’s theory emphasized four main points: culture shapes development, social factors contribute to cognitive development, the role of language is an important part of a child’s development, and adult interaction plays a key role in cognitive development.

Vygotsky (1978) stated,

Every function in the child’s cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (inner psychological) and then inside the child (into psychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals. (p. 57)

According to Berk (2006), Vygotsky also believed that “the preschool years should promote socially rich, meaningful activities in children’s zone of proximal development and a wealth of opportunities for make-believe play—this fosters self-discipline for later academic learning” (p. 259). Vygotsky’s theory emphasized an important concept called the zone of proximal development. The zone of proximal development is the range between what a child can do alone and what the child can do with support (Brewer, 2001). Vygotsky suggested that teachers and parents support the child in the zone of proximal development by guiding the child appropriately until the child is able to accomplish a task alone. This guidance is referred to as

scaffolding (Gunn, Simmons, & Kameenui, 1995). In line with Vygotsky's thinking, preschool is a viable model to promote his constructivist theory. Students in preschool learn in a social environment.

### **Landmark Preschool Programs**

In the 1960s and 1970s, four early childhood programs stood out by providing evidence of effectiveness through research studies: the High/Scope Perry Preschool study, Head Start, the Chicago CPC program, and the Carolina Abecedarian project. These programs have had long-term follow-up studies that analyzed the outcomes.

#### **High/Scope Perry Preschool Study**

One of the most influential studies that helped promote preschool programs was the High/Scope Perry Preschool study. This study was conducted from 1962 to 1967 and tracked the effects of preschool education on children living in poverty. The study included 123 African American children who were born in Ypsilanti, Michigan. The children who participated came from low-socioeconomic families, and their parents primarily had not graduated from high school (Orr, 2012). The children were put into two groups, one group that participated in a high-quality preschool program and another that did not participate in a preschool program (Wat, 2007).

According to Nelson (2006), "The High/Scope Perry Preschool study was one of the first to address what is known as the achievement gap, the disparity in academic performance between children born to low-income, highly challenged families with many risk factors for academic failure" (p. 3). The researchers followed the children up to the age of 41 years. The project tracked 58 participants and 65 children of the control group. The study had phases and collected data on the participants at ages 19, 27, and 39-41. The outcomes were measured using official crime records, social service records, and high school graduation records to supplement

data from personal interviews (Schweinhart, 2003). The researchers discovered through the data that the students who attended preschool outperformed those who had not attended (Wat, 2007). For example, 2% of the program group reported monthly earnings of \$2,000 or more at age 27; the nonprogram group earned 7% less. Also, at age 27 more of the program group owned their own homes than the nonprogram group (36% vs. 13%). At the age of 40, 28% of the program group served time in jail as compared to 52% of the nonprogram group (Schweinhart, 2003). Schweinhart (2003) stated the results showed “evidence of preschool program effects on children’s readiness for school and their subsequent educational success, economic success in early adulthood, and a reduced number of criminal arrests throughout their lives” (p. 1).

### **Head Start**

Another pioneer of preschool in the 1960s was Head Start, which began as a part of President Johnson’s War on Poverty in 1965 (Barnett & Hustedt, 2005). Head Start is a preschool program that the federal government created for children ages 3 to 5 as an intensive intervention to help families with education, nutrition, and health screenings along with providing support services (O’Brian & Dervarics, 2007). Support services include connecting families with medical, dental, and mental health support. According to Barnett and Hustedt (2005), “Head Start is our nation’s foremost federally funded provider of educational services to young children in poverty” (p. 1), a statement that remains true today (U.S. Department of Health and Human Services Administration for Children and Families, 2017). Head Start has grown immensely and has served more than 30 million children since 1965. Head Start provides full day services for almost 1 million children across the United States, the District of Columbia, and Puerto Rico (U.S. Department of Health and Human Services Administration for Children and Families, 2017).

Abbott-Shim, Lambert, and McCarty (2003) conducted a study that included all eligible 4-year-olds and their parents within selected Head Start programs located in a southern urban setting. Three centers were selected due to the number of families in the communities served by the centers. These centers offered the opportunity to form treatment (Head Start) and comparison (waitlist) groups. A random assignment procedure was used to place participants in the treatment and comparison group. Abbott Shim et al. (2003) explained, “87 children were assigned to seven Head Start classrooms (treatment group), and 86 children were placed on the waitlist (comparison group)” (p. 197). The participants were measured by trained assessors of the treatment and comparison groups three times a year, September through October, January through February, and March through early May. The assessments included the Peabody Picture Vocabulary Test-Third Edition (PPVT-III; Dunn & Dunn, 1997), which measures the child’s receptive vocabulary; the M-KIDS Preliteracy Inventory, which measures print concepts, story retelling, and prewriting skills in 4- to 6-year-olds; and the Early Phonemic Awareness Profile, which includes two composites: phoneme deletion, comprised of eight “judgment” and six “correct” test items, and rhyming items (Abbott-Shim et al., 2003). Parent measures were administered using the Family and Children’s Experiences Survey (FACES) Parent Interview, which was given to both the Head Start and comparison groups in November through December (Abbot-Shim et al., 2003). The researchers discovered that the growth rates for the Head Start children showed faster growth than comparison children on the receptive vocabulary and phonemic awareness measures. Print concepts were statistically higher than the comparison group. The researchers noted that the overall growth rate for the Head Start children was faster than that of their counterparts.

The U.S. Department of Health and Human Services Administration for Children and Families (2010) conducted the *Head Start Impact Study* and reported,

For the 4-year-old group, benefits at the end of the Head Start year were concentrated in language and literacy elements of the cognitive domain, including impacts on vocabulary, letter-word identification, spelling, pre-academic skills, color identification, letter naming, and parent-reported emergent literacy. (p. iv)

In another study, Lee, Zhai, Brooks-Gunn, Han, and Waldfogel (2012) examined whether Head Start had beneficial links with children's school readiness compared with other specific types of child care. The approach was based on Bronfenbrenner's ecological model (as cited in Lee et al., 2012). The authors compared Head Start participants with those in other specific types of preschool arrangements. The researchers' primary research question was whether the associations between Head Start participation and children's school readiness differed depending on the type of childcare with which Head Start participation was compared. They examined four types of care: preschool, other types of center-based care, other nonparental care, and parental care. The data for their study came from the Early Childhood Longitudinal Study (ECLS) birth cohort, a nationally representative sample of approximately 10,700 children. About 7,000 parents participated in the parent interview, and about 6,900 children took part in the assessment. The kindergarten analysis sample was reduced due to missing information for 50 students. The Let's Tell Stories subset of the Preschool Language Assessment Scales (Duncan & De Avila, 1998) was utilized to measure children's language skills. The assessment consists of reading two stories to a child, recording the child's response, and rating the response with a range from 0 (*no response*) to 5 (*articulate, detailed sentences, vivid vocabulary, and complex constructions*; Snow et al., 2009). Lee et al. (2012) used the average score of both stories, provided in the ECLS birth cohort data set. Sixty receptive and literacy items developed for the ECLS birth cohort were used. Children's math ability was measured with 58 items developed for the ECLS : 41 for number sense, properties, and operations; three for measurement; four for geometry and spatial

sense; three for data analysis, statistics, and probability; and seven for patterns, algebra, and functions (Najarian, Snow, Lennon, & Kinsey, 2010; Snow et al., 2009). The hypothesis stated that that early childhood interventions would alter developmental trajectories of poor children in a positive direction. The results found empirical support for the conclusion that Head Start participants did have better cognitive development compared with nonparticipants, particularly those in other nonparental care or parental care (Lee et al., 2012).

### **Chicago Child-Parent Centers**

Another landmark preschool program, the CPC program, opened in the 1960s in the poorest Chicago neighborhoods, serving over 100 low-socioeconomic ethnic-minority children (Reynolds et al., 2002). Funded by Title I, the CPC program is the second oldest federal preschool program, after Head Start (Reynolds et al., 2002). As of 2002, the program provided services for children ages 3 to 9 in 24 sites in high-poverty neighborhoods (Reynolds et al., 2002). The CPC study was longitudinal, following the progress of 989 children who were enrolled in 24 preschools located in low-income areas (Orr, 2012). Orr (2003) hypothesized,

The benefits of early intervention could be mainly sustained if high-quality services were provided for not just the child, but also the parent. The overall advantages of these resources were astounding, with significant benefits for both individual children and their families as a whole. (para. 1)

The program consisted of three major components: development of reading, language skills, and parent involvement and comprehensive services (Reynolds et al., 2002). The comprehensive services included nutritional health needs and screening along with supervision and professional development and instructional supplies (Reynolds et al., 2002). The study consisted of a cost-benefit analysis of an established, large-scale early childhood intervention for preschool children and their families.

The CPC longitudinal study investigated the life-course development of 1,539 children from low-income families (Reynolds et al., 2002). The children and families attended kindergarten programs in 25 sites in 1985–1986. According to Reynolds et al. (2002), preschool students had higher cognitive skills entering kindergarten, and higher achievement led to a reduction in the need for school remedial services. Children who had two years of preschool demonstrated improved school-readiness skills and were less likely to be in a special education class. Additionally, children who had two years of preschool demonstrated improved readiness skills and higher math and reading scores through the ninth grade. These students were also more likely to graduate from high school. Longitudinally, the results showed reduced expenditures for remedial services through high school, including special education; reduced criminal justice and child welfare expenditures; and increased earning capacity and tax revenues as a result of high school completion (Reynolds et al., 2002).

### **Carolina Abecedarian Project**

The last landmark preschool project was the Carolina Abecedarian project, an early intervention program in North Carolina (Ramey et al., 1985). This project was conducted between 1972 and 1977 at the University of North Carolina. The purpose of the project was to provide at-risk children a high-quality education in their early years, with the aim of also improving language development. The project evaluated the effects of participating in a full-day early childhood program from the age of 6 months until the child entered kindergarten (Barnett, 2008). The children were selected based on family factors such as income, educational attainment, and history of mental illness.

The Abecedarian project operated 50 weeks a year. The children attended eight hours per day at the University of North Carolina campus in Chapel Hill (Galinsky, 2006). Galinsky (2006) pointed out that most of the teachers had college degrees much like regular public school



teachers. The goal of the intervention was to improve school readiness and success among low-income children. The study focused on high-risk families, including those well below the poverty line, with low levels of parental education, single parents, older siblings with poor academic performance, use of public assistance, mental health issues in the family, and parental unemployment (Galinsky, 2006). The Abecedarian study consisted of 111 children from the age they entered the program up until the age of 30. The curriculum was individualized to each child's needs, and the educators tried to make learning fun. Teachers used constant observation and assessment to individualize instruction. The largest gains were made in grade retention and special education, with those factors being reduced by 23 points (Galinsky, 2006). The effect sizes were .75 at age 4; however, these decreased to .33 by age 15.

Researchers at the Frank Porter Graham Child Development Institute (1999, 2016) found that the children who had preschool intervention had higher IQs at the age of 12. At 21, the treated group maintained significant advantages both on the intellectual test and performance and on academic test scores in reading and mathematics (Frank Porter Graham Child Development Institute, 1999). Sixty-seven percent of the Abecedarian students graduated from high school, compared to 51% in the control group (Nelson, 2006). Wat (2007) reported that that 36% of the students participating in the preschool attended college, which was more than twice the rate of those who did not receive preschool services.

### **Today's Preschool Programs**

In the 1980s, concern for the education of low-socioeconomic children led to a reform movement in the field of early childhood education (Gilliam & Zigler, 2004). In 2015, the federal Preschool Development Grants contributed \$210 million to 18 states, with \$108 million earmarked to increase enrollment or quality of state preschool programs (Barnett et al., 2017). The American Recovery and Reinvestment Act of 2009 funded the Race to the Top initiative, a

grant program focused on strengthening education (U.S. Department of Education, 2009). Race to the Top encouraged participating states to improve and raise student achievement.

Specifically, Race to the Top focused on three areas: (a) enrolling more low-income children in early education programs, (b) creating an integrated system of quality early learning programs, and (c) assessing children based on National Research Council reports on early childhood (U.S. Department of Education, 2009). Both of these grant programs, Preschool Development Grants, and Race to the Top, have helped public preschools expand across the United States (Mongeau, 2016).

## **Georgia**

In 1993, Georgia was the first state to institute a lottery-funded preschool program for 4-year-olds. This program was the nation's first universal pre-K program that was entirely funded by the state lottery. Initially, the program was focused on low-income families, and then, in 1995, Georgia increased the eligibility to all children who were four years of age, regardless of their socioeconomic status. The program operates five days a week for 6.5 hours a day and is funded by the state. According to the Georgia Department of Early Care and Learning (2016),

A significant milestone was reached during the 2009–2010 school year when Georgia became the first state in the nation to serve more than one million preschool children in a voluntary, universal, lottery-funded program. During the current 20th year of the program, more than 83,000 children are being served in every county in the state. The Georgia preschool program has moved from serving a few hundred children a decade ago and has become the most successful prekindergarten effort in the nation today. (para. 4)

A statewide evaluation was conducted the first year of the Georgia Pre-K Program. In 2011, the Georgia General Assembly funded a multiyear evaluation of the Georgia Pre-K Program by researchers from the Frank Porter Graham Child Development Institute at the

University of North Carolina (Barnett et al., 2017). The study began during the 2011-2012 school year. The sample included 509 children from a random sample of 100 preschool classrooms in Georgia (Peisner-Feinberg, Schaaf, & LaForett, 2013). According to Peisner-Feinberg et al. (2013), the fundamental questions were, “What are the outcomes for children attending Georgia’s Pre-K Program? What factors better predict outcomes for children? What is the quality of Georgia’s Pre-K classrooms?” (p. 3). Observations of the classrooms and assessments in language, literacy, math general knowledge, and behavior were used to evaluate the preschool classrooms. The children were evaluated using eight measures in language, math, and general knowledge. Language and literacy skills were measured by five measures: the Naming Letters task assessment and four subtests of the Woodcock-Johnson III Tests of Achievement (Woodcock, McGrew, & Mather, 2001): Letter-Word Identification, Sound Awareness, Word Attack, and Picture Vocabulary. Math skills were measured by Counting Task and the Applied Problems subtest of the Woodcock-Johnson III Tests of Achievement. General knowledge was assessed by the Social Awareness Scale. Classroom quality was measured using the Early Childhood Environment Rating Scale (Harms, Clifford, & Cryer, 2004) and the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2007), which measured teacher-student interactions. Results for the first year showed “positive gains from the beginning to end of the preschool program on all of the assessment measures including the areas of language and literacy” (Peisner-Feinberg et al., 2013, p. 2).

The continuing study included 1,169 children in Year 1 of preschool, 1,034 children in Year 2, and 969 children in Year 3 (83% of the original sample in first grade). According to Peisner-Feinberg, Mokrova, and Anderson (2017), the researchers assessed language skills using the Woodcock-Johnson III Tests of Achievement. Students in pre-K through first grade were assessed using the Picture Vocabulary subtest and the Sound Awareness subtest, which measured

phonological awareness. Additionally, five tests of literacy were used: the Letter-Word Identification subtest; the Passage Comprehension subtest; the Word Attack subtest (measuring phonemic awareness and decoding skills); a Basic Reading Skills composite, based on Letter-Word Identification and Word Attack scores; and a Brief Reading composite, combining Letter-Word Identification and Passage Comprehension; (Peisner-Feinberg et al., 2017).

Peisner-Feinberg et al. (2017) discovered that children who attended Georgia's preschool program made significant gains on most norm-referenced measures from the time the children entered preschool until the end of first grade. The children demonstrated a significant amount of growth across all domains of the assessment. According to Peisner-Feinberg et al. (2017), the results showed significant growth from preschool through first grade. The gains were higher in preschool and kindergarten than first grade. Further, the children's ethnicity was a significant moderator for growth: "White children exhibited relatively greater gains than non-White children on most language and literacy measures" (Peisner-Feinberg et al., 2017, p. 2).

## **Oklahoma**

Following Georgia, in 1998, Oklahoma became the second state to offer a free, voluntary preschool program for 4-year-olds (Hill et al., 2012). According to Barnett, Carolan, Squires, and Clarke Brown (2013), the program served 74% of Oklahoma 4-year-olds in 2013, the second highest rate in the nation. The school districts served as the preschool providers, and in return, the schools received money from the state according to a child's age and program length (Barnett et al., 2016). Teachers of these children were required to have a bachelor's degree in early childhood education and were paid the same as kindergarten through Grade 12 public school teachers.

Additionally, Gormley, Gayer, Phillips, and Dawson (2005) conducted a study of the effects of Oklahoma's preschool program. The study took place during the 2002 and 2003

school year. The researchers administered the nationally normed Woodcock-Johnson III Tests of Achievement (Woodcock et al., 2001) to 1,567 preschool students and 3,149 kindergarten students in Tulsa, Oklahoma. The kindergarten students were the treatment group; the preschool students had just begun pre-K and thus were the control group (Gormley et al., 2005). The researchers acknowledged selection bias, as the pre-K program was voluntary. The Woodcock-Johnson III Tests of Achievement were administered, specifically the Letter-Word Identification, Spelling, and Applied Problems subtests.

According to Gormley et al. (2005), “For both full-day and half-day programs, we find positive and statistically significant impacts for all three tests” (p. 880). The overall effect for students was a 53% gain in letter-word identification, 26% gain in spelling and an 18% gain in applied problems. Gormley et al. (2005) concluded that their study provided “solid support” (p. 880) for the cognitive benefits of the pre-K program for diverse children.

In a later study, Gormley, Phillips, Newmark, Welti, and Adelstein (2011) examined the effects of Tulsa, Oklahoma’s pre-K, and Head Start programs on the social-emotional outcomes at the beginning of kindergarten. The sample was 2,832 kindergarten students in 2006 and consisted of students who participated in the Tulsa Public Schools preschool program and Tulsa Head Start program (Gormley et al., 2011). The researchers analyzed the effects of the social-emotional development of the preschool programs in Tulsa at public schools and head start programs. The assessment used for this study was the Adjustment Scales for Preschool Intervention (ASPI). Findings indicated that high-quality, school-based pre-K programs can support the development of some social-emotional skills that enable children to enter kindergarten ready to learn (Gormley et al., 2011).

## Tennessee

In 1998, Tennessee began to fund the state's first preschool program, the Tennessee Voluntary Prekindergarten program (TN-VPK). The program began as a pilot program and grew evenly over the next decade. The program was funded by grants for which the local school systems applied. Outside organizations contributed to help fund the preschool programs, which in turn allowed the school systems and outside agencies to collaborate. The TN-VPK was a full-day program for 4-year-olds. The program gave priority to students eligible for the federal free or reduced-price lunch program (Lipsey et al., 2013).

An evaluation project was conducted to assess Tennessee's preschool program. The report focused on two questions: "Does participation in TN-VPK improve the school readiness of the economically disadvantaged children eligible for the program? What are the characteristics of the children who benefit the most from TN-VPK?" (Lipsey et al., 2013, p. 49). The sample included over 3,000 randomly assigned children who attended 58 TN-VPK programs. The children were given the Woodcock-Johnson III Tests of Achievement (Woodcock et al., 2001) battery at the beginning and end of the preschool year and again at the beginning and end of kindergarten and first grade (Lipsey et al., 2013). The assessments were administered individually at the beginning and end of the preschool year. The assessments were also given at the end of kindergarten and first grade (Lipsey et al., 2013). The assessments measured early literacy, language, and math skills and included letter-word identification, spelling, oral comprehension, picture vocabulary, applied problems, and quantitative concepts. According to Lipsey et al. (2013), the scores of the different assessments were summarized in two composite measures. Then, the scores were averaged, and an overall combined achievement score was given in literacy, language, and math. In addition, the researchers collected reports from kindergarten teachers regarding the children's academic skills and behavior, using the Cooper-

Farran Behavioral Rating Scales (Cooper & Farran, 1991) and the Academic Classroom Behavior Record (Farran, Bilbrey, & Lipsey, 2003). The results indicated during the pre-K school year, academic skills of all the children improved (Lipsey et al., 2013). Further, according to Lipsey et al., 2013, “The children who participated in TN-VPK gained significantly more on all the direct assessments of academic skills than the children who did not attend” (p. 18).

## **Florida**

The Florida VPK was created as a result of the election in 2002 when voters approved an amendment to the Florida constitution to provide a high-quality pre-K program for every 4-year-old (Goldsmith & Meyer, 2006). According to the FLDOE Office of Early Learning (2016), the VPK program is a free pre-K program for 4- and 5-year olds who reside in Florida. The program began operating in 2005, serving approximately 100,000 children, increasing to more than 175,000 children served in 2016 (Barnett et al., 2016). Participating children must be 4 years of age on or before September 1 of the enrolling school year. A statute passed in 2016 allowed parents to wait until the following year when their child was 5 years old to enroll the child in the state’s free VPK program. The program consists of 540 hours of instructional time in a single school year or 300 hours of instructional time in the summer (FLDOE Office of Early Learning, 2016).

The VPK program may be offered in public, private, or faith-based educational institutions. Approved VPK providers are given a reimbursement for each child enrolled in the schools VPK program. The VPK program must comply with all state statutes about the preschool program. Section 1002.69 of the Florida K-20 Education Act (2012) mandated that the FLDOE establish a kindergarten readiness screener according to the standards that the FLDOE developed. The *Florida Early Learning and Developmental Standards for Four-Year-Olds*

(FLDOE Office of Early Learning, 2011) described what children should know by the end of the pre-K year. The standards address five areas: physical development, approaches to learning, social development, emotional development, language communication and emergent literacy, and cognitive development (FLDOE Office of Early Learning, 2011).

The standards are assessed three times a year in preschool with the VPK Assessment (FLDOE Office of Early Learning, 2016). The VPK Assessment measures four areas:

1. The print knowledge measure assesses the child's ability to recognize letters or words, and the knowledge of letter names (both upper and lower case) and the sounds they make.
2. The phonological awareness measure assesses the child's ability to blend a word if it is broken up into smaller sounds or syllables and blend a compound word.
3. The mathematics measure assesses early numeracy skills across three different areas: counting skills, numerical relations skills, and arithmetic reasoning skills.
4. The oral language–vocabulary measure assesses a child's expressive and receptive language, targeting the child's knowledge of adjectives, verbs, verb tenses, prepositions, and nouns (FLDOE Office of Early Learning, 2016).

Preschool teachers administer the VPK Assessments three times a year. Each assessment is recorded into a progress-monitoring tool called Bright Beginnings. Student scores on each subtest are rated by range as below expectations, meeting expectations, and exceeding expectations. The purpose of the evaluation is to determine whether the student has the readiness skills to enter kindergarten (FLDOE Office of Early Learning, 2016). According to the FLDOE Office of Early Learning (2016), 77% of Florida 4-year-olds were in VPK in 2014. Further, 82% of children who attended VPK in 2013 were ready for kindergarten, compared to 53% of children who did not attend.



## **School Readiness**

School readiness became popular in 1989 when President George H.W. Bush and some of the nation's governors created six national education goals (Kagan & Rigby, 2003). The first of these goals stated that, by the Year 2000, all children in America would start school ready to learn (U.S. Department of Education, 1991). These goals later became known as Goals 2000. These goals helped to move school readiness into public schools with an emphasis on a child's early experiences and how these experiences help children become successful in the later school years. According to Kagan and Rigby (2003),

Resource and technical planning groups made four primary contributions to the school readiness debate: (1) advancing readiness as a condition of individuals and institutions, (2) focusing on the conditions needed for children to be ready for school, (3) discerning the dimensions that constitute school readiness, and (4) highlighting the critical role of schools in school readiness. (p. 4)

Dockett and Perry (2009) stated, "Readiness for school is a contested and controversial term" (p. 20). These researchers also noted school readiness means different things to different people. Kim, Murdock, and Choi (2005) stated that readiness to learn focuses on the developmental stages and the stage of the child upon entering school. Lin et al. (2005) maintained that content knowledge is not important upon entering kindergarten, but rather biological growth ultimately determines the student's ability to learn in school. According to the National Association for the Education of Young Children (2009), the definition of school readiness must be flexible and broadly defined. All areas of children's development and learning should be included in the definition of readiness. Readiness is more than basic knowledge of language and math: readiness expectations should cover physical, cognitive, social, and

emotional competence as well as positive attitudes toward learning (National Association for the Education of Young Children, 2009). In addition, according to Maxwell and Clifford (2004),

School readiness involves more than just children. School readiness, in the broadest sense, is about children, families, early environments, schools, and communities.

Children are not innately “ready” or “not ready” for school. Their skills and development are strongly influenced by their families and through their interactions with other people and environments before coming to school. (p. 42)

Diamond, Reagan, and Bandyk (2000) stated,

Readiness for learning emphasizes the developmental process that forms the basis for learning a particular subject matter or content. Readiness for school, on the other hand, implies that each child must attain a specified set of skills before he or she is ready to enter kindergarten. (p. 27)

DiBello and Neuharth-Pritchett (2008) identified five domains of school readiness. They stated these domains must be discussed and measured to determine school readiness. DiBello and Neuharth-Pritchett’s domains were “physical well-being and motor development, social and emotional development, approaches to learning, language development, and cognition and general knowledge” (p. 257).

School readiness scores of kindergarten students were also analyzed in Georgia to determine whether or not school readiness was influenced by participation in preschool programs before starting school (Taylor, Gibbs, & Slate, 2000). The study had 171 kindergarten student participants (91 boys and 80 girls), with 76% of those participants being labeled as at-risk, low-income students as determined by their participation in the free and reduced-price lunch program. At the end of the kindergarten year, the students were categorized into two groups, those who attended preschool and those who did not attend preschool. Students were assigned to

groups based on school records or parent-provided information. Students in the preschool groups were subcategorized into three groups: a public preschool group, a Head Start group, and a private or church preschool group. All students were given the Georgia Kindergarten Assessment Program (Georgia Department of Education, 1993). The assessment was developed by the Georgia Department of Education and mandated for all children enrolled in the state public kindergarten program with the purpose of determining readiness for first grade. The test assessed five areas: communication, logical-mathematical, physical, personal, and social development. Students who attended a preschool program exhibited higher overall scores and higher scores on the physical and personal subsections but did not exhibit higher scores in the academic areas. Overall, 93.8% of the students who attended preschool passed the Kindergarten Assessment Program, whereas 84.4% of the students who did not attend preschool passed. At-risk children were positively impacted by attending preschool. Findings from this study were interpreted as meaning preschool attendance may facilitate school readiness more so than no preschool attendance. The results led Taylor et al. (2000) to conclude that the students who attended some preschool program demonstrated statistically higher overall school readiness, including having higher physical scores and higher personal scores on the GKAP, than those students who did not attend a preschool program.

Umek, Kranjc, Fekonja, and Bajc (2008) examined the effect of preschool on children's school readiness in Slovenia. They assessed 219 children using various language development scales, progressive intellectual assessments, and school readiness tests to determine whether or not preschool affected children's school readiness, specifically in connection to their intellectual abilities, language competence, and parents' education level. Of the 219 children assessed, 159 attended a preschool program before starting school, and 60 children had not attended preschool (Umek et al., 2008). The correlations among children's school readiness during the first few

months of school, language competence, intellectual ability, and parent education were calculated with Pearson's correlation coefficient. The results indicated children's school readiness was highly correlated with language competence, although the correlations to intellectual ability and parental education were also significant. Further analysis of the results established that children who had parents with higher educational levels scored better on the school readiness test, regardless of whether or not they had attended preschool. However, children who had parents with lower educational levels and had attended preschool scored significantly better on the school readiness test than their peers who also had low parent educational levels but did not attend preschool. These results showed that although other factors can affect children's school readiness, preschool can be a significant predictor of children's success when starting school (Umek et al., 2008).

In 2005, the National Institute for Early Education Research conducted a study of preschool programs in Michigan, New Jersey, Oklahoma, South Carolina, and West Virginia. The researchers' evaluation used a regression-discontinuity design with a random sample of 1,937 classrooms, half preschool and half kindergarten (Barnett, Lamy, & Young, 2005). Data were collected on 5,278 preschool and kindergarten students across the five states. The preschool group contained 2,728 children, and the control group contained 2,550 children (Barnett et al., 2005). Three assessments were administered to the students: the Peabody Picture Vocabulary Test (Dunn & Dunn, 1997) that measures receptive vocabulary, the Woodcock-Johnson III Tests of Achievement subscale that assesses mathematical skills (Woodcock et al., 2001), and the Preschool Comprehensive Test of Phonological and Print Processing (Lonigan, Wagner, Torgeson, & Rashotte, 2002) to assess print awareness and phonological awareness. The assessments were given in the fall of 2004. The children who attended the state-funded preschool program scored higher on the vocabulary and math assessments than the students who

did not attend the state-funded preschool program. A year later the researchers assessed the skills of pre-K graduates against those children who could not participate. Children in state pre-K programs had vocabulary scores 31% higher than those of nonparticipants (Barnett et al., 2005). The children who attended preschool were 3 months ahead of nonparticipants. The most gains showed in print awareness, including letter recognition, letter sounds, and book concepts. These state preschool programs also had an increase in math scores by approximately 44% compared to nonparticipants (O'Brien & Dervarics, 2007).

Other influences on school readiness have included the rise in maternal employment and more research being conducted in the field of early childhood education and intervention. According to the U.S. Department of Health and Human Services Children and Youth Department (2001), in 2000, about 24 million children under the age of 6 lived in the United States, and 60% of these children lived with parents who both worked. Fifty-nine percent of mothers worked in 2000, compared to 18.6% in 1960. As more mothers with young children entered the workforce, more children attended daycare facilities, leading to increased demand and then supply of early childhood education services (Kagan & Rigby, 2003).

Kagan and Rigby (2003) suggested that early brain development has an impact on a child's later years in school. The care that young children receive in and out of the home helps to shape early brain development (Kagan & Rigby, 2003). One way to better prepare children for kindergarten is to offer school readiness skills in a high-quality setting (Kagan & Rigby, 2003). Countries such as France, Sweden, Norway, and Denmark offer high-quality preschool programs for all students.

These countries spend up to five times the amount per child that is spent on programs for young children in the United States. The educational attainment of preschool teachers also is higher than in the United States, with most countries requiring either a four-year

degree or specialized training and certification in early childhood education. (Nelson, 2006, p. 2)

Smith (2009), used data from the ECLS Kindergarten Class of 1998-1999 to compare cognitive and socioemotional development among kindergarteners who had participated in preschool compared to children who did not. The longitudinal dataset followed a sample of 17,000 children from kindergarten through third grade. The students were assessed fall of kindergarten, spring of first grade, and spring of third grade (Smith, 2009). The students assessed were placed in categories: in care of a relative, Head Start, or center-based care. The students' socioemotional effects were determined through teacher questionnaires, and math and reading skills were evaluated using item response theory (Smith, 2009). According to Smith (2009) the center-based students had higher cognitive gains than the other students through third grade. "In contrast, the center-based students did not show an overall positive or statistically significant outcome on the socioemotional compared to relative or parental care students" (Smith, 2009, p. 29). Children who had attended preschool had higher reading and mathematics scores at the beginning of school all the way through to the third grade than students who were cared for by parents or caregivers (Smith, 2009). Smith (2009) noted students who attended preschool showed gains 2.83 points higher in mathematics and 4.49 points higher in reading than those students who had not attended any preschool program. Parents and preschool programs can significantly help the transition into kindergarten (Karabulut, 2013). This transition is necessary for the child to be successful when starting formal education. According to Karabulut (2013), every child should be given the opportunity to attend a quality early childhood program to help prepare the student for the next 15 years of formal education.

Reynolds et al. (2014) evaluated full-time preschool students and part-time preschool students and their association with school readiness, attendance, and parent involvement. Five

school districts of low-income families in two states were used and implemented the Child Parent Center (CPC) education program. Full-time and part-time preschool programs were used. The study consisted of 982 children ages three and four from 11 different schools. Full-time attendance was defined as attending 7 hours per day, 5 days a week, and part-time attendance was defined as 3 hours per day, 5 days per week (Reynolds et al., 2014). The Teaching Strategies GOLD Assessment System was used at the end of the students' preschool year to assess school readiness for kindergarten. "Teaching Strategies is a performance-based assessment designed for children birth to kindergarten composed of 66 items measuring mastery on 38 objectives in 9 domains of development" (Reynolds et al., 2014, p. 2128). Attendance and absence were based on the total number of days the students were enrolled for the school year. The last factor used to assess readiness was parental involvement. Parental involvement was assessed by teachers who used a 10-point rating scale based on parent participation (Reynolds et al., 2014). The results showed that full-day preschool was associated with higher scores in four to six of the domains assessed. The full-day students also had higher attendance and fewer absences with an overall attendance percentage rate of 26% to 46% of the part-time preschool students (Reynolds et al., 2014). The researchers also discovered that, "The greater amount of time spent in preschool was associated with 17% to 38% increases in children meeting national norms on 4 of the 6 subscales—language, math, socioemotional development, and literacy—and gains in school readiness to 3 to 4 months" (Reynolds et al., 2014, p. 2131).

Nievar et al. (2011) used a quasi-experimental research design to study Latino students in an urban school district. The study examined preschool students who had been exposed to a program called Home Instruction of Parents of Preschool Youngsters (HIPPO) and students who had not been exposed to the program. The HIPPO program studied consisted of teaching materials such as storybooks, manipulatives for teaching math and science, and activity packets

(Nievar et al., 2011). Cohort One consisted of 54 families that participated in the HIPPY curriculum and 54 participants who did not participate in the program. All participants were of Hispanic origin. The second cohort consisted of 131 former HIPPY students in third grade and 131 students in third grade who did not participate in the program (Nievar et al., 2011). Nievar et al. (2011) evaluated Cohort One using a quasi-experimental design that compared “families who had been enrolled in the HIPPY program for at least 6 months with those on the waiting list” (p. 228). Families were randomly selected to include, 70 families who participated in the HIPPY program and 73 families on the waiting list. The participating families were evaluated using a variety of measures including the Parenting Stress Index which measured the overall stress that parents may experience as part of being a parent, Parental Involvement and Efficacy which measures the mother’s the mothers control in areas regarding the child’s health, social skills, and cognitive development, the Center for Epidemiological Survey-Expression which measures depression symptoms, a demographic survey, The Home Observation for Measurement of the Environment tool which is used to measure predictions of a child’s success later in school, and state achievement assessments ( Nievar et al., 2011). Cohort Two consisted of third-grade students who had participated in the HIPPY program during preschool and non-participants of the HIPPY program was evaluated using achievement scores received from the school district where the students resided (Nievar et al., 2011).

Participants in Cohort one who participated in HIPPY had increased parental efficacy and less parental stress than the participants who were on the waiting list. Participants in Cohort Two who attended the HIPPY program had higher math scores than those participants who did not participate in the HIPPY program; however, this improvement did not carry over to the reading portion. The reading scores showed no significant effect. The results indicated that the HIPPY program has positive effects on a preschooler’s home environment. HIPPY families had



more learning materials in the home and mothers were more likely to encourage their children to learn. According to the researchers, all of these factors helped the children become better prepared for kindergarten (Nievar et al., 2011).

### **Mixed and Negative Results of Preschool Programs**

Researchers such as Gormley et al. (2005) have noted that study results may not generalize. For instance, they noted selection bias in their study of Oklahoma preschool children, as preschool was voluntary. Gormley et al. (2005) also noted methodological weaknesses claiming, “Virtually all published evaluations of state pre-K programs, as well as the national studies, have failed to correct for selection bias, [and] many have relied on tests that have not been normed or validated” (p. 873). For instance, using data from the National Longitudinal Survey of Youth, Schanzenbach, and Bauer (2016) reported Head Start participation was most beneficial to Black participants in the long term. The researchers compared outcomes of siblings who attended Head Start to those who did not, thereby controlling for a variety of other variables.

Gormley, Phillips, Newmark, and Perper (2009) described evidence that young children who spend more time in center-based care rather than with their mothers display higher levels of aggression by kindergarten and behavioral issues through the sixth grade. Gormley et al. (2009) reported thoroughly on the mixed results:

Evidence has documented that children who spend more time in non-parental child care—especially center-based care—during the early childhood years display higher levels of externalizing and aggressive behavior, as well as more adult-child conflict, at 54 months and at kindergarten age, and behavior problems through sixth grade (Belsky et al., 2007; Loeb, Bridges, Bassok, Fuller & Rumberger, 2007; NICHD Early Child Care Research Network [ECCRN], 2003, 2005; Vandell & Corasaniti, 1990). There is also

counter-evidence that children cared for in centers display more prosocial behavior, competence with strangers and independence from their mothers in play settings (Vandell, 2004; Votruba-Drzal, Coley & Chase-Lansdale, 2004). (p. 7)

Further mixed evidence has been presented for Head Start. Gormley et al. (2005) stated, “Evidence on Head Start remains controversial” (p. 872). In a later work, Gormley et al. (2011) noted research on Head Start had shown some adverse effects on self-control, externalizing behavior, and interpersonal skills. However, a more recent report by the Brookings Institute (Schanzenbach & Bauer, 2016) comparing sibling outcomes suggested Head Start has shown long-term positive impacts, increasing attendees’ likelihood of high school graduation and higher education.

Research on the negatives of attending preschool is scarce. Magnuson, Ruhm, and Waldfogel (2004) conducted a study to find out whether prekindergarten improves school preparation and performance. They used kindergarten data from the ECLS. Measures included “academic assessments; child-parent, teacher, and school administrator surveys; and observational ratings of school environments” (Magnuson et al., 2004, p. 8). The sample consisted of just over 10,000 children who were entering kindergarten. The children were given the assessment individual, and teachers along with parents responded to surveys. The teacher survey consisted of behavioral questions, whereas the parent survey consisted of questions regarding prior daycare experiences. The results indicated that, while the students reading and math scores increased, classroom behavior worsened (Magnuson et al., 2004). Magnuson et al. (2004) compared results at the time entering kindergarten and then entering first grade:

Compared to the kindergarten fall results, the positive effects of prekindergarten on academic outcomes have largely dissipated—effect sizes are about 0.03 for reading and math, one fifth as large as those obtained in fall of kindergarten. In contrast, negative

effects on classroom behavior persist and have increased in size by the spring of first grade— effect size -0.13 for self-control and 0.21 for externalizing behavior. (p. 22)

Loeb, Bridges, Bassock, Fuller, and Rumberger (2005) conducted a longitudinal study of the impact of center care in the years before kindergarten. Loeb et al. (2005) analyzed data from 14,162 U.S. children upon entry into kindergarten in 1998, using data from the ECLS Kindergarten Class of 1998-1999. Data included interviews, direct assessments when the child turned 5, and interviews with the kindergarten teacher. Kindergarten teachers evaluated the social skills of the sampled children in their classrooms. The study used four child care settings to break down the results. The results were broken into descriptives of these variables: parental, center, Head Start, and other (Loeb et al., 2005). Loeb et al. used factor analysis to create a composite score combining measures of self-control, interpersonal skills, and externalizing behavior (Cronbach's alpha of .87). Results indicated a slight increase in pre-reading and math skills among the group attending preschool but also showed a similar adverse effect on behavior, based on teacher reports related to learning, self-control, and interpersonal skills. Loeb et al. (2005) concluded enrollment in a center program before the age of 2 was not particularly beneficial for cognitive development and could be detrimental to social development. Further, additional hours per week at a program resulted in gains for children from low-income families but not for those of higher economic means (Loeb et al., 2005).

### **Summary**

In the literature review, the researcher has provided information concerning kindergarten readiness according to preschool attendance. Although a plethora of authors in the literature discussed the importance of attending preschool and the gains these students made throughout their school career, not much research has been conducted on the amount of time that a child

spends in preschool. Additional research is needed to examine the readiness skills needed to enter kindergarten according to the preschool attendance of full-time, part-time, or no preschool.

## CHAPTER 3: METHODOLOGY

The purpose of this quantitative study was to explore whether children who attended a full day of preschool were better prepared for kindergarten than those who attended a part-time program or no program at all. Two levels of the independent variable, preschool participation, were utilized: (a) full-time and (b) part-time or no participation. The research design was considered nonexperimental and specifically causal comparative.

### **Sample and Sample Selection**

The study used a nonprobability sampling technique, specifically, convenience or purposive sampling. Archival data made available by a charter school system in Florida were used to address the study questions and hypotheses. The charter system provided VPK scores of a cohort of preschool students at two charter schools during the 2015-2016 school year. The charter school system provided data with identifying information of participating students for study purposes, with the understanding that student names and other identifiers would be omitted from the reporting of findings in the study.

One hundred sixty-two incoming kindergarten students participated in the study. Full-time preschool was defined as attendance Monday through Friday during instructional hours, typically from 7:30 a.m. to 3:30 p.m. Part-time preschool was defined as attendance Monday through Friday for 3 hours a day. The entire sample of 162 incoming kindergarten students was utilized for the analysis purposes. Essential data related to participating students included scores on the VPK Assessment and the PKS. Nearly two-thirds of study participants (64.8%) received preschool services on a full-time basis, with nearly a quarter of participants (22.8%) receiving preschool services on a part-time or half-day basis. The full sample included 74 female and 88 male students. A complete description of the sample is presented in Chapter 4.

## **Procedure**

At the outset of the study, the researcher met with the superintendent at a local charter school serving pre-K through Grade 7 and received written permission to use scores on the VPK Assessment and PKS from the previous year. The student roster was accessed through the school system's database. The student rosters from the 2014-2015 and 2015-2016 school years were accessed for two elementary schools. Students eligible and identified for study participation were divided into groups based on the amount of time spent in preschool: full-time, part-time, or no preschool. The participants were assigned a unique identifier to ensure students' privacy. The VPK Assessment mean scores were accessed by the website. The mean scores were used from the four areas of the assessment: phonological awareness, mathematics, print knowledge, and oral language. Paper copies of the PKS were given to the researcher with the requested scale scores. A survey requesting demographic information was sent home with each participating student. The survey contained the same unique identifier as the assessments for privacy purposes (see Appendix A). The data collected from the assessments and survey were imported into IBM's SPSS (version 24) analytic platform for interpretation, analysis, and reporting purposes.

## **Instrumentation**

The FLDOE Office of Early Learning (2016) along with Florida State University's Florida Center for Reading Research developed the Florida VPK Assessment. The assessment provides teachers with regular, periodic checks of each student's understanding of various skills. The assessment measures skills aligned to the *Florida Early Learning and Developmental Standards for Four-Year-Olds* (FLDOE Office of Early Learning, 2011) adopted for use in VPK. Three assessment periods corresponded to the beginning, middle, and end of the program (FLDOE Office of Early Learning, 2016). The four measures included are predictors of later

reading and mathematics success: print knowledge, phonological awareness, oral language and vocabulary, and number sense (FLDOE Office of Early Learning, 2016).

The Print Knowledge domain assesses the child's ability to recognize letters or words, as well as knowledge of letter names (both upper and lower case) and the sounds they represent. The Print Knowledge measure has 12 assessment items and two practice items; scores of 0–7 are considered below expectations. Phonological awareness is the awareness and manipulation of the different sounds in a word. The Phonological Awareness measure assesses the child's ability to blend a word if it is broken up into smaller sounds or syllables, blend a compound word, and recognize the remaining word when part of the word is taken away. The Phonological Awareness domain includes 14 assessment items and two practice items; scores of 0–7 are considered below expectations. The Mathematics portion of the evaluation measures early numeracy skills across three different areas: counting skills, numerical relations skills, and arithmetic reasoning skills. The Mathematics domain has 18 assessment items; scores of 0–11 are considered below expectations. The Oral Language/Vocabulary domain measures expressive language; receptive language; and the child's knowledge of verbs, adjectives, verb tenses, nouns, and prepositions. Scores of 0–15 are below expectations. The Oral Language/Vocabulary measure includes 22 assessment items in Assessment Period 1 and 23 assessment items in Assessment Periods 2 and 3 (FLDOE Office of Early Learning, 2016).

The assessment may be given by any VPK instructor or another staff member who meets the minimum qualifications to be a VPK instructor and has completed the online training from the Department of Children and Families. As noted, the assessment is given three times per school year. Individual assessment data are entered into the Bright Beginnings website. The FLDOE Office of Early Learning created the Bright Beginnings online reporting system for the VPK data. The system generates reports for teachers and parents based on the child's scores

(FLDOE Office of Early Learning, 2016). According to the FLDOE (2009), the reliability estimate for all four areas of the VPK Assessment has a precision greater than or equal to .80, representing adequate reliability.

The PKS was created by Webster and Matthews (2000). This screener focuses on a child's readiness upon entering kindergarten. The purpose of the evaluation is to determine if a student has the early readiness skills to be successful in early school years and to identify those who may encounter difficulties or even failure. The screener has eight subtests: fine motor skills, gross motor skills, language comprehension, visual perception and discrimination, beginning letter recognition, number recognition, and impulse control. The sum of the child's scores is taken from each of the subsets and converted into standard scores. Any score between 82 and 90 indicates the child should be monitored upon entering kindergarten, and any score below 82 requires further testing, as the child may not be ready to enter kindergarten (Webster & Matthews, 2000).

## **Data Analysis**

### **Preliminary Analyses**

Prior to addressing the study's research questions, specific analyses included essential demographic information and internal reliability across standardized achievement measures by treatment category, which was analyzed for illustrative purposes. Essential demographic information was analyzed using descriptive statistical techniques. Frequency counts (*n*) and percentages (%) were utilized in the analysis and representation of participant gender and respective treatment category.

The internal consistency (reliability) of participant performance on outcomes measures was assessed using the Cronbach's alpha (*a*) test statistic. The statistical significance of internal



reliability finding was assessed using the  $F$  test statistic. The probability level of  $p < .05$  represented the threshold for the evaluation of the statistical significance of the finding.

### **Analysis for Research Question 1**

What are the differences, if any, in kindergarten readiness, measured by the VPK Assessment, among kindergarten students who attended full-time preschool, part-time preschool, or no preschool? Both descriptive and inferential statistical techniques were utilized to address the study's first research question. Measures of central tendency (mean scores), variability (standard deviations) and standard errors, and confidence intervals were used to analyze and represent data related to Research Question 1.

Inferential analysis related to the first research question centered on the use of a one-way analysis of variance (ANOVA). The assumption of normality of data was addressed using the Shapiro-Wilk test statistic. The alpha level of  $p > .05$  reflected findings in data arrays that were deemed relatively normal. The assumption of homogeneity of variances was addressed through the use of the Levene test statistic. A Levene test alpha level of  $p > .05$  signified variance homogeneity in data arrays associated with the first research question.

The statistical significance of ANOVA findings was based upon the alpha level of  $p < .05$ . Follow-up, pairwise post hoc testing was conducted using Tukey's honest significant difference test. The alpha level of  $p < .05$  represented the threshold for the evaluation of statistical significance of post hoc comparisons.

### **Analysis for Research Question 2**

What are the differences, if any, in kindergarten readiness, measured by the PKS, among kindergarten students who attended full-time preschool, part-time preschool, or no preschool? Both descriptive and inferential statistical techniques were utilized to address Research Question 2 as with Research Question 1. Measures of central tendency (mean scores), variability

(standard deviations) and standard errors, and confidence intervals were specifically used to analyze and represent data related to Research Question 2. As for Research Question 1, inferential analysis centered on the use of a one-way ANOVA. The analysis was similar to that for Research Question 1, only using PKS scores rather than the VPK Assessment.

### **Analysis for Research Question 3**

What effect, if any, does the gender of participant exert upon academic achievement on the PKS by the amount of preschool programming enrolled? A 2 x 2 factorial ANOVA was conducted on the study's data set to address Research Question 3. The specific foci of the analysis were to assess the main effects of participant gender and type of preschool program enrollment and the interaction effect between participant gender and preschool program enrollment. Measures of central tendency (mean scores), variability (standard deviations) and standard errors, and confidence intervals were specifically used to analyze and represent data related to Research Question 3.

Inferential analysis related to Research Question 3 centered on the use of a 2 x 2 factorial ANOVA. The assumption of normality of data was addressed using the Shapiro-Wilk test statistic. The alpha level of  $p > .05$  reflected findings in data arrays that were deemed relatively normal. The assumption of homogeneity of variances was addressed through the use of the Levene test statistic. A Levene alpha level of  $p > .05$  signified variance homogeneity in data arrays associated with Research Question 3.

Follow-up  $t$  tests of independent means and dependent means were conducted in the wake of factorial ANOVA findings for comparative between-groups analyses and within-groups analyses for the study's intended main effects variables. The alpha level of  $p < .05$  represented the threshold for the statistical significance in the follow-up analyses.

## CHAPTER 4: RESULTS

The purpose of this study was to determine whether children who attended a full-day of preschool were better prepared for kindergarten than their peers who attended a part-time program or no preschool program at all. Readiness rates among children who attended a public preschool in a large-sized school district in Florida were examined using standardized academic achievement scores as dependent variables. The student rosters from the 2014-2015 and 2015-2016 school years were accessed for two elementary schools.

### **Preliminary Analyses**

Prior to addressing the study's research questions, preliminary analyses were made of the data. Specifically, essential demographic information and internal reliability across standardized achievement measures by treatment category were analyzed for illustrative purposes.

### **Essential Participant Demographic Information**

Nearly two thirds of study participants (64.8%) received preschool services on a full-time basis, with nearly a quarter of participants (22.8%) receiving preschool services on a part-time or half-day basis. Table 1 contains a descriptive summary of study participants by respective treatment category.

Table 1

*Descriptive Statistics: Participants by Treatment Category (N = 162)*

Category	<i>n</i>	%
No preschool	20	12.3
Half-day preschool	37	22.9
Full-day preschool	105	64.8

Regarding the gender of study participants, the no-preschool group was nearly evenly represented at 45% females to 55% males, whereas the other treatment categories showed a wider discrepancy in dispersion of participant gender. More female participants attended the

half-day preschool program (64.9%) than males (35.1%), yet the reverse was true with the full-time preschool program category, as 61.% were male and the remaining 39% female. Table 2 contains a descriptive summary of study participants by gender and treatment category.

Table 2

*Participant Gender by Treatment Category (N = 162)*

Category	Female		Male	
	<i>n</i>	%	<i>n</i>	%
No preschool	9	45.0	11	55.0
Half-day preschool	24	64.9	13	35.1
Full-day preschool	41	39.0	64	61.0

Considering the socioeconomic status of participants, the greatest percentage of economically disadvantaged participants was identified with the half-day preschool program category, with 42.3% of participants within the category being considered economically disadvantaged. The economic disadvantage was determined based on eligibility for free or reduced-price lunch. Table 3 contains a summary of participant economic disadvantage descriptive data by respective treatment category.

Table 3

*Number and Percentage of Economically Disadvantaged Students by Treatment Category (N = 162)*

Category	<i>n</i>	%
No preschool	3	30.0
Half-day preschool	16	43.2
Full-day preschool	30	28.6

Regarding participant ethnicity, four distinct categories of ethnicity were identified for study purposes, with a fifth category identified as “other.” Participants identified as White represented 65% of the no-preschool group, 73% of the half-day group, and 74.3% of the full-

day preschool group. Table 4 contains a descriptive summary of study participants by ethnicity and respective treatment category.

Table 4

*Participant Ethnicity by Treatment Category (N = 162)*

Ethnicity	No preschool		Half-day preschool		Full-day preschool	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
White	13	65.0	27	73.0	78	74.3
Hispanic	4	20.0	3	8.1	11	10.5
Black	3	15.0	3	8.1	10	9.5
Asian	0	0.0	2	5.4	3	2.9
Other	0	0.0	2	5.4	3	2.9

**Internal Reliability**

The internal consistency (reliability) of participant performance across the standardized PKS assessment was noteworthy ( $\alpha \geq .80, p < .001$ ) for all three treatment categories.

Participants in the half-day preschool category manifested the highest degree of internal reliability ( $\alpha = .95$ ) of the study’s three treatment categories. Table 5 contains a summary of findings regarding the internal reliability of participant performance on the PKS by respective treatment category.

Table 5

*Internal Reliability Across Standardized Prekindergarten Scores by Treatment Category (N = 162)*

Category	<i>a</i>
No preschool	.92***
Half-day preschool	.95***
Full-day preschool	.86***

\*\*\* $p < .001$ .

### **Achievement Comparison by Treatment Group**

Six measures of participant achievement were utilized for study purposes. Four measures were from the Florida VPK Assessment (FLDOE Office of Early Learning, 2016), and two were from the PKS (Webster & Matthews, 2000). Students enrolled in half-day preschool programming manifested an achievement edge over peers identified with either the no-preschool or full-day preschool treatment categories. Table 6 contains a descriptive summary of the mean achievement comparisons of participants by respective treatment category. Any PKS raw score between 82 and 90 indicates the child should be monitored upon entering kindergarten, and any score below 82 requires further testing, as the child may not be ready to enter kindergarten (Webster & Matthews, 2000). VPK Assessments scores are interpreted as follows (FLDOE, 2011). For Print Knowledge, scores of 0–7 are below expectations, scores of 8–9 meet expectations, and scores 10–12 exceed expectations. For Phonological Awareness, scores of 0–7 are below expectations, scores of 8–10 meet expectations, and scores 11–14 exceed expectations. For Oral Language and Vocabulary, scores of 0–15 are below expectations, scores of 16–18 meet expectations, and scores 19–23 exceed expectations. For Mathematics, scores of 0–11 are below expectations, scores of 12–14 meet expectations, and scores 15–18 exceed expectations.

Table 6

*Mean Achievement Scores by Treatment Group*

Achievement measure	No preschool	Half-day preschool	Full-day preschool
VPK Print Knowledge		12.00	11.89
VPK Phonological Awareness		13.50	12.55
VPK Oral Language & Vocabulary		22.00	20.95
VPK Mathematics		17.00	16.40
PKS standard score	108.25	123.26	122.44
PKS percentile score	64.75	88.97	85.46

*Note.*  $N = 162$ . VPK = Voluntary Prekindergarten Assessment; PKS = Pre-Kindergarten Screen. VPK scores ranges are as follows: Print Knowledge, 0–12; Phonological Awareness, 0–14; Oral Language & Vocabulary, 0–23; Mathematics, 0–18.

### Results for Research Question 1

What are the differences, if any, in kindergarten readiness, measured by the VPK Assessment, among kindergarten students who attended full-time preschool, part-time preschool, or no preschool? The corresponding hypothesis was that children who attended a full day of preschool would have better readiness skills, as measured by the VPK Assessment, upon entering kindergarten compared to children who attended a part-time program. Table 6 contains a summary of mean scores by group. As indicated, mean scores for all tests and available categories (half- and full-day preschool) were in the exceeding expectations range. VPK Assessment data were not available for students with no preschool. Further, only five students who were part-time preschool had VPK scores, compared to 60 who attended preschool full time. Comparing a group of 5 students to a group of 60 students would not be statistically valid, and therefore the ANOVA was not conducted using the VPK Assessment data. The hypothesis could not be tested.

## Results for Research Question 2

What are the differences, if any, in kindergarten readiness, measured by the PKS, among kindergarten students who attended full-time preschool, part-time preschool, or no preschool? Two hypotheses were tested based on Research Question 2: (a) Children who attended a full day of preschool would have better readiness skills, as measured by the PKS, upon entering kindergarten compared to children who attended a part-time program or no program, and (b) children who attended a part-time program would have better readiness skills, as measured by the PKS, upon entering kindergarten compared to children who attended no preschool program. Research Question 2 was addressed using both descriptive and inferential statistical techniques. Table 7 contains a summary of descriptive statistical findings with respect to mean standardized score and respective treatment category of participants.

Table 7

*Descriptive Statistical Comparisons of Achievement on the Pre-Kindergarten Screen by Treatment Group*

Treatment group	<i>n</i>	<i>M</i>	<i>SD</i>	<i>SE</i>	95% confidence interval
No preschool	20	108.25	18.05	4.04	[99.80, 116.70]
Half-day preschool	35	123.26	11.62	1.96	[119.27, 127.25]
Full-day preschool	50	122.24	16.67	2.36	[117.70, 127.18]

A one-way ANOVA was conducted to determine if the differences in treatment group performance were statistically significant. The assumption of homogeneity of variances was met using Levene's test ( $p = .36$ ). The assumption of normality of data was met for all three data arrays using the Shapiro-Wilk and Kolmogorov-Smirnov tests, as summarized in Table 8.



Table 8

*Test of Normality Results for Achievement on the Pre-Kindergarten Screen by Treatment Category*

Treatment group	Shapiro-Wilk test	Kolmogorov-Smirnov test	<i>df</i>	<i>p</i>
No preschool	0.11		35	.16
Half-day preschool	0.11		20	.66
Full-day preschool		0.11	50	.19

The results of the one-way ANOVA reflected an overall statistically significant effect was exerted upon participant academic achievement on the PKS by amount of preschool programming enrolled in,  $F(2, 102) = 7.17, p = .001$ . To determine if the mean score differences between preschool-program pairwise comparisons were statistically significant, Tukey's honest significant difference test was utilized. Specifically, participant mean achievement scores in both the half-day and full-day preschool groups were statistically significantly different when compared to the scores of participants in the no-preschool treatment group. However, when mean achievement scores for participants in the half-day preschool program were compared directly with the scores of their peers receiving full-day preschool programming, the difference favoring the half-day preschool group was not statistically significant. Table 9 contains a summary of findings with respect to pairwise comparisons of mean achievement scores by treatment groups.

Table 9

*Pairwise Comparison of Mean Achievement Score Differences on the Pre-Kindergarten Screen by Treatment Category*

Pairwise comparison	<i>M</i> difference	<i>SE</i>	<i>p</i>	95% confidence interval
No preschool x half-day preschool	-15.01	4.33	.002**	[-25.32, -4.70]
No preschool x full-day preschool	-14.19	4.09	.002**	[-23.92, -4.46]
Half-day x full-day preschool	0.82	3.41	.970	[-7.29, 8.92]

\*\**p* < .01.

As a result of the analysis, Null Hypothesis 2, children who attended a full day of preschool would not have better readiness skills, as measured by the PKS, upon entering kindergarten compared to children who attended a part-time program or no program, was only partially rejected. Null Hypothesis 3, children who attended a part-time program would not have better readiness skills, as measured by the PKS, upon entering kindergarten compared to children who attended no preschool program, could not be rejected, however. PKS scores were significantly higher for children who attended part-time or full-time preschool compared to children who attended no preschool.

### **Results for Research Question 3**

What effect, if any, does the gender of participant exert upon academic achievement on the PKS by amount of preschool programming enrolled? Research Question 3 was addressed using both descriptive and inferential statistical techniques. Table 10 contains a summary of descriptive statistical findings with respect to mean standardized achievement score by participant gender and respective treatment category.

Table 10

*Descriptive Statistical Comparisons of Achievement on the Pre-Kindergarten Screen by Gender and Treatment Group*

Treatment group	<i>n</i>	<i>M</i>	<i>SE</i>	<i>p</i>	95% confidence interval
No preschool				.009**	
Female	9	119.33	4.87		[109.67, 129.00]
Male	11	99.18	4.41		[90.44, 107.92]
Half-day preschool				.001**	
Female	24	127.82	3.12		[121.64, 134.00]
Male	13	115.54	4.05		[107.50, 123.58]
Full-day preschool				.840	
Female	41	121.91	3.12		[115.73, 128.09]
Male	64	122.86	2.76		[117.38, 128.34]

\*\**p* < .01.

The assumption of homogeneity of variances was met using Levene's test (*p* = .28). The assumption of normality of data was met using the Shapiro-Wilk and Kolmogorov-Smirnov tests. Table 11 contains a summary of findings with respect to the normality of PKS academic achievement data by participant gender and respective treatment group.

Table 11

*Test of Normality Results for Achievement on the Pre-Kindergarten Screen by Gender and Treatment Category*

Treatment group	Shapiro-Wilk test	Kolmogorov-Smirnov test	<i>df</i>	<i>p</i>
No preschool				
Female	0.91		9	.300
Male	0.95		11	.610
Half-day preschool				
Female	0.96		22	.390
Male	0.94		13	.500
Full-day preschool				
Female	0.97		22	.720
Male		0.14	28	.140

A 2 x 2 factorial ANOVA was conducted on the study's data set to address Research Question 3. As a result, statistically significant main effects were present for both gender,  $F(1, 99) = 11.45, p = .001$ , and preschool enrollment category,  $F(2, 99) = 6.19, p = .003$ . Moreover, a cross-over interaction effect was evident for the interaction of participant gender and preschool enrollment category,  $F(2, 99) = 4.35, p = .02$ . Table 12 contains a summary of source with regard to the evaluation of main effects for gender and preschool enrollment category and interaction effect of participant gender by preschool enrollment category.

Table 12

*Source Table: Main Effects for Gender and Preschool Enrollment Category and Interaction Effect for Gender x Preschool Enrollment Category*

Source	Type III SS	df	M square	F	p
Intercept	1,231,208.97	1			
Preschool Enrollment Category	2,640.81	2	1,320.41	6.19	.003**
Gender	2,443.97	1	2,443.97	11.45	.001**
Preschool Enrollment Category x Gender	1,858.03	2	929.02	4.35	.020*
Error	21,135.39	99	213.49		

\*\* $p < .05$ . \*\* $p < .01$ .

Considering between-subjects findings, female participants demonstrated a practical and statistically significant edge in academic achievement on the PKS over their male counterparts in the no-preschool group,  $M$  difference = 20.15,  $p = .009$ , and in the half-day preschool group,  $M$  difference = 12.28,  $p = .001$ . The figure depicts the comparative performance of female and male participants by preschool enrollment category.

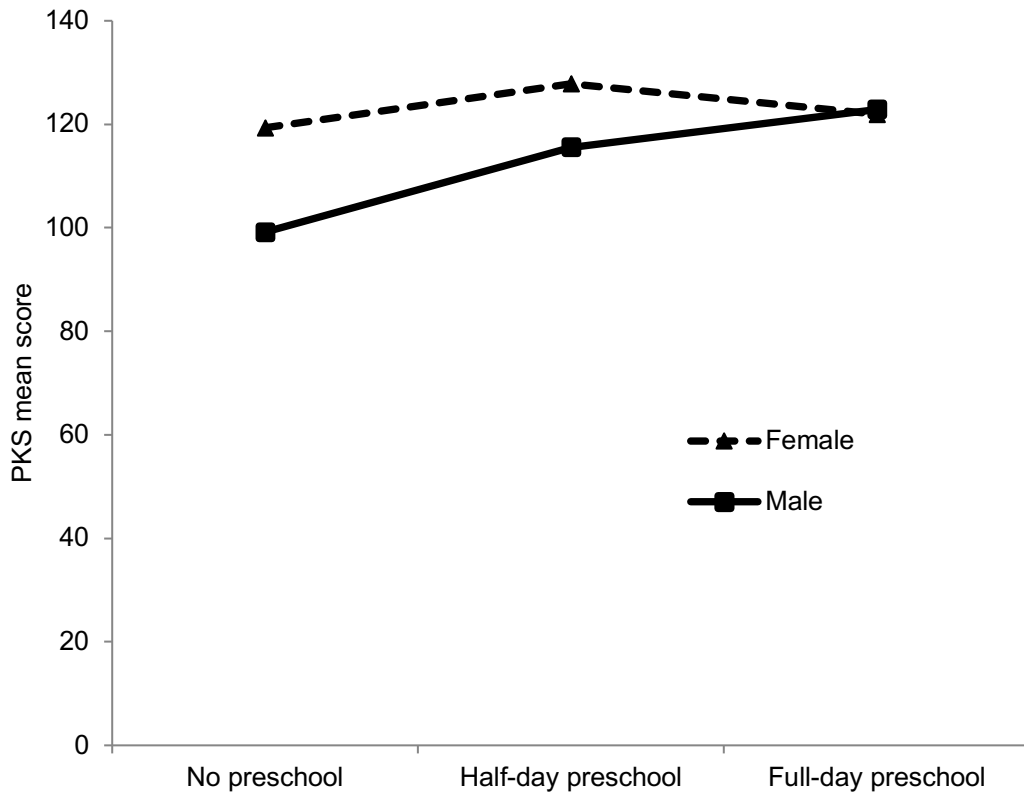


Figure. Pre-Kindergarten Screen (PKS) mean scores by gender and preschool enrollment type.

Regarding within-subjects findings, male participants appeared to have benefited most from preschool programming. PKS scores of male participants receiving no preschool were statistically significantly lower than PKS scores of male participants receiving half-day preschool,  $M$  difference = 16.36,  $p = .003$ , or full-day preschool,  $M$  difference = 23.68,  $p = .001$ . Conversely, PKS scores of female participants did not increase significantly with preschool attendance. PKS scores of female participants receiving no preschool were not statistically significantly lower than PKS scores of female participants receiving half-day preschool,  $M$  difference = 8.49,  $p = .100$ , or full-day preschool,  $M$  difference = 2.58,  $p = .63$ .

## CHAPTER 5: DISCUSSION

The study was undertaken in an attempt to determine whether children who attended a full day of preschool were better prepared for kindergarten than their peers who attended a part-time program or no preschool program. Kindergarten readiness rates among children who attended a public preschool in a large school district located in central Florida were examined using standardized academic achievement scores as outcome measures.

The participant group receiving no preschool services was nearly evenly represented by gender, whereas the other treatment categories manifested a broader discrepancy in the dispersion of participant gender. More female participants occupied the part-time preschool program than males, whereas full-time participants reflected a greater number and percentage of males. Considering the socioeconomic status of participants, the greatest percentage of economically disadvantaged participants was identified with the part-time preschool program category, with nearly half of study participants attending preschool part time being considered economically disadvantaged. The study's sample was largely identified as White across all categories of preschool involvement.

The internal consistency (reliability) of participant performance across standardized preschool assessments was considered very high for all three treatment categories by virtue of the Cronbach alpha levels exceeding .80. Participants in the part-time preschool category manifested the highest degree of internal reliability of the study's three treatment categories.

### **Discussion by Research Question Posed**

The first research question asked, what are the differences, if any, in kindergarten readiness, measured by the VPK Assessment, among kindergarten students who attended full-time preschool, part-time preschool, or no preschool? Data collection relevant to the first research question proved to be challenging for analytical purposes in light of the original intent

of the research question. An extreme imbalance in data arrays, particularly in the case of students identified as part-time ( $n = 5$ ) severely hindered the intent of analysis for the research question. As such, Research Question 1 could not be adequately addressed through the intended analytical procedures.

The second research question asked, what are the differences, if any, in kindergarten readiness, measured by the PKS (Prekindergarten Screener), among kindergarten students who attended full-time preschool, part-time preschool, or no preschool? Two hypotheses were tested based on Research Question 2: (a) Children who attended a full day of preschool would have better kindergarten readiness skills, as measured by the PKS, compared to children who attended a part-time program or no program, and (b) children who attended a part-time program would possess a higher level of readiness skills upon entering kindergarten as compared to children who attended no preschool program. The results of the one way ANOVA reflected an overall statistically significant effect upon participant academic achievement on the PKS by the amount of preschool. PKS scores were significantly higher for children who attended part-time or full-time preschool compared to children who attended no preschool.

The results for Research Question 2 appear to allow for the inference that children who attend a part-time or full-time preschool program possess the readiness skills necessary for academic success upon entering kindergarten. These readiness skills could include writing, letter recognition, social skills, fine or gross motor skills, sounds, and number recognition. The children in the study who attend no preschool program are likely to lack some or all the readiness skills needed to be successful in kindergarten. Thus, from the study's findings in Research Question 2, the children derive some benefit from some exposure to early intervention programming to enhance the likelihood of a more prosperous transition into kindergarten. The findings related to Research Question 2 suggest that children would profit by attending some

preschool program, as their attendance improves the probability of actual readiness for kindergarten.

The third and final research question of the study focused on the impact the gender of a participant had upon academic achievement on the PKS by the amount of preschool programming enrolled. To address the issue at the center of Research Question 3, the 2 x 2 factorial ANOVA test statistic was utilized for analytical purposes. As a result, a statistically significant “main effect” for the independent variable of gender was evident. Considering between-subjects findings within the analysis, female participants demonstrated a practical and statistically significant edge in academic achievement on the PKS over their male counterparts in the no-preschool group. The within-subjects aspect of the analysis revealed male participants benefited most from preschool programming. PKS scores of male participants receiving no preschool were significantly lower than PKS scores of male participants receiving a half day of preschool.

Interestingly, female participants outscored male participants in comparisons where neither gender attended preschool. According to Eliot (2010), “Boys and girls differ in many ways—in physical activity level, self-control, and performance levels in reading, writing, and math” (p. 32). Despite many differences in ability that have frequently been attributed to the genders, it is important to note that statistically significant differences were manifested in the current study between students of the same gender and between students of different genders (Eliot, 2010). As such, a firm understanding is needed of how to teach in light of the differences students possess, whether male or female. Further, the appropriate instruction is essential during the early years of childhood and as children begin attending school (Eliot, 2010).

Males who attended preschool scored at higher academic levels than males who attended no preschool. As such, males may benefit from the structure and direct instruction associated



with a preschool program. Additionally, social skills instruction is an essential aspect of educational programming in preschool. If preschool-aged boys learn to empathize and interact successfully with their peer group daily within the parameters of a formal preschool program, the results likely have a similarly beneficial socioemotional impact upon their ability to successfully interact with adults in social situations. Most importantly, formal acquisition of essential social skills by boys at the preschool level would appear to increase the likelihood of social skills mastered through formal training in a structured preschool program being successfully generalized outside the classroom setting and upon entering kindergarten.

### **Limitations of the Study**

The study was limited in several ways. First, a nonprobability, convenience sampling technique was used consisting of only students at two elementary schools in Florida identified for participation purposes. As a result, the broad generalization of the findings of the study must be handled with caution or not made at all. Second, the study's three groups identified for comparative purposes reflected significant sample size imbalances. Far more students in the study attended full-time preschool than attended part-time or no preschool, prompting analytic challenges in addressing the first research question. Third, the assessments representing the study's original dependent variables were limited, as only one assessment was used due to the amount of preschool attended by each student. Not all students were administered both assessments.

### **Implications for Professional Practice**

The research provided in this study and the literature review is useful for practitioners as they make decisions based on kindergarten readiness. The findings suggest teachers and administrators should pay closer attention to the readiness of students entering kindergarten. Plentiful research studies have supported the positive benefits for children who attend preschool.

For example, Barnett (2008) stated, “Nationally, the largest public investment in early education is for child care subsidies, state Pre-K, Head Start, and preschool special education” (p. 3).

Investing in preschool programs can help with the transition of entering kindergarten. Many studies in the literature review have started attending preschool has advantages not only through the child’s school-age years but also into adulthood in regards to behavior, education, and employment.

To ensure the likelihood of success in formal schooling, the child should, at the very least, be ready for kindergarten. Kindergarten readiness is an essential concept in the overall scheme of success in formal schooling. More researchers and educators should seriously consider the critical role that readiness skills occupy in promoting student success at the kindergarten level; this, in turn, may lead to more studies focused upon the impact of children attending a preschool program before entering kindergarten.

### **Recommendations for Future Studies**

The research questions and research addressed in this study represent a microcosm of the abundance of information that can be accessed on the topic of kindergarten readiness. Based upon a review of the current literature and findings on the study’s topic, several areas of potential research could be explored.

The findings of the current study provided some evidence in support of the notion that boys who attended any amount of preschool were better prepared for success in kindergarten. A study could be conducted comparing all the girls and boys in the state of Florida who have taken the VPK Assessment. A study of this magnitude would add to the credibility and generalizability of finding while providing more statistical power. The study’s research design could be expanded by comparing boys and girls who attend preschool in other states, such as Georgia, Oklahoma, and Tennessee. All three of these states offer a full-time preschool program

and are currently conducting studies on their programs to determine the positive effect of attending preschool.

Expanded sample sizes for future studies also could include greater stratification of demographic identifier variables such as socioeconomic status, ethnicity, type of preschool program, and level of parent involvement. The current study was limited in the magnitude of significant, demographic identifiers.

A longitudinal study could be conducted to determine the extent to which attending preschool affects the academic achievement throughout the child's elementary years. A more in-depth examination could be conducted of the schools whose students had higher VPK test scores.

### **Summary**

The evidence indicated that male students entering kindergarten after attending full-time or part-time preschool were better prepared than those males who did not attend any preschool program. More extensive research needs to be explored on this topic to help educators and legislatures see the importance of school readiness and the effects based on attending preschool particularly as it relates to gender.

## REFERENCES

- Abbott-Shim, M., Lambert, R., & McCarty, F. (2003). A comparison of school readiness outcomes for children randomly assigned to a Head Start program and the programs wait list. *Journal of Education for Students Placed at Risk*, 8, 191-214. doi:10.1207/S15327671ESPR0802\_2
- Ackerman, D., & Barnett, W. S. (2006). *Increasing the effectiveness of preschool programs*. New Brunswick, NJ: Rutgers University, National Institute for Early Education Research. Retrieved from <http://nieer.org/research-report/increasing-the-effectiveness-of-preschool-programs>
- Barnett, W. S. (2008). *Preschool education and its lasting effects: Research and policy implications*. Boulder, CO: Education and the Public Interest Center. Retrieved from [http://nepc.colorado.edu/files/PB-Barnett-EARLY-ED\\_FINAL.pdf](http://nepc.colorado.edu/files/PB-Barnett-EARLY-ED_FINAL.pdf)
- Barnett, W. S., Carolan, M. E., Squires, J. H., Clarke Brown, K. (2013). *The state of preschool 2013: State preschool yearbook*. New Brunswick, NJ: Rutgers University, National Institute for Early Education Research. Retrieved from <http://nieer.org/state-preschool-yearbooks>
- Barnett, W. S., Friedman-Krauss, A. H., Gomez, R. E., Horowitz, M., Weisenfeld, G. G., Brown, K. C., & Squires, J. H. (2016). *The state of preschool 2015: State preschool yearbook*. New Brunswick, NJ: Rutgers University, National Insitute for Early Education Reseach. Retrieved from [http://nieer.org/wp-content/uploads/2016/05/Yearbook\\_2015\\_rev1.pdf](http://nieer.org/wp-content/uploads/2016/05/Yearbook_2015_rev1.pdf)
- Barnett, W. S., Friedman-Krauss, A. H., Weisenfeld, G. G., Horowitz, M., Kasmin, R., & Squires, J. H. (2017). *The state of preschool 2016: State preschool yearbook*. New Brunswick, NJ: Rutgers University, National Insitute for Early Education Reseach. Retrieved from <http://nieer.org/state-preschool-yearbooks/yearbook2016>

- Barnett, W. S., & Hustedt, J. T. (2005). Head Start's lasting benefits. *Infants & Young Children*, 18(1), 16–24. Retrieved from <https://journals.lww.com>
- Barnett, W. S., Lamy, C., & Jung, K. (2005). *The effects of state kindergarten program on young children's school readiness in five states*. New Brunswick, NJ: Rutgers University, National Institute for Early Education Research. Retrieved from <http://www.policyarchive.org/handle/10207/96350>
- Berk, L. (2006). *Child development* (7th ed.). Boston, MA: Pearson Education.
- Boocock, S. S. (1995). Early childhood programs in other nations: Goals and outcomes. *The Future of Children*, 5(3), 94–114.
- Brewer, J. A. (2001). *Introduction to early childhood education: Preschool through primary grades* (4th ed.). Boston: Allyn and Bacon.
- Brooks-Gunn, J., Markman-Pithers, L., & Rouse, C. E. (2016). Starting early: Introducing the issue. *Future of Children*, 26(2), 3–35. 10.1353/foc.2016.0009
- Bultman, S. (2008). *The Froebel kindergarten philosophy*. Retrieved from <http://www.froebelfoundation.org/philosophy.html>
- Cannon, J. S., & Karoly, L. A. (2007). *Who is ahead and who is behind? Gaps in school readiness and student achievement in the early grades for California children*. Santa Monica, CA: RAND. Retrieved from [https://www.rand.org/pubs/technical\\_reports/TR537.html](https://www.rand.org/pubs/technical_reports/TR537.html)
- Conway, D. M. (2010). *The relationship between preschool programming and school readiness for rural children entering kindergarten* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses database. (3403174)
- Cooper, D. H., & Farran, D. C. (1991). *Cooper-Farran Behavioral Rating Scales*. Brandon, VT: Clinical Psychology.

- Diamond, K. E., Reagan, A. J., & Bandyk, J. E. (2000). Parents' conceptions of kindergarten readiness: Relationships with race, ethnicity, and development. *Journal of Educational Research, 94*, 93–100. Retrieved from <http://www.jstor.org/stable/27542309>
- DiBello, L. C., & Neuharth-Pritchett, S. (2008). Perspectives on school readiness and pre-kindergarten programs: An introduction. *Childhood Education, 84*, 256–259. doi:10.1080/00094056.2008.10523021
- Dockett, S., & Perry, B. (2009). Readiness for school: A relational construct. *Australasian Journal of Early Childhood, 34*, 20–27. Retrieved from <https://researchoutput.csu.edu.au/ws/portalfiles/portal/8698022>
- Duncan, S. E., & De Avila, E. A. (1998). *Preschool Language Assessment Scales (PreLAS)*. Monterey, CA: CTB/McGraw-Hill.
- Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test—third edition (PPVT-III)*. San Antonio, TX: Pearson.
- Edgar, D. W. (2012). *Learning theories and historical events affecting instruction design in education: Recitation literacy toward extraction literacy practices*. Thousand Oaks, CA: Sage. doi:10.1177/2158244012462707
- Eliot, L. (2010). The myth of pink and blue brains. *Educational Leadership, 68*(3), 32-36. Retrieved from <http://www.ascd.org/publications/educational-leadership/summer11/vol68/num10/The-Myth-of-Pink-and-Blue-Brains.aspx>
- Farran, D. C., Bilbrey, C., & Lipsey, M. (2003). *Academic Classroom Behavior Record*. Nashville, TN: Vanderbilt University.
- Florida Department of Education. (2009). *Florida's Voluntary Prekindergarten (VPK) education program: VPK teacher toolkit: The Florida VPK Assessment*. Retrieved from <http://www.flvpkonline.org/teachertoolkit/assessment/teacher/measures.htm>

- Florida Department of Education. (2011). *Understanding the Florida VPK Assessment scores*. Retrieved from [http://www.elcbroward.org/uploads/files/Understanding the Florida VPK Assessment AP3 Scores 3-28-11.pdf](http://www.elcbroward.org/uploads/files/Understanding%20the%20Florida%20VPK%20Assessment%20AP3%20Scores%203-28-11.pdf)
- Florida Department of Education Office of Early Learning. (2011). *Florida early learning and developmental standards for four-year-olds*. Retrieved from [http://flbt5.floridaearlylearning.com/BT5\\_Uploads/feldsfyo.pdf](http://flbt5.floridaearlylearning.com/BT5_Uploads/feldsfyo.pdf)
- Florida Department of Education Office of Early Learning. (2016). *Bright Beginnings: VPK Assessment*. Retrieved from <https://www.brightbeginningsfl.org/Assessment/VPKassessments.aspx>
- Florida K-20 Education Act, Title XLVIII Florida, §§1002.51–1002.79 (2012).
- Frank Porter Graham Child Development Institute. (1999). *Early learning, later success: The Abecedarian study*. Chapel Hill: University of North Carolina. Retrieved from <http://fpg.unc.edu/node/4038>
- Frank Porter Graham Child Development Institute. (2016). *The Abecedarian project: How FPG demonstrated the power of high-quality early education*. Retrieved from <http://fpg.unc.edu/node/8524>
- Georgia Department of Early Care and Learning. (2016). *Georgia's Pre-K Program: 20 years*. Retrieved from <http://dec.al.ga.gov/Prek/20yearanniversary.aspx>
- Georgia Department of Education. (1993). *Georgia Kindergarten Assessment Program*. Atlanta: Author.
- Galinsky, E. (2006). *The economic benefits of high-quality early childhood programs: What makes the difference?* Arlington, VA: Committee for Economic Development of the Conference Board. Retrieved from <https://www.ced.org/reports/the-economic-benefits-of-high-quality-early-childhood-programs>

- Gilliam, W. S., & Ziegler, E. F. (2004). *State efforts to evaluate the effects of prekindergarten: 1977 to 2003*. New Haven, CT: Yale University, Child Study Center.
- Goldsmith, S., & Meyer, R. (2006, August). *Pre-K: Shaping the system that shapes children* (Civic Bulletin No. 42). New York, NY: Manhattan Institute, Center for Civic Innovation. Retrieved from ERIC database. (ED498139)
- Gormley, W. T., Jr., Gayer, T., Phillips, D., & Dawson, B. (2005). The effects of universal pre-K on cognitive development. *Developmental Psychology, 41*, 872–884. doi:0.1037/0012-1649.41.6.872
- Gormley, W. T., Jr., Phillips, D. A., Newmark, K., & Perper, K. (2009, April). *Social-emotional effects of early childhood education programs in Tulsa*. Paper presented at the meeting of the Society for Research in Child Development, Denver, CO.
- Gormley, W. T., Jr., Phillips, D. A., Newmark, K., Welti, K., & Adelstein, S. (2011). Social-emotional effects of early childhood education programs in Tulsa. *Child Development, 82*, 2095-2109. doi:10.1111/j.1467-8624.2011.01648.x
- Gunn, B. K., Simmons, D. C., & Kameenui, E. K. (1995) *Emergent literacy: Synthesis of research* (Technical Report No. 19). Eugene: University of Oregon, National Center to Improve the Tools of Educators. Retrieved from ERIC database. (ED386866)
- Harms, T., Clifford, R. M., & Cryer, D. (2004). *Early Childhood Environment Rating Scale-Revised (ECERS-R)*. New York, NY: Teachers College Press.
- Hill, C. J., Gormley, W. T., Jr., Adelstein, S., & Willemin, C. (2012). *The effects of Oklahoma's pre-kindergarten program on 3rd grade test scores*. Washington, DC: Georgetown University, Center for Research on Children in the U.S. Retrieved from <http://www.crocus.georgetown.edu>



- Kagan, S., & Rigby, E. (2013). *Improving the readiness of children for school: Recommendations for state policy*. Washington, DC: Center for the Study of Social Policy. Retrieved from <https://www.cssp.org/publications/public-policy/policy-matters-improving-the-readiness-of-children-for-school.pdf>
- Karabulut, H. (2013). The neuro-building blocks of learning: Improving school readiness and overcoming learning difficulties. *Journal of Education and Future, 4*, 1–15.
- Kim, J., Murdock, T., & Choi, D. (2005). Investigation of parents' beliefs about readiness for kindergarten: An examination of National Household Education Survey (NHES: 93). *Educational Review Quarterly, 29*(2), 3–17. Retrieved from ERIC database. (EJ739378)
- Lee, R., Zhai, F., Brooks-Gunn, J., Han, W.-J., & Waldfogel, J. (2013). Head Start participation and school readiness: Evidence from the Early Childhood Longitudinal Study–Birth cohort. *Developmental Psychology, 50*(1), 202-215. doi:10.1037/a0032280
- Liebschner, J. (2001). *A child's work: Freedom and guidance in Froebel's educational theory and practice*. Cambridge, MA: The Lutterworth Press.
- Lin, H.-L., Lawrence, F. R., & Gorrell, J. (2003). Kindergarten teachers' views of children's readiness for school. *Early Childhood Research Quarterly, 18*, 225–237. doi:10.1016/S0885-2006(03)00028-0
- Lipsey, M. W., Hofer, K. G., Dong, N., Farran, D. C., & Bilbreay, C. (2013). *Evaluation of the Tennessee Voluntary Prekindergarten Program: Kindergarten and first grade follow-up results from the randomized control design*. Nashville, TN: Vanderbilt University, Peabody Research Institute. Retrieved from [https://my.vanderbilt.edu/tnprekevaluation/files/2013/10/August2013\\_PRI\\_Kand1stFollowup\\_TN-VPK\\_RCT\\_ProjectResults\\_FullReport1.pdf](https://my.vanderbilt.edu/tnprekevaluation/files/2013/10/August2013_PRI_Kand1stFollowup_TN-VPK_RCT_ProjectResults_FullReport1.pdf)

- Litty, C. G., & Hatch, J. A. (2006). Hurry up and wait: Rethinking special education identification in kindergarten. *Early Childhood Education Journal*, 33, 203–208. doi:10.1007/s10643-005-0048-9
- Loeb, S., Bridges, M., Bassok, D., Fuller, B., & Rumberger, R. (2005). *How much is too much? The influence of preschool centers on children's social and cognitive development* (NBER Working Paper 11812). Cambridge, MA: National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w11812>
- Lonigan, C. J., Wagner, R. K., Torgeson, J. K., & Rashotte, A. (2002). *Preschool Comprehensive Test of Phonological and Print Processing*. Tallahassee: Florida State University.
- Love, J. M., Kisker, E. E., Ross, C., Raikes, H., Constantine, J., Boller, K., . . . Vogel, C. (2005). The effectiveness of early Head Start for 3-year-old children and their parents: Lessons for policy and programs. *Developmental Psychology*, 41, 885–901. doi: 10.1037/0012-1649.41.6.88
- Magnuson, K. A., Ruhm, C., & Waldfogel, J. (2004). *Does prekindergarten improve school preparation and performance?* (NBER Working Paper No. 10452). Washington, DC: National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w10452>
- Maxwell, K., & Clifford, R. M. (2004, January). Research in review: School readiness assessment. *Young Children*, 59(1), 42–46. Retrieved from <http://journal.naeyc.org/btj/200401/maxwell.pdf>
- McCarthy, M., & Houston, J. (1980). *Fundamentals of early childhood education*. Winthrop, MA: Winthrop.

- Mitchell, A. (2001). *Prekindergarten programs in the states: Trends and issues*. Climax, NY: Early Childhood Policy Research.
- Mongeau, L. (2016, February 2). Why Oklahoma's public preschools are some of the best in the country: Oklahomans trend conservative, yet they have embraced free, universal early education. *Hechinger Report*. Retrieved from <http://hechingerreport.org/why-oklahomas-public-preschools-are-some-of-the-best-in-the-country/>
- Morrison, G. S. (2004). *Early childhood education today*. Upper Saddle River, NJ: Pearson.
- Najarian, M., Snow, K., Lennon, J., & Kinsey, S. (2010). *Early Childhood Longitudinal Study, Birth Cohort (ECLS-B): Preschool-kindergarten 2007 psychometric report* (NCES 2010-009). Washington, DC: National Center for Education Statistics.
- National Association for the Education of Young Children. (2009). *Where we stand on school readiness*. Retrieved from <http://www.naeyc.org/files/naeyc/file/positions/Readiness.pdf>
- Nelson, A. (2006, April). The achievement gap: Early childhood education. *Association for Supervision and Curriculum Development Info Brief, 45*. Retrieved from <http://www.ascd.org/publications/newsletters/policy-priorities/apr06/num45/toc.aspx>
- Nievar, M. A., Jacobson, A., Chen, Q., Johnson, U., & Dier, S. (2011). Impact of HIPPPY on home learning environments of Latino families. *Early Childhood Research Quarterly, Volume 26* 268 – 27. doi: 10.1016/j.ecresq.2011.01.002
- O'Brien, E. M., & Dervarics, C. (2007). *Pre-kindergarten: What the research shows*. Retrieved from <http://www.centerforpubliceducation.org/Main-Menu/Pre-kindergarten/Pre-Kindergarten/Pre-kindergarten-What-the-research-shows.html>
- Orr, A. (2012). *Chicago Child Parent Center*. Retrieved from the Rice University website: <http://centerforeducation.rice.edu/slc/LS/CCPC.html>

- Peisner-Feinberg, E. S., Mokrova, I. L., & Anderson, T. L. (2017). *Children's outcomes through first grade: Findings from Year Three of Georgia's pre-K longitudinal study*. Chapel Hill: University of North Carolina, Frank Porter Graham Child Development Institute. Retrieved from <http://fpg.unc.edu/resources/childrens-outcomes-through-first-grade-findings-year-3-georgias-pre-k-longitudinal-study>
- Peisner-Feinberg, E., Schaaf, J., & LaForett, D. (2013). *Children's growth and classroom experiences in Georgia's Pre-K Program: Findings from the 2012–2012 evaluation study*. Chapel Hill: University of North Carolina, Frank Porter Graham Child Development Institute. Retrieved from <http://decal.ga.gov/documents/attachments/GAPreKEval2011-2012Report.pdf>
- Peisner-Feinberg, E. S., Schaaf, J. M., LaForett, D. R., Hildebrandt, L. M., & Sideris, J. (2014). *Effects of Georgia's Pre-K Program on children's school readiness skills: Findings from the 2012–2013 evaluation study*. Chapel Hill: University of North Carolina, Frank Porter Graham Child Development Institute. Retrieved from <http://fpg.unc.edu/node/6831>
- Pianta, R., La Paro, K. & Hamre, B. (2007). *Classroom Assessment Scoring System (CLASS)*. Charlottesville: University of Virginia.
- Ramey, C. T., Bryant, D. M., & Suarez, T. M. (1985). Preschool compensatory education and the modifiability of intelligence: A critical review. In D. K. Detterman (Ed.), *Current topics in human intelligence* (pp. 247–296). Norwood, NJ: Ablex.
- Ramey, C. T., & Ramey, S. L. (2010). Head Start: Strategies to improve outcomes for children living in poverty. In R. Haskins & W. S. Barnett (Eds.), *Investing in young children: New directions in federal preschool and early childhood policy* (pp. 59–67). Washington, DC: Brookings Institution. Retrieved from [https://static.vtc.vt.edu/media/documents/1013\\_investing\\_in\\_young\\_children\\_haskins\\_ch5.pdf](https://static.vtc.vt.edu/media/documents/1013_investing_in_young_children_haskins_ch5.pdf)

- Reynolds, A. J., Richardson, B. A., Hayakawa, M., Lease, E. M., Warner-Richter, M., Englund, M. M., Sullivan M. (2014). Association of a full-day vs. part-day preschool intervention with school readiness, attendance, and parent involvement. *Journal of the American Medical Association, 312*, 2136-2134. doi:10.1001/jama.2014.15376
- Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann E. A. (2002). Age 21 cost-benefit analysis of the Title I Chicago Child-Parent Centers. *Educational Evaluation and Policy Analysis, 24*, 267–303. doi:10.3102/01623737024004267
- Robin, K. B., Frede, E. C., & Barnett, W. S. (2006). *Is more better? The effects of full-day vs. half-day preschool on early school achievement*. New Brunswick, NJ: Rutgers University, National Institute for Early Education Research. Retrieved from <http://nieer.org/research-report/is-more-better-the-effects-of-full-day-vs-half-day-preschool-on-early-school-achievement>
- Schanzenbach, D. W., & Bauer, L. (2016). *The long-term impact of the Head Start program*. Washington, DC: Brookings Institution. Retrieved from <https://www.brookings.edu/research/the-long-term-impact-of-the-head-start-program/>
- Schunk, D. H. (2004). *Learning theories: An educational perspective*. Upper Saddle River, NJ: Pearson.
- Schweinhart L. (2003, April). *Benefits, costs, and explanation of the High/Scope Perry Preschool program*. Paper presented at the meeting of the Society for Research in Child Development, Tampa, FL. Retrieved from ERIC database. (ED475597)
- Smith, S. V. (2009). *Ready to learn? How preschool participation affects children's cognitive and socioemotional development in early childhood* (Master's thesis). Georgetown University, Washington, DC.

- Snow, K., Derecho, A., Wheelless, S., Lennon, J., Rosen, J., Rogers, J., Einaudi, P. (2009). *Early Childhood Longitudinal Study, Birth Cohort (ECLS–B): Kindergarten 2006 and 2007 data file users manual*. Washington, DC: National Center for Education Statistics.  
Retrieved from <https://nces.ed.gov/ecls/birth.asp>
- Taylor, K. K., Gibbs, A. S., & Slate, J. R. (2000). Preschool attendance and kindergarten readiness. *Early Childhood Education Journal*, 27, 191-195. doi:10.1007/BF02694234
- Umek, L. M., Kranjc, S., Fekonja, U., & Bajc, K. (2008). The effect of preschool on children's school readiness. *Early Child Development and Care*, 178, 569-588. doi:10.1080/03004430600851280
- U.S. Department of Education. (1991). *America 2000: An education strategy: Sourcebook*. Washington, DC: Author. Retrieved from ERIC database. (ED327985)
- U.S. Department of Education. (2009). *Race to the Top: Executive summary*. Washington, DC: Government Printing Office. Retrieved from <https://www2.ed.gov/programs/racetothetop/executive-summary.pdf>
- U.S. Department of Health and Human Services, Administration for Children and Families. (2010). *Head Start impact study: Final report*. Washington, DC: Author. Retrieved from [https://www.acf.hhs.gov/sites/default/files/opre/hs\\_impact\\_study\\_final.pdf](https://www.acf.hhs.gov/sites/default/files/opre/hs_impact_study_final.pdf)
- U.S. Department of Health and Human Services, Administration for Children and Families. (2017). *Head Start history*. Retrieved from <https://eclkc.ohs.acf.hhs.gov/about-us/article/head-start-history>
- U.S. Department of Health and Human Services, Children and Youth Department. (2001). *Trends in the well being of America's children and youth, 2001*. Retrieved from <https://aspe.hhs.gov/report/trends-well-being-americas-children-and-youth-2001>

Vacca, J. M., Vacca, R., Gove, M., Burkey, L., Lenhart, L., & McKeon, C (2006). *Reading and learning to read*. Boston, MA: Pearson Education.

Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Wat, A. (2007). *Dollars, and sense: A review of the economic analysis of pre-K*. Washington, DC: Pre-K Now. Retrieved from [http://www.pewtrusts.org/~media/legacy/uploadedfiles/pcs\\_assets/2007/pewpkndollarsandsensemay2007pdf.pdf](http://www.pewtrusts.org/~media/legacy/uploadedfiles/pcs_assets/2007/pewpkndollarsandsensemay2007pdf.pdf)

Webster, R. E., & Matthews, A. (2000). *PKS: Pre-Kindergarten Screen*. Novato, CA: Academic Therapy.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III Tests of Achievement*. Rolling Meadows, IL: Riverside.