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Students' Phonological Awareness Literacy Screening and School Readiness

A dissertation

presented to

the faculty of the

Department of Educational Leadership and Policy Analysis

East Tennessee State University

in partial fulfillment

of the requirements for the degree

Doctor of Education in Educational Leadership

by

Jeannette D. Triplett

August 2016

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Keywords: School Readiness, Cognitive Development, Developmental Age

ABSTRACT

Students' Phonological Awareness Literacy Screening and School Readiness

by

Jeannette D. Triplett

Public school kindergarten programs have become increasingly more academic and have educators debating about what skills best serve children in kindergarten that will prepare them for later academic achievement. The Phonological Awareness Literacy Screening (PALS) is a screening instrument used in Virginia to assess kindergarten students and students in grades 1 through 3. Kindergarten teachers want to make sure that with the more demanding curriculum, and increase in rigorous standards, that students enter kindergarten ready to learn.

The purpose of this study was to examine the relationship between students' kindergarten PALS scores and first grade PALS scores in a southwestern Virginia school district. This study involved kindergarten and first grade students. The study reviewed their readiness skills required for kindergarten and later academic achievement. The study also examined preschool experience, birth order, and birthdays when students entered kindergarten. In addition, the study included students who were redshirted or held out of school for a year before enrolling in kindergarten.

The results showed the Spring PALS scores of kindergarten students and the Spring PALS scores of first grade students are significant indicators of academic achievement for language arts literacy.

The results can potentially assist in identifying the skills needed for students to be successful when they begin kindergarten. The relationship between readiness in kindergarten PALS scores and first grade PALS scores appears to extend across students' preschool experience, kindergarten entrance age, and birth order. Teachers, administrators, parents, policymakers, and legislators can make decisions that affect the curriculum and school readiness policies that will help students begin their educational career prepared to learn.

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DEDICATION

This work is dedicated to my family. To my husband Danny, I can't tell you how much I appreciated your support through this journey. Your encouragement and belief in me helped me more times than you will ever know. To my daughter Brittany, I thank you for all your support and love through this endeavor. To my son Daniel, I appreciate all your encouraging words and help when I needed you. Thank you all.

To my parents Donald and Elizabeth Darr, thank you for giving me the reason to always challenge myself and realize that life is more fulfilling and satisfying when we wake up each day with a purpose and reason to make each day count. Your examples and lessons throughout my life have taught me more than you can imagine. I can't thank you enough.

ACKNOWLEDGEMENTS

I would like to acknowledge the people who have supported and helped me through this dissertation process. To my committee chair, Dr. Donald Good, thank you for your help and encouragement while I have been in this program. I appreciate all your patience when I was overwhelmed with this endeavor. I thank Dr. James Lampley for serving on my committee and helping me with my research topic. I enjoyed being in your class and learned so much about the dissertation process. To Dr. Pamela Scott, thank you for helping me to get into this program and for all your encouraging words along the way. I appreciate all you did for me. To Dr. Cecil Blankenship for your willingness to serve on my committee. To Dr. Michael Amstein for encouraging me to pursue my doctoral degree and believing in my abilities as an educator.

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CHAPTER 1

INTRODUCTION

The benefits of investments in early care and education extend beyond improving children's school readiness to developing human capital early in a child's life that is predictive of future outcomes (Currie & Almond, 2011). Historically, the kindergarten curriculum emphasized social-emotional development including interpersonal and learning-related (L-R) skills (Logue, 2007). Debates continue about how to incorporate skills and behaviors that best serve children entering kindergarten since the implementation of the No Child Left Behind Act of 2001 (NCLB) (NCLB, 2002) and incorporating more academic standards and goals (Fantuzzo et al., 2007). However, children with certain kindergarten readiness skills have proven their skills are the building blocks for learning that are needed for academic success later in school and into adulthood. Katz's research on the early learning of children states that early learning indicates:

- early experience has lasting effects,
- early childhood is the critical period of neurological development,
- all children enter early childhood programs with active minds, and
- early childhood is the critical period in social development (Katz, 1997).

“Because of these conclusions, school readiness has been identified as the highest priority of education reform” (Edwards, 1999, p. 3). Another readiness issue that has been debated within the education community involves the rigor of the curriculum and the use of high-stakes testing that has now been extended to earlier grades. As a result,

early childhood educators may feel pressure to focus more time and effort on academic instruction, leaving less time for other developmentally important areas such as social-emotional development (Fantuzzo et al., 2007; Logue, 2007; Meisels, 2007).

Early childhood educators must also realize the importance of enhancing the growth of social-emotional areas to help students achieve long-term success (Griffin, 1997; McClelland, Morrison, & Holmes, 2000; Payton et al., 2008). Other factors have also been considered in discussions about kindergarten standards and expectations. The quality of teachers, class size, teacher absence, and turnover have all been shown to influence the outcomes for students. Poverty, unemployment, substance abuse, and unstable families have also had a tremendous influence on readiness skills on students in kindergarten.

In 2009 the Alliance for Childhood released a report that kindergarten in the United States has radically changed during the 1980s (Miller & Almon, 2009). Stipek (2006) suggested that a heightened focus on academics may be stressful for children and negatively impact their motivation, self-confidence, and attitudes towards school. Other studies have shown that more academically oriented early elementary experiences can help children who did not attend preschool (Magnuson, Ruhm, & Waldfogel, 2007). Children's school readiness depends on their opportunities within families, communities, and classrooms that support the development of basic skills in the areas of literacy, mathematics, science, history, and social science as well as physical, motor, personal, and social development.

Readiness skills in kindergarten are linked to many factors, but a major one in any kindergarten room is age. Almost all kindergarten classrooms have children with

birthdays that span 12 months. According to Weil (2007) in contemporary America, children are considered eligible to enter kindergarten according to an arbitrary date on the calendar known as the birthday cutoff, which is when the state or school district determines children are old enough to attend kindergarten. Studies show that the oldest students are about 10% more likely to be “university bound” than the relatively youngest ones (Weil, 2007).

No Child Left Behind (2002) also heightened awareness about readiness skills in students and began pushing phonics and pattern recognition worksheets even farther. The curriculum that had been taught to first graders a generation ago is now being taught to kindergarteners. Many kindergarteners have difficulty handling the demands of the kindergarten curriculum that may be stressful for children and negatively impact their motivation, self-confidence, and attitudes toward school. A number of studies have suggested that academic, didactic, or “developmentally inappropriate” kindergarten experiences are negatively associated with children’s learning outcomes (Huffman & Speer, 2000; Marcon, 1999; Stipek, Feiler, Daniels, & Milburn, 1995). Stipek (2006), for example, suggests that a heightened focus on academics may be stressful for children and negatively impact their motivation, self-confidence, and attitudes towards school.

Nobel laureate James Heckman argues that our focus on cognitive and academic skill-building in early childhood programs is misplaced and that the long-term benefits of early childhood interventions are driven through their impact on noncognitive social and behavioral skill building (Heckman, Krueger, & Friedman, 2004). Teaching academics does not need to be at odds with “play” and other pedagogical approaches that are considered developmentally appropriate in early childhood. The National Research

Council and Institute on Medicine argued that “the elements of early intervention programs that enhance social and emotional development are just as important as the components that enhance linguistic and cognitive competence” (Shonkoff & Phillips, 2000, pp. 398-399).

According to the National Institute for Early Education Research (NIEER) (Ackerman & Barnett, 2005), “Due to their different prekindergarten education experiences and irregular and episodic development, children enter kindergarten with widely varying skills, knowledge, and levels of preparedness” (p. 1). Children are expected to begin their kindergarten experience ready to read, but limited experiences and exposure to basic skills prohibit their ability to meet this goal. According to Rimm-Kaufman (2004), the successful transition of children into kindergarten “point[s] to the contribution of positive peer relationships and sensitive and stimulating family processes, and, in some respects, quality child-care environments” (p. 4).

The PALS (Phonological Awareness Literacy Screening) is a screening instrument used in Virginia to assess kindergarten students and students in grades 1 through 3. The instrument measures students’ knowledge of letters, spelling, concept of word, word recognition in isolation, and oral passage reading. The purpose of the PALS assessment is to identify students who are below grade-level expectations in these areas and may need additional instruction. The PALS test provides a comprehensive assessment of students’ knowledge of important literacy fundamentals that are predictive of their future reading success. This early literacy screening is one step to helping students overcome future reading problems; the PALS test was developed as the screening tool for Virginia’s Early Intervention Reading Initiative (EIRI). Early literacy

is an emerging set of relationships between reading and writing. These relationships are situated in a broader communication network of speaking and listening, whose components work together to help the learner negotiate the world and make sense of experience (Lewis 2000; Siegler 2000; Thelen & Smith 1995). Understanding critical developmental stages when children develop early literacy skills can help educators better determine how and when each student will best learn to read according to Denckla, a lead participant in the Neuro-Education Initiative (Bernard, 2008).

The Early Intervention Reading Initiative (EIRI) was initially established by the *1997 Virginia Acts of Assembly* (Chapter 924, Item 140) to serve either kindergarten or first grade students. During the 2000 General Assembly, the initiative was expanded to serve kindergarten through third grade students (Virginia Department of Education [VDOE], 2007). Governor Kain introduced an amendment to the EIRI budget for the 2007-2008 fiscal year that allowed more students to be served at an increased state cost of \$4.1 million. The amendment increased the number of students to be served in grades 1 and 2 from 50% to 100% of the eligible students. Beginning in 2007-2008 there was funding to serve 100% of the eligible students in kindergarten, first grade, and second grade, and there was funding to serve 25% of the eligible students in third grade (VDOE, 2007).

According to a Virginia School Readiness Report (VDOE, 2008) a top priority for Virginia's policymakers is to ensure that young children are provided opportunities and experiences that prepare them to enter school ready to learn. Virginia's definition of school readiness focuses not only on whether a child has acquired basic skills in the areas of literacy, mathematics, science, history, and social science with physical, motor,

personal, and social development but also on the capacities of families, schools, and communities to best support children's acquisition of these skills.

The 2008 Virginia School Readiness Report summarizes recent statewide efforts that have been made to promote school readiness in Virginia in three areas – developing infrastructure to support a comprehensive effort to improve school readiness, conducting research about access to and quality of preschool in Virginia, and creating resources to guide school readiness improvement efforts. The purpose of the PALS assessment is to (a) screen and identify children who are relatively behind in their acquisition of important literacy fundamentals, and (b) provide teachers with diagnostic information that allows them to match reading instruction to specific literacy needs. Students not meeting grade-level criteria are provided with additional reading instruction. Students are enrolled in kindergarten even if their PALS scores are below the benchmark.

Statement of the Problem

The purpose of this study was to evaluate the relationship between school readiness skills as measured by the PALS (Phonological Awareness Literacy Screening) assessment and the academic achievement of kindergarten and first grade students. The purpose was also to examine how readiness skills that preschool and kindergarten teachers identified determine a significant relationship or significant difference in the preparation of kindergarten students. The information used in this study also examined how curriculum standards are developmentally aligned with students when they first enter school at kindergarten. The information in the study also examined policies regarding readiness skills for kindergarten students.

Research Questions

The study focused on the following ten research questions:

- RQ1: Is there a significant relationship between kindergarten Spring PALS (Phonological Awareness Literacy Screening) scores and Spring first grade PALS scores?
- RQ2: Is there a significant difference between Fall PALS scores of kindergarten students who have birthdays that fall between October-April and Fall PALS scores of kindergarten students who have birthdays later on in May-September?
- RQ3: Is there a significant difference between kindergarten Fall PALS scores of students who attended preschool and Fall PALS scores of students who did not?
- RQ4: Is there a significant difference in Fall PALS scores of kindergarten students who were first born and Fall PALS scores of students who were not first born?
- RQ5: Is there a significant difference in Spring PALS scores of kindergarten students who attended preschool and Spring PALS scores of kindergarten students who did not attend preschool?
- RQ6: Is there a significant difference in Spring PALS scores of kindergarten students who are first born and Spring PALS scores of kindergarten students who are not first born?
- RQ7: Is there a significant difference in Spring PALS scores of kindergarten students who have birthdays between October-April and Spring PALS scores of kindergarten students who have birthdays between May-September?

RQ8: Is there a significant difference in Spring PALS scores of first grade students who are first born and Spring PALS scores of first grade students who are not first born?

RQ9: Is there a significant difference in Spring PALS scores of first grade students who attended preschool and Spring PALS scores of first grade students who did not attend preschool?

RQ10: Is there a significant difference in Spring PALS scores of first grade students who have birthdays between October-April and Spring PALS scores of first grade students who have birthdays between May-September?

Significance of the Study

There is an increased focus on school readiness for children entering kindergarten because the skills and knowledge children have upon entering school are predictive of later achievement (Ackerman & Barnett, 2005). Studies and policies (e.g. Kauerz, 2002; Snow, Burns, & Griffin, 1998) have focused largely on the importance of cognitive skills and emergent literacy for later academic achievement. While some of these dimensions have been examined either individually or in combination (Abbott-Shim, Lambert, & McCarty, 2003; Blair, 2002; Konold & Pianta, 2005; NICHD Early Child Care Research Network, 2003), relatively few studies have examined multiple aspects of school readiness. Identifying students' kindergarten readiness skills and the connection between age and birth order are examined in this study to help assist kindergarten teachers and elementary principals in developing kindergarten programs that are academically and socially appropriate for kindergarten students. Some studies suggest that the developmental levels of children who are closest to the age cutoff may put them at a

disadvantage for acquiring necessary academic skills (Uphoff & Gilmore, 1985). For example, young kindergarten students are more likely to have low work-related skills such as listening to directions and complying with teacher demands (McClelland, et al., 2000). They have also been shown to have lower scores on tests focusing on information processing skills (Kinard & Reinherz, 1986). An examination of data from the ECLS-K showed that children who entered kindergarten a year older than their peers had higher math and reading achievement scores in both Fall and Spring of the kindergarten year. The differences in these scores were statistically significant and were between 5 and 6 points in math and 4 to 5 points in reading. This trend continued through the end of first grade for reading (Datar, 2003).

With the widening academic gap that kindergarten teachers recognize in students, educators are using different curriculum standards to help students handle the demands of school. Research has shown that the path to developing the skills needed to thrive in school begin within the first 18 months of a child's life. To close the gap, "literacy experts emphasize the importance of natural conversations with children, asking questions while reading books, and helping children identify words during playtime" (Rich, 2013, p. 3). This knowledge gap has caused great concern and teachers and administrators are considering different measures to improve the situation.

This study was conducted to examine the significant differences between kindergarten PALS (Phonological Awareness Literacy Screening) scores for children who attended preschool and those who did not attend preschool. The PALS scores were also used to determine if there was a significant difference between fall kindergarten PALS readiness for first grade. The study also analyzed significant relationships between

student achievement and kindergarten students who have summer birthdays versus older kindergarten students. Policymakers' definitions of readiness and kindergarten teachers' definitions of readiness were compared to determine what skills may be the most important in identifying when students should begin kindergarten. The results of these findings could help identify important skills and considerations that should be made when establishing kindergarten readiness policies that could have long-term benefits for children.

This study examined the observations and factors that preschool and kindergarten teachers considered to impact students' academic achievement gap. The study included preschool experience, gender, date of birth, and any services that students may be receiving.

Definitions of Terms

The following definitions provide explanations for terms specific to this study.

Academic Redshirting – When parents wait a year before enrolling their child in kindergarten to allow extra time for socio-emotional, intellectual, or physical growth and to improve the child's likelihood of success.

Benchmarks – A standard or point of reference that can be used to judge the quality or level of other, similar things.

Birth Order – The sequence in which children are born into a family. Social rank in the family is a key element of this definition. In other words, individuals may have first rank in social terms due to a sibling's death, but they may rank second in biological terms within the family.

Cognitive Development – The field of study in neuroscience and psychology focusing on a child’s development in terms of information processing, conceptual resources, perceptual skills, language learning, and other aspects of brain development and cognitive psychology compared to an adult’s point of view.

Developmental Age – An age at which a child is functioning as a whole: a summary of neurological, social, emotional, and cognitive growth changes unique to each child; this may or may not be the same as his chronological age (Gesell Institute of Human Development, 2006).

Emotional Development – A child’s growing ability to regulate and control emotions and form secure relationships.

Kindergarten – The traditional year of school primarily for 5-year-olds prior to first grade (Heaviside & Farris, 1993).

Maturational Readiness – The ability of a child to adapt and learn in a school classroom setting.

PALS 1-3 – An instrument used to screen and identify students in need of additional instruction based on their Entry Level task scores, and also to diagnose specific skill deficits in students whose Entry Level scores do not meet a benchmark that represents minimum grade-level criteria. Those students then proceed to subsequent diagnostic levels of PALS (Level B tasks, Level C tasks).

PALS-K – An instrument used to measure a child’s knowledge of several important literacy fundamentals: phonological awareness, alphabet recognition, concept of word, knowledge of sound-letter relationships, and spelling. PALS-K provides a direct means of matching literacy instruction to specific literacy needs and provides a means of

identifying those children who are relatively behind in their acquisition of these fundamental literacy skills.

Pre-K – Child care with some educational content for children younger than 5 that is provided by preschools or elementary schools.

Readiness – The mastery of primary skills in reading to build upon in kindergarten such as sound/symbol relationships and visual discriminations (Lyon & Moats, 1997).

Reading Readiness – A state where children are prepared for formal instruction in reading when entering kindergarten (Burns, Griffin, & Snow, 1999).

School Readiness – The skills and qualities that a child possesses when entering kindergarten. This includes a combination of skills and qualities from the five domains of school readiness, as defined by the National Education Goals Panel (Copple, 1997): (a) health and physical development, (b) personal and social development, (c) approaches to learning, (d) language development, and (e) cognitive and general knowledge.

Delimitations

This study was confined by the following delimitations:

1. The participants surveyed were delimited to kindergarten and first grade teachers employed in a rural southwest Virginia school systems; therefore, the study was delimited by the demographics of those school systems.
2. The school system included in the study was comprised of public schools only; therefore, the student structure is delimited to those students enrolled in a public school.

Limitations

This research study was limited to a school district in southwest Virginia, which impacted on the ability to generalize results beyond areas of similar demographics.

Additionally, the number of students included in the study was limited to those students currently enrolled in the school district and the professional staff member study

participants were limited to teachers and principals only in the school district. Three limitations of the study are listed below:

1. The number and type of participants who chose to respond may limit the study by not including others who may provide information to support the research.
2. The experience of those surveyed may produce some bias toward the research that could limit the study.
3. My experience as a kindergarten teacher may create some bias toward the study that could be reflected in the study.

Chapter Summary

This study was conducted to investigate readiness skills of kindergarten students and students in first grade who were deemed ready. This study also examined data regarding redshirting and birth order and their influence on kindergarten readiness skills.

Kindergarten readiness skills have shown to be predictive of later academic achievement for students readiness (Ackerman & Barnett, 2005). Readiness, even though it has not been explicitly defined by policymakers and educators, has influenced decisions made regarding kindergarten assessments, age, and policies that have affected students. This

quantitative study was completed with the purpose of examining kindergarten readiness skills, assessments, age, prior preschool experience, birth order, and other factors that may have an effect on a child's kindergarten readiness.

Overview of the Study

The study is organized into five chapters. Chapter 1 includes the introduction, statement of the problem, significance of the study, and research questions. Chapter 1 also includes definitions of terms, delimitations, limitations, and an overview of the study. Chapter 2 details a review of the related literature. Chapter 3 explains the methodology used in the study. Chapter 4 presents the findings and data analyses. Chapter 5 presents the summary, findings, conclusions, and recommendations for this study.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this literature review is to provide an analysis of research on school readiness and how students are evaluated in kindergarten as a result of their readiness skills. The demands of kindergarten have increased in recent years as states push for higher standards; children now spend far more time being taught and tested on literacy and math skills than they do learning through play and exploration, exercising their bodies, and using their imaginations (Miller & Almon, 2009). Miller and Almon's report warned that kindergarten in the United States has radically changed over the past 20 years and that "developmentally appropriate learning practices" centered on play, exploration, and social interactions have been replaced with highly prescriptive curricula, test preparation, and an explicit focus on academic skill-building.

Because the curriculum has become more demanding and rigorous, discussions concerning kindergarten readiness skills have been debated among educators, parents, and policymakers. Evaluating readiness policies reveals a need to examine factors that influence students' earliest learning abilities that affect their level of preparedness when they enter kindergarten. Understanding which skills are linked to children's academic achievement is important for early education programs in order for students to learn and be successful. Children who come through this period feeling good about themselves, who enjoy learning, and who like school will have a lasting appetite for the acquisition of skills and knowledge. Children whose academic self-esteem is all but destroyed during these formative years and who develop an antipathy toward learning, and dislike school

will never fully realize their latent abilities and talents (Elkind, 2001). According to the US Department of Education Resource Team on National Education Goal 1 (1991),

Children's first learning experiences should lay the foundation for success in school and in adult life. Ideally, children who are ready to succeed in school are healthy, immunized against disease, well-nourished, and well-rested. Their early experiences have given them a start in learning to cooperate, exercise self-control, express their thoughts and feelings, and follow rules. They are trusting and have a feeling of self-worth. They explore the world around them actively and approach tasks with enthusiasm. They are motivated to learn.

In preparing young children for school, parents, community members, and educators should join together to help all children move closer to these ideals. (p. 2)

In recent years policymakers have endorsed more academic-oriented curricula. President George W. Bush promoted Head Start reforms in 2002 observing that, "On the first day of school, children need to know letters and numbers. They need a strong vocabulary. And they need to love books. These are the building blocks of learning, and this nation must provide them" (Bush, 2002, p. 1). No Child Left Behind (NCLB, 2002), proposed by President Bush, firmly established the notion of demanding increased rigor and pushed those demands down into the lower grades including preschool. As a result, certain preliteracy skills and math skills are now promoted for children in early education programs. There is also evidence that early childhood interventions that focus on academic skill-building might be particularly effective in improving children's long-term learning outcomes, especially for low-income students.

According to the National Institute of Child Health and Human Development Study of Early Child Care (National Institute of Health Public Access, 2007), children who entered kindergarten at an older age showed greater increases over time on letter-recognition, applied problem solving, memory for sentences, and picture vocabulary; they also outperformed children who started kindergarten at a younger age. With kindergarten standards becoming more rigorous, the effects of age are considered when evaluating a kindergartner's readiness skills. Developmental differences are evaluated based on a child's prior experiences at home and in child care and their performance in academic and social settings prior to beginning school. With the increasing emphasis on school accountability and on students' performance on achievement tests, more states and school districts will consider increasing the age of school entry for students (Stipek, 2002).

Influential Leaders in Childhood Education

There are many influential leaders in childhood education including Froebel, Piaget, Rousseau, Locke, Vygotsky, Bruner, Dewey, Bandura, Montessori, and Gardner. Practices for enhancing children's development are influenced most by child development theories. Berk (2000) defines a theory as an "orderly, integrated set of statements that describes, explains, and predicts behavior" (p. 6).

Friedrich Froebel

Froebel's kindergarten was designed to meet each child's need through physical activity, creative expression, exploration of ideas, and the experience of living among others. He applied his "hands-on-learning" approach to allow children to be led by and

freely explore their interests. The teacher's role was more of a guide rather than a lecturer. He stressed the importance of early education by saying, "... because learning begins when consciousness erupts, education must also... Children are like tiny flowers: They are varied and need care, but each is beautiful alone and glorious when seen in the community of peers" (Froebel, as cited in Traumbauer & Asher, 2005, p. 46). Froebel changed the direction of early education for children in 1837 when he founded his own school and called it "kindergarten" or the children's garden. His belief and understanding of early education changed the direction of and thoughts about when children should begin going to school. As an educator Froebel said that stimulating voluntary self-activity in the young child was the necessary form of preschool education (Watson, 1997). He promoted the idea that young human beings should be granted space and time to develop naturally by providing them with the proper amount of space and adequate time to become the person they naturally are. Froebel's philosophy of education, which is encompassed by the four basic components of (a) free self-activity, (b) creativity, (c) social participation, and (d) motor expression, encouraged curiosity among children (Svensen, 2011).

Froebel's kindergarten philosophy was brought to the United States in 1856 by Margarethe Meyer Schurz. She had been exposed to the teachings of Froebel and designed her kindergarten classes with the same ideas and practices that Froebel encouraged through songs, stories, games, simple activities, and play (MacLean, 2010). Kindergarten classes became more academic once they became publicly funded and became part of the public school system (Trommler & Shore, 2001). The curriculum that

was originally based on the premise of learning fair play and nice manners moved toward a curriculum of structured standards and testing.

Jean Piaget

“Jean Piaget championed a way of thinking about children that provided the foundation for today’s education-reform movements... his influence on education is deeper and more pervasive” (Paper, 1999, p.2). Piaget’s influence on education continues to be recognized in early childhood programs. His theories are evident in the foundation stage curriculum with an emphasis on the environment and quality of children’s interactions (Daly, Byers, & Taylor, 2004). Piaget said children should be provided age- and stage-appropriate activities that encourage abstract thinking and problem solving. He also encouraged promoting a learning environment that allows children to explore, experiment, plan, and make their own decisions (Daly et al., 2004). Children should be provided practical experiences and encouraged to learn by discovery to help them build mental processes that develop their abstract thinking skills. A human being’s ability to learn can be curtailed if it is limited from developing by improper socialization or inadequate exposure to a sufficiently broad variety of experiences (Claybaugh, 2010). Piaget said that better understanding of how a child’s mind develops could be a pathway to a well-formulated understanding not only of how humans of all ages acquire knowledge but the very nature of knowledge itself (Claybaugh, 2010).

Piaget’s theory relates to redshirting in the area of cognitive development, teaching techniques, maturation, and early childhood experiences. Piaget claimed that cognitive development was a spontaneous process. Children develop cognitive structures on their own. As such, parents and teachers cannot force children to think on a level they

have not reached. Each stage reveals the elaboration of new mental abilities that set limits and determine the character of what can be learned during that period (Crain, 1985).

According to Piaget humans acquire knowledge and moral values by constructing them from the inside in interaction with the environment, rather than by internalizing them directly from the environment (Kamii, 2012). Piaget's cognitive theory focuses on the ages and stages that identify what children can and cannot understand in relation to specific cognitive skills (McLeod, 2009).

Piaget did not believe that development is automatic. Rather, he believed that development must be stimulated by children's interactions with the world around them and the people with whom they come in contact... interactive stimulation rather than age or maturation alone contributes to development and to readiness for new tasks. (Marshall, 2003, p. 2)

Piaget's developmental theory consists of four cognitive learning stages: (a) sensory-motor intelligence, which is from 0 to 2 years; (b) preoperational, which is from 2 to 7 years; (c) concrete operational, which is from 7 to 11 years; and (d) formal operations, which is from 11 to 15 years (Wadsworth, 1971). Each of these stages reflects the child's development of organization and integration of the cognitive processes.

Piaget said that children must have prior experiences to help them develop a vivid understanding of concepts and prior experiences. He identified four factors related to cognitive development; (a) heredity, or internal maturation, which never occurs in a pure or an isolated state; (b) the physical experience, or the action or object, which forms an essential factor that cannot be underestimated; (c) social transmission, or the education factor, which is a major determining factor in development; and (d) equilibrium, a

fundamental factor of cognitive development. To Piaget cognitive development was progressive reorganization of mental processes as a result of biological maturation and environmental experience. Children construct an understanding of the world around them and experience discrepancies between what they already know and what they discover in their environment (McLeod, 2009). Piaget did not precisely relate his theories to education, although his theories have been extremely influential in developing educational policy and teaching. The classroom learning experience should be student centered and accomplished through active discovery learning. The role of the teacher is to facilitate learning, rather than deliver direct instruction.

Jean-Jacques Rousseau

“Rousseau considered public schools and colleges to be unsound. In his opening pages of *Emile*, Rousseau describes such institutions as ‘ridiculous,’ teaching children to become ‘double-minded, seemingly concerned for others, but really only concerned for themselves’ ” (Gianoutsos, 2006, p. 11). He “argues that children should learn through their senses, through investigating and exploring the natural world.³³” (p. 12). He “asks adults to give children ‘well regulated liberty’ (p. 13)” and for parents to “‘love childhood. Look with friendly eyes on its games, its pleasures, its amiable dispositions’ ” (p. 13).

Rousseau describes an early childhood educational method with the hope of minimizing the obstacles of civilization and bringing man as near to nature as possible, for “[e]verything is good as it comes from the hands of the Maker of the world but degenerates once it gets into the hands of man”. Instead of an educated man being guided by societal norms, Rousseau desires for a child to have no other

guide than his own reason by the time he is educated. Unlike Locke, he does not rely on social expectations to train children. Rousseau contends that men can attain this freedom and independence of thought through naturalistic education. ...in *Emile*, Rousseau emphasizes that “the only habit which a child should... form is that of forming none.” (p. 9)

He explains that the child should form no habits so as to “[p]repare him early for the enjoyment of liberty and the exercise of his powers; leave his body its natural habits; enable him always to be master of himself and as soon as he acquires a will, always to be master of himself and as soon as he acquires a will, always to carry out its dictates” (Gianoutsos, 2006, p. 10).

John Locke

Locke’s method of education is meant to be observed by parents from the time their child is born – long before the teaching that comes from books (Gianoutsos, 2006). He professed that children are not born with an innate sense of things. Children are shaped by their life experiences and perceptions of those experiences. Locke said children are born as blank slates, ready to absorb whatever is given to them and that before a child can assimilate learned facts the child must be educated in other life lessons (Webb, 2014). According to Locke’s child development theories a child who has been taught morals, values, and virtue will grow up to be a strong and principled adult. He said that if a child watched and was taught immoral behavior he or she would follow that pattern; Locke did not give any credence to the power of genetics or inherited traits (Webb, 2014). For Locke the young child is the most vulnerable to bad health and moral influence and also the most open to understanding and experience. Locke saw children as

individuals with distinct temperaments and emphasized the role of nurturing, active parents, and tutors in the development of a “virtuous mind” (Godbout, 2013).

Lev Vygotsky

Vygotsky was another influential leader in early childhood education who wrote that children learn by exploring their world and by testing their ideas against reality. He promoted the *zone of proximal development* concept defined as the difference between what the child can do alone and the potential for what can be achieved with assistance from a more skilled peer or adult (Daly et al., 2004). The zone of proximal development focuses not only on the completed level of development (the stage of development where the child can solve the problem independently) but also on the expected level of development where the child solves a problem with the help of an expert (Mason & Sinha, 1992).

Vygotsky determined that a child’s social environment was an important force in development; he did not consider the child as a solitary learner (Daly et al., 2004). According to Vygotsky learning rather than development per se sets in motion a variety of developmental processes. By waiting to promote literacy acquisition, adults do not take advantage of the child’s possible development capacities and therefore may delay development (Mason & Sinha, 1992). Vygotsky’s theory distinguished two kinds of development, natural and cultural. He said children practice their skills unconsciously and spontaneously before they have conscious control over a concept. Vygotsky’s work had a major influence on current educational trends because of his emphasis on social development and the need for interaction with more experienced people (Daly et al., 2004). “The point is not that children need to be ready for school, but that schools need to

be ready to guide, support, and instruct each child, regardless of the skills or knowledge a child brings. Age is largely irrelevant” (Marshall, 2003, p. 3).

Jerome Bruner

Bruner’s learning theories were influential and have had great influence on teaching practices (Rhalmi, 2011). He developed theories about learning that emphasized the significance of categorization that fit a child’s cognitive abilities. One of his main ideas was scaffolding; a process through which able peers and adults offer supports for learning. He also included the idea of spiral curriculum, whereby a curriculum should continually revisit basic ideas and build on them until the student grasps the full formal concept (Rhalmi, 2011). Bruner’s learning theories encouraged students to use their prior experiences to learn new knowledge. It encouraged teachers to provide feedback directed toward intrinsic motivation and posited that grades and competition are not helpful in the learning process. Bruner said learners must “experience success and failure not as reward and punishment, but as information” (Bruner, 1961, p. 26, as cited in Rhalmi, 2011, p. 4). For Bruner the purpose of education is not to impart knowledge, but instead to facilitate a child’s thinking and problem-solving skills that are then transferred to a range of situations (McLeod, 2008).

Bruner’s concept of spiral curriculum involves information being structured so that complex ideas can be taught at a simple level first and then revisited at more complex levels later. Ideally, teaching his way should lead to children being able to solve problems by themselves (McLeod, 2008). His theory promoted the idea that students discover the relationship between bits of information through lessons provided by the teacher.

John Dewey

Dewey is considered an influential leader in education because of his educational philosophy of pragmatism. He posited that human beings learn through a hands-on approach and that reality must be experienced. Students must interact with their environment in order to adapt and learn (Jordan, 2014). His view of the classroom was deeply rooted in democratic ideals that promoted an equal voice among all participants in the learning experience (Jordan, 2014). Dewey's approach was truly child-centered with an emphasis on learning the needs and interests of the child, and the role of the teacher in this setting as serving more as a facilitator than an instructor (Jordan, 2014). Dewey said that democratic child-centered classrooms and interaction with their communities would prepare the youngest citizens for living in a democratic society. He established the basic principles of today's early childhood education and of the importance of student-centered education at all grade levels (New & Cochran, 2006).

Albert Bandura

Bandura developed the social learning theory that expands on operant conditioning, adding the idea that imitation or observational learning increases the chance that children will learn new behaviors (Brown, 2009). Bandura said, "Behavior is learned from the environment through the process of observational learning" (as cited in McLeod, 2011, p. 1). Teachers can use the social learning theory as a way of understanding the behavior of some students, especially in the case of troublesome children. Social learning theory can help teachers understand why children act out; they can use social learning theory as a method of modeling good behavior to children. Observing a teacher model a behavior and seeing their responses in different situations

can show children how to behave in the same way (Nesbitt, 2013). Teachers are role models and have the responsibility to behave in a way that meets the expectations of a role model. Bandura's research shows that the teacher's behavior can help shape children in a way that is beneficial to their learning and development.

Maria Montessori

Montessori influenced education by following the concept of having multi-age classrooms that stress learning as its own reward. According to Montessori, "Self-motivated learning is the cornerstone of the Montessori method. 'The idea is for each child to move as quickly or as slowly as they need to move (in terms of learning)'" (Newton, 2007, p. 1). Holt said multi-age classrooms "allow younger children to learn from older ones. The older children in a class are able to practice their skills by sharing them with younger students" (as cited in Newton, 2007, p. 2). Montessori classrooms promote peace and respect to create an atmosphere that is conducive for learning for all students. Holt said, "The Montessori method teaches that humans 'are part of a big picture, and that big picture is so incredibly designed that any part of it is fascinating to learn about'" (as cited in Newton, 2007, p. 3).

Howard Gardner

Gardner's work concerning multiple intelligences has had a profound influence on thinking and practice in education. Gardner's idea that people have one of at least eight intellectual strengths – logical, linguistic, musical, visual/spatial, kinesthetic, intrapersonal, interpersonal, and naturalistic – that can't necessarily be assessed with standardized tests, is still debated in education (Ford, 2006). Gardner's work has

influenced education policies the world over because it has offered teachers new ways of thinking about teaching and assessment. There have been many critics of Gardner, but his theories have created enthusiasm in the education community because they offer teachers and students opportunities to consider different thoughts and ideas about intelligence. The educational implications of Gardner's work have less to do with restructuring the curriculum around the intelligences and more to do with a pedagogical shift from teaching through instruction to learning by construction (Dixon & McPhee, 2001). One of the enemies of developing real understanding in schools, Gardner argued, is the Western world's obsession with curriculum coverage. Requiring children to do a little about a lot inevitably leads to superficiality. A true understanding of anything takes time and patience; which tightly packed curriculum programs do not allow (Dixon & McPhee, 2001).

Policies and Leadership in Early Childhood Education

Policy initiatives that promote supportive relationships and rich learning opportunities for young children create a strong foundation for higher school achievement followed by greater productivity in the workplace and solid citizenship in the community (The Science of Early Childhood Development, 2007). Effective education leadership, effective teaching, and effective policies make a difference in improving student learning. States are key players in the enactment of educational leadership (Leithwood, Louis, Anderson & Wahlstrom, 2004). The focus on state standards and accountability systems is driving many policies in ways that are unprecedented and many school leaders are concerned about the impact of their

decisions. A coalition of national leaders in the field of early childhood education is becoming increasingly concerned about the impact of recent federal education policy reforms on early childhood education and care around the country (Carlsson-Paige, Levin, & McLaughlin, 2012). The coalition states that children develop best – socially, emotionally, and cognitively – when they have educational experiences that promote creativity, thinking, and problem-solving skills and engage in meaningful activities geared to their developmental levels and needs. Educational leaders met and discussed Race to the Top policy mandates on early childhood education. The leaders say the mandates undermine education practices that research has shown is in the best interest of young children’s optimal development and learning. Their concerns included current standards that are not based on knowledge of child development, excessive testing, and policies promoting de-professionalization of teachers. The standards require children to learn specific facts and skills, which has led to more teacher-directed lessons and less play-based activity and curriculum. It is not possible to teach skills in isolation or to mandate what any young child will understand at a particular time because, according to the research, children learn best through active learning experiences in a meaningful context. The growing focus on standards and testing has undermined the teacher’s ability to teach using their expertise to provide optimal learning opportunities for students. Children are expected to reach the standards, but children do not come *standard* (Carlsson-Paige et al., 2012).

Educators and policymakers should explicitly define readiness and determine what help and support each child needs to succeed in kindergarten (Ackerman & Barnett, 2005). By carefully defining readiness in terms of expectations for children and schools it

may be possible to improve the preparation of both and create a much better match between children and schools so that more children succeed and maximize their learning during the kindergarten and first grade years (Ackerman & Barnett, 2005)

Federal control over education has grown since the 1960s, as both standards and achievement have deteriorated. Centralized standard-setting threatens control of the academic content, standards, and testing through their state and local policymakers. Federal pressure to adopt national standards and assessments has raised concerns across the political spectrum because states are coerced to adopt a particular approach or be shut out of future funding for key programs. Additional funding also opens the door for the federal government to require more conditions such as the use of national tests for accountability purposes. Understanding what is at stake by adopting these standards is critical for policymakers. Instead of signing on to common standards that will drive state curricula, state education leaders should strengthen state standards and tests. State standards can also be strengthened by continually raising the bar on achievement (Burke & Marshall, 2010). Policymakers can use kindergarten assessment data to:

- Show the level of “school readiness” in the state and raise public awareness on the need to improve school readiness, especially among at-risk groups.
- Determine which groups of children lack school readiness skills.
- Identify policies and strategies to close the gaps in school readiness and school achievement.
- Track progress made over time in achieving school readiness in the state (Burke & Marshall, 2010).

In the 1990s, and especially after No Child Left Behind (2002) became law, the electronic gathering of data, disaggregating information by groups and individuals, and then applying lessons learned from the analysis to teaching became a top priority. This was because of the stigma and high-stakes consequences (e.g., state-inflicted penalties) incurred from public reporting of low test scores and inadequate school performance that could lead to a school's closure (Cuban, 2011). No Child Left Behind (2002) promoted the use of data-driven instruction and electronic gathering of data as a way to make teaching less subjective and more objective, less experience-based, and more scientific (Cuban, 2011). The Institute of Education Sciences reviewed studies that showed “low evidence” to support data-driven instruction. The assumption that data-driven instructional decisions improve student test scores is still an assumption, not a fact; data-driven instruction has not proven that it improves scores.

Preschool and School Readiness

The interest in preschool education grew in the 1960s when the rising number of economically disadvantaged children became a national concern because they were considered “at risk” for academic achievement (Ramey & Ramey, 1999). Various preschool establishments were set up to help children overcome cognitive, social, emotional, and physical deficits. Head Start was created to help poor and disadvantaged children by offering preschool training for 3-, 4-, and 5-year-olds but it also contributed to changing attitudes toward young children and early childhood education (Vinovskis, 1996). The success of the Head Start program for the poor led to enrollment of middle class students because the program addressed language development, literacy,

mathematics, science, social, emotional, and physical health development (Early & Winton, 2001).

Early and Winton (2001) noted that American policymakers and public educators were starting to recognize that reading in early childhood education was necessary for later years' success. An interest in children's early years followed, as studies have shown that appropriate programs for young children can improve reading. As a result of the research and studies and as a preventive method, preschool could ensure that all children enter school ready to read. Gilliam and Zigler (2001) have shown that learning to read and write is critical for success in school and throughout life. There is also national concern about this issue, as former First Lady Laura Bush (2001) said, "We all have a duty to call attention to the science and seriousness of early childhood cognitive development, because the years between birth and age five are the foundation upon which successful lives are built" (p. 3).

After the early intervention preschool experience, most children enter kindergarten with academic and developmental readiness (Vellutino et al., 1996). Vellutino et al. tested children's reading readiness, letter identification, and concepts of print to determine whether differences in these abilities could predict a difference in future reading achievement. Reading readiness is used by researchers and educators as a prereadiness skill presumed to be the prerequisite for formal reading instruction in school (Snow et al., 1998).

Developmental readiness occurs between the ages of 3 to 5 when children display signs of emerging literacy and their cognitive skills seem to improve around 4 years of age (Lewis & Paik, 2001). The term readiness reflects different assumptions about

children's learning and development. "When children begin school with few experiences with books, stories, or print, we generally confuse their lack of experience with a lack of ability" (Allington, 1994, p. 3). Allington also said, "We confuse the lack of experience with limited capacity" (p. 4). Variations in readiness for kindergarten could be addressed through interventions that provide extra time for maturation, experience, and practice to enhance underdeveloped skills in a preschool program (Graue, 2001). Consequently, kindergarten academics correlate with developmental readiness. Children who start school with these skills are prospectively prepared for full-day kindergarten (Fusaro, 1997).

School readiness is a multifaceted concept that goes beyond academic and cognitive skills to include approaches to learning and physical, social, person, and emotional development. Different assessments are administered to determine what interventions may be needed to combat the factors that threaten a child's development. Schools face heightened accountability requirements to close the achievement gap and have promoted pre-k to help. Research has established that the students most likely to lag behind academically are those who attend schools with less qualified teachers and poorer resources. The rigor of the curriculum implemented, the quality of teachers, class size, teacher absence, and turnover have all been shown to influence outcomes for students (Beatty, 2013). Other factors such as culture and environment play a role and affect readiness skills that begin well before students start school. According to the National Institute for Early Education Research (NIEER) (Ackerman & Barnett, 2005), families with modest incomes have the least access to preschool education that can help alleviate the school readiness gap.

The income achievement gap has grown in the United States and has affected the readiness skills in kindergarteners because of different trends that influenced the culture in America. Income inequality has risen dramatically in the last 30-40 years, making the gap between high-income and low-income families much greater. Social class has become both the main gateway and barrier to opportunity in America (Garland, 2013). According to Reardon, “Income has become a much stronger predictor of how well kids do in school” (as cited in Garland, 2013, p. 3).

“[T]he test-score gap between the children of the poor below the 11th percentile and the children of the wealthy above the 89th percentile has expanded by as much as 40% and is now more than 50% larger than the black-white achievement gap - a reversal of the trend 50 years ago. Underprivileged children now languish at achievement levels that are close to four years behind their wealthy peers (Reardon, as cited in Garland, 2013, p. 2).

Today’s public school kindergarten programs have become increasingly more academic and less play-oriented. “Kindergarten is the new first grade,” (Atchison, 2014). These changes have had an impact on readiness skills in kindergarten because many students do not have the prior knowledge and foundation to begin at the level that is required of them. There is also a mismatch between what tests measure and what kindergarten teachers say is important for school success (Stipek, 2002). Another issue that affects achievement at the kindergarten level is the entrance age that schools allow children to begin kindergarten.

One way to promote success in kindergarten is for policymakers to provide quality preschool programs that help students at risk to develop readiness skills. Because

of the complex nature of school readiness, decision makers should take into account the interactions among race and ethnicity, gender, socioeconomic status, and age (Coley, 2002). The National Association for the Education of Young Children's (NAEYC, 1995) position statement on school readiness points to a different approach: Rather than attempting to "fix" children so that they meet specific expectations of a kindergarten program, educators should realize that,

The nature of children's development and learning dictates two important school responsibilities. Schools must be able to respond to a diverse range of abilities within any group of children, and the curriculum in the early grades must provide meaningful contexts for children's learning rather than focusing primarily on isolated skills acquisition. (p. 2)

Virginia's Policy on School Readiness

Virginia does not assess school readiness, but in January 1994, the Commission on Equity in Public Education adopted and endorsed four major programs as the core elements in their recommendations to the 1994 General Assembly. The recommendations were focused on programs that had been shown to improve education achievement. A preschool program for at-risk 4-year-olds was one of those recommendations. The 1995 General Assembly provided for expansion of the Virginia Preschool Initiative (VPI). As of 2005-2006 state funds were available to provide comprehensive preschool programs to 100% of Virginia's at-risk 4-year-olds as defined by VPI funding eligibility who are not served by Head Start (VDOE, 1995).

The purpose of the VPI program is to reduce disparities among young children upon formal school entry and to reduce or eliminate those risk factors that lead to early academic failure. The legislative intent of the initiative is to establish a quality preschool education program for at-risk 4-year-olds. Localities are required to use the Phonological Awareness Literacy Screening instruments for prekindergarten students (PALS-PreK) for literacy screening during the fall and spring of each school year. The curriculum must align with *Virginia's Foundation Blocks for Early Learning* (VDOE, 2013). The *Foundation Blocks* establish a measurable range of skills and knowledge essential for 4-year-olds to be successful in kindergarten. The purpose of the *Foundation Blocks* is to provide early childhood educators with a set of comprehensive standards and indicators of success for entering kindergarten derived from scientifically based research. The programs provide full-day or half-day sessions and students must be 4 years of age on or before September 30 of the school year (VDOE, 2013).

On April 24, 2008, the Virginia Board of Education adopted Virginia's definitions of school readiness (VDOE, 2008). The definition was developed by a School Readiness Task force convened by the Secretary of Education. School readiness describes the capabilities of children, families, schools, and communities that promote student success in kindergarten and beyond (VDOE, 2012). Each component plays an essential role in the development of school readiness (VDOE, 2012); no one component can stand on its own (VDOE, 2008). A ready child is prepared socially, personally, physically, and intellectually within the developmental domains addressed in Virginia's six Foundation Blocks for Early Learning (VDOE, 2013):

1. literacy,

2. mathematics,
3. science,
4. history and social science,
5. physical and motor development, and
6. personal and social development.

Virginia's indicators that define, assess, and track school readiness create research-based benchmarks for components of school readiness and develop clear strategies for measuring progress toward these benchmarks. Children who are ready for school communicate effectively with adults and children. They are also able to display emerging literacy skills by identifying the letters of the alphabet and recognizing and producing speech sounds such as rhymes, beginning sounds, and letters (VDOE, 2008).

Virginia is one of 17 states working with the *National School Readiness Indicators Initiative: Making Progress for Young Children* (Rhode Island Kids Count, 2005) to obtain and use data to develop effective communication strategies and to inform a school readiness policy agenda. The goal of the 17-state initiative was achieved when states produced state-level reports on the set of school readiness indicators selected by their state team and released the reports to highlight key issues affecting young children in their state. According to the *National School Readiness Indicators Initiative: Making Progress for Young Children* (Rhode Island Kids Count, 2005), there is consensus based on a wealth of research that a child's readiness for school should be measured and addressed across five distinct but connected domains:

1. physical well-being and motor development,
2. social and emotional development,

3. approaches to learning,
4. language development, and
5. cognition and general knowledge.

In addition, teachers want kindergartners to be able to communicate needs, wants, and thoughts and to be enthusiastic and curious when approaching new activities. Teachers also place significant importance on skills such as following directions, not being disruptive in class, and being sensitive to other children's feelings (Rhode Island Kids Count, 2005).

Virginia's Foundation Blocks for Early Learning Comprehensive Standards for 4-year-olds provides a measurable range of skills and knowledge essential for 4-year-olds to be successful in kindergarten (VDOE, 2013). The purpose of the Foundation Blocks for Early Learning is to provide early childhood educators a set of minimum standards in literacy, mathematics, science, history, and social science as well as health, physical development, personal and social development, music, and the visual arts with indicators of success for entering kindergarten that are derived from scientifically based research. The standards are aligned with Virginia's Kindergarten Standards of Learning (SOL) and Virginia's Phonological Awareness Literacy Screening (PALS). The standards reflect a consensus of children's conceptual learning, acquisition of basic knowledge, and participation in meaningful and relevant learning experiences (VDOE), 2013).

Kindergarten Readiness

Kindergarten readiness is dependent on many factors that can influence a child's development. It is the critical point at which readiness becomes a concern with immediate

as well as long-term ramifications for school success (Boethel, 2004). Readiness means different things to different groups of people. There is not a consensus on what criteria should be used to determine school readiness for children. “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” (Maxwell & Clifford, 2004, p. 42). “Readiness for school is built on children’s curiosity and their intellectual, social, emotional, language, and physical development” (Saluja, 2000, p. 11). “Readiness is not limited to a fixed set of skills that are presumed necessary for entry into kindergarten or first grade” (Gnezda & Bolig, 1988, p.10).

The standards movement has trickled down to preschool classrooms because of the movement that has altered K-12 education standards across the nation (Bodrova, Leong, & Shore, 2004). Current policy demands that schools meet higher standards and young children are being placed in increasingly rigorous academic programs beginning as early as kindergarten. Beginning kindergarten students are often expected to learn what was previously taught in first grade. Research demonstrates that starting early and providing children with the necessary skills across the domains that are described in kindergarten readiness definitions (e.g. academic, emotional, and social) can have an impact and can make a critical difference in the student’s long-term success (Wackerle-Hollman, 2012). Teachers and parents need to consider several areas that could affect a child’s skills and success in kindergarten. Cognitive skills and social-emotional skills should both be considered in deciding whether a child is ready for kindergarten (Ackerman & Barnett, 2005). School readiness is critical for school success because

children who are unsuccessful in kindergarten are less likely to catch up and do better in later grades and more likely to drop out of school (Auerbach, 2004). Other concerns about kindergarten readiness involve screening programs that may or may not accurately identify them due to the 5-year-old child's short attention span, rapid development, and often inconsistent performance on demand (Rafoth, Buchenauer, Crissman, & Halko, 2004).

First-time kindergartners are similar in many ways; but according to the report on *America's Kindergartners* differences exist in children's skills and knowledge in relation to their characteristics, background, and experiences. The report indicated that more girls than boys score in the higher portion of the distribution for both fine and gross motor skills (National Center for Education Statistics, 1998). The report also indicated that the foundation of cognitive skills and knowledge that children build in kindergarten will influence children's experience in school and their cognitive growth in later school years. The research consistently documented the importance of the family environment in shaping children's early development. Also, the research indicated emergent literacy skills at kindergarten entry are a good predictor of children's reading abilities throughout their school years.

School readiness is gaining attention from the educational and research community because it marks the point where students begin learning in a school setting that defines their education as they progress through school. Because students are at such a critical point at the beginning of their education, school readiness should be clearly defined and understood by the educational community. Readiness has been variously theorized as a particular chronological age, as a stage or level of development in children,

as a set of skills and competencies, as a process, and as a set of relationships. A strong body of research has cast doubt on assumptions that children tend to progress in some lockstep fashion through specific stages of development and that they must reach a particular age or maturity before they are “ready to learn” (Boethel, 2004).

Children face enormous discontinuities between preschool and kindergarten as they enter elementary school for the first time. For example, as children enter elementary school after preschool, they and their families experience a substantial shift in culture and expectations, including more formal academic demands, a more complex social environment, less family support and connection, and less time with teachers due to larger class sizes and more transitions during the school day (Pianta & Kraft-Sayre, 2003).

Assessment is a significant issue in determining a child’s readiness in terms of its use by schools for diagnostic or placement purposes. There are questions as to what pre-academic knowledge, skills, and attributes are important in predicting school success (Boethel, 2004). Researchers have questioned the validity of specific readiness assessment and have found that the widely used readiness tests are relatively poor predictors of future school success and lack sufficient validity and reliability for making placement decisions (Carlton & Winsler, 1999).

According to Boethel (2004) factors that have been associated most consistently with children’s cognitive and social-emotional preparedness for school include,

- socioeconomic status, which often interacts with race or ethnicity;
- the child’s health;

- family background characteristics, particularly the mother's education, single-parent status, and mental health;
- the home and community environment, including risk factors and literacy-related factors; and
- participation in some type of preschool program (Boethel, 2004).

Readiness is a complex concept with many variables and factors that influence a child's readiness for school. Readiness is a concept that can be applied not only to children but also to schools and communities.

According to the National School Readiness Indicators Initiative, language proficiency is a key predictor of school success (Rhode Island Kids Count, 2005). Early literacy skills (size of vocabulary, recognizing letters, and understanding letter and sound relationships) at kindergarten entry are good predictors of children's reading abilities throughout their educational careers. Language and literacy skills enable children to develop cognitive skills and knowledge and to interact effectively with peers and adults. The School Readiness Indicators Initiative used this view of school readiness as the foundation for its work and created the *Ready Child Equation* to describe the range of components that influence children's ability to be ready for school.

- Ready Families: Describes children's family context and home environment.
- Ready Communities: Describes the community resources and supports available to families with young children.
- Ready Services: Describes the availability, quality, and affordability of proven programs that influence child development and school readiness.

- Ready Schools: Describes critical elements of schools that influence child development and school success (Rhode Island Kids Count, 2005).

The National Education Goals Panel (1991a) defined school readiness through five domains or emerging indicators that are useful for policymakers and state leaders in early education. Virginia is one of 17 states that are a part of the National School Readiness Indicators Initiative that are addressed across the five distinct but connected domains (Kagan, Moore, & Bredekamp, 1995):

1. Physical and Motor Development – The percent of children with age-appropriate fine motor skills.
2. Social and Emotional Development – The percent of children who often or very often exhibit positive social behaviors when interacting with their peers.
3. Approaches to Learning – The percent of kindergarten students with moderate to serious difficulties following directions.
4. Language Development – The percent of children almost always recognizing the relationships between letters and sounds at kindergarten entry.
5. Cognition and General Knowledge – The percent of children recognizing basic shapes at kindergarten entry (Bredekamp, 1995).

As the National Education Goals Panel presented their position statement for the National Association of the Education of Young Children, the authors noted that there is still much debate on what it means to be *ready* for school. Parents, teachers, school

administrators, policymakers, and politicians are all concerned about young children and whether or not they enter school *ready to learn* (National Education Goals Panel, 1991b).

While separate and distinct, the domains interact with and reinforce each other. The need for children to develop across the five domains is supported by kindergarten teachers. They agree that physical well-being, social development, and curiosity are very important for kindergarten readiness. Teachers also want kindergartners to be able to communicate needs, wants, and thoughts; their students should have skills such as being able to follow directions, not be disruptive in class, and be sensitive to other children's feelings (Rhode Island Kids Count, 2005).

The National Education Goals Panel position statement recognized that children's early learning and development is diverse, complex, and influenced by individual, cultural, and contextual variations (Kagan et al., 1995). Therefore, any discussion of school readiness must consider at least three critical factors (National Association for the Education of Young Children (NAEYC), 1995):

1. the diversity of children's early life experiences as well as inequity in experiences;
2. the wide variation in young children's development and learning; and
3. the degree to which school expectations of children entering kindergarten are reasonable, appropriate, and supportive of individual differences. (p. 1)

Many teachers appear to believe that children will develop the academic skills they need during their kindergarten year, which is a reasonable expectation given the substantial difference in children's pace of development (Shonkoff & Phillips, 2000). Children's earliest school performance, including their early kindergarten performance,

generally sets a pattern for their future performance (Barnett, Young, & Schweinhart, 1998; Denton & West, 2002; Reynolds, 2000). “Early achievement gain appeared to set in motion a cycle of lasting improvements in achievement, motivation and behavior” (Barnett, Young, & Schweinhart, 1998, p.180).

The NAEYC advocates the use of authentic assessment practices as the primary approach for assessing young children (Division for Early Childhood (DEC), 2007; National Association for the Education of Young Children and National Association of Early Childhood Specialists in State Department of Education, 2002). Authentic assessment strategies involve documenting learning and development of children during real-life activities and routines by familiar adults. The NAEYC (1995) stated, The commitment to promoting universal school readiness requires:

1. addressing the inequities in early life experience so that all children have access to the opportunities that promote school success;
2. recognizing and supporting individual differences among children including linguistic and cultural differences; and
3. establishing reasonable and appropriate expectations of children’s capabilities upon school entry. (p. 1)

Readiness for kindergarten involves both the child and the instructional situation. According to Nurss (1987) readiness for kindergarten depends on a child’s development of social, perceptual, motor, and language skills expected by the teacher. It also depends on the curriculum’s degree of structure, the behavior required by the instructional program, and expectations of what is to be achieved by the end of the program.

Empirical studies yield mixed evidence about whether school performance is related to the age a child first enters school. These studies suffer in part because there is no strong consensus about what the theoretical effects will be if a child enters formal schooling at a younger or older age. On the one hand, school performance should be higher among children who enter school at younger ages if early school entry exposes them to a richer learning environment than they would get at home. On the other hand, school performance is likely to suffer among early school entrants who are not emotionally “ready” for school (Kagan, 1990).

Kindergarten Entrance Age

Most states allow children to enter kindergarten in the fall if they have turned 5 by a certain date. Kindergarten students in Virginia must turn 5 by September 30th to be eligible for kindergarten. The kindergarten age debate has left parents and many in education wondering what the best age is to begin kindergarten. Wishnietsky (1991) compared the academic achievement of kindergarten students with summer birth dates and students who entered kindergarten at age 6. All statistically significant differences favored older males and females, especially in reading for older males (Crosser, 1991). The current emphasis on school accountability based primarily on students’ performance on achievement tests is likely to encourage more states and districts to consider increasing the age of school entry (Stipek, 2002).

Increasing the age of school entry is also a politically attractive strategy for raising test scores because it is simple and economical. School-level practices are also likely to be affected by current accountability pressures and the elimination of social promotion, especially in states where school resources are based on students’

achievement test scores. The current educational policy climate suggests that the trend toward raising the school entry age is likely to continue both formally, in state legislation or school district policies, and informally in parent decisions. One theory underlying policies and practices that delay school entry is the idea that the “gift of time” and general out-of-school experiences outweigh the benefits of the school setting for a child deemed unready for kindergarten. Educators have to consider the two positions on the issue of school entry age because it follows the age-old nature-nurture debate (Stipek, 2002).

Readiness tests concern the concept of readiness itself. The criterion for school entry is implicitly based on the premise that children are not able to take advantage of school until they are “ready” and that biological maturation and experience outside of school prepares them better than experiences in a school context. The meaningful question is not whether a child is ready to learn but rather what a child is ready to learn (Stipek, 2002). Even early “reading readiness” – a concept with a long history in early childhood development – has little meaning in the current conceptualizations of emerging literacy, which includes general knowledge, language skills, vocabulary skills, and even early scribbling. Literacy begins to develop long before children enter school (Boethel, 2004; Bowman, Donovan, & Burns, 2001). As a result, the question is not just “is a child ready for school?”, but also if schools and communities are ready to meet the diverse needs of kindergarten-aged children (Ackerman & Barnett, 2005).

The National Education Goals Panel (Kagan, et al, 1995) has established five dimensions in which children vary that contribute significantly to children’s success in school, which extend beyond the age characteristic that children have in common when

they start kindergarten. According to the Goals Panel school readiness should be thought of as having at least the following dimensions:

1. Health and physical development,
2. Emotional well-being and social competence,
3. Approaches to learning,
4. Communicative skills, and
5. Cognition and general knowledge.

Assessing these dimensions is difficult because of the factors that affect students at this age. Children's development is rapid and uneven because of environmental influences and previous learning experiences (Shepard, Kagan, & Wurtz, 1998).

Redshirting

Kindergarten redshirting is the term used to describe the phenomenon where a parent chooses to keep their child from attending kindergarten so that the child may gain a year's worth of maturity (Dougan, 2014). Redshirting is named for the red jersey worn in intra-team scrimmages by college athletes kept out of competition for a year (Konnikova, 2013). Redshirting has become increasingly prevalent for would-be kindergartners; from 4% of kindergarten students who were 6 years old in 1995 to 17% in 2008.

The extra year can allow a child to excel relative to the younger students in the class. Redshirting is a form of retention except that it happens before the child begins school (National Association for the Education of Young Children and National Association of Early Childhood Specialists in State Departments of Education, 2001). Many parents redshirt their children not because they seem particularly immature or

young but because they hope the extra year will give them a boost relative to their peers and help prepare them for kindergarten standards that have become more rigorous (Dougan & Pijanowski, 2011). “Especially for boys, there is thought to be a relative-age effect that persists across sports and over time,” (Friedman as quoted in Konnikova, 2013, para. 3). Studies have shown, however, that more mature students do not have an academic edge; instead, when they reach middle school, they are worse off in multiple respects (Konnikova, 2013). Other studies have shown that older kindergarten students perform better on tests, receive better teacher evaluations, and do better socially. When they reach eighth grade, the disparity largely evens out and by college, younger students repeatedly outperform older ones in any given year (Konnikova, 2013). With the passage of the No Child Left Behind Act of 2001 (2002), there has been a marked increase in the rigor of early elementary grades. Although there is evidence that standards started changing in the early 1970s (Shepard & Smith, 1988), the race to get all children to read on grade level before the third grade has greatly increased what is demanded of kindergartners in the United States.

Academic redshirting has grown in popularity since the 1980s (Graue & DiPerna, 2000). During that decade, many researchers cited the increase in older kindergartners as one of the driving forces behind increased academic demands of kindergarten. Classrooms with older children afforded teachers the opportunity to hold higher expectations for both behavior and learning skills. Classes with large groups of older children may have been taught at a higher academic level that could have been detrimental to the younger children in class (Graue & DiPerna, 2000; Shepard & Smith, 1988; Yesil-Dagli, 2006).

When readiness is an issue for an individual child two interventions are frequently suggested that premise on allowing time for development. The first, academic redshirting, involves delaying entry into kindergarten so that a child will have more time to grow and develop. The second, kindergarten retention, is used for children who are already in the kindergarten context but who are not making adequate progress. A second year in kindergarten provides more time for maturation and acquisition of skills (Graue, Kroeger, & Brown, 2003).

There is no clear-cut evidence that delaying kindergarten for the youngest entrants will provide some magical academic advantage. Because there is so little entrance age evidence, and because some of that evidence is conflicting, there does not appear to be a strong academic basis for delaying kindergarten entrance for summer-born children. (Crosser, 1998, p. 3)

The effects of delaying kindergarten students should be considered when looking at the child's school career in the future. According to Eddy (2004), "Parents are encouraged to keep in mind that when a child is a year older when he begins kindergarten, he will also be a year older when he graduates" (p. 4). Some parents choose to red shirt their children before their entry into kindergarten. Redshirting may be a response to demands for a high level of school readiness. Proponents of redshirting often point out that there is no definitive evidence to show that redshirting harms children in the long term (Graue & Diperna, 2000; May et al., 1995). Whether the decision to redshirt children is made by their parents alone or with teacher input the reasons are similar to those given for retaining children (Frederick & Hauser, 2008).

Early childhood longitudinal studies (Datar, 2006) were conducted on redshirted and nonredshirted kindergarteners to determine how age affected academic achievement. Datar's work showed that not only did children who started kindergarten a year later have higher test scores in kindergarten, their subsequent test scores in first and second grade rose at a steeper trajectory than the test scores of other students. The redshirted children started out more advanced and made greater gains in academic performance. The study also showed that poor children made even larger gains than children from higher socioeconomic status homes. "Results suggest that poor and disabled children and boys benefit significantly more from delaying kindergarten entrance, in terms of test score gains especially in reading" (Datar, 2006, p. 58). Oshima and Domaleski's 2006 study found that age was a stronger predictor of reading and mathematics success than gender or race in the early grades. Oshima and Domaleski's study also found that older kindergarteners were 1.95 inches taller than the younger kindergartners. Height of the child is an important factor to note because height has been found to determine a child's chance of retention (Wake, Coghlan, & Hesketh, 2000). A third study (Lin, Freeman, & Chu, 2009) found that the older a child was at the beginning of kindergarten, the higher his or her reading and mathematics scores proved to be. The trend continued in the upper elementary grades, though the differences between the oldest and youngest students were not as pronounced as in kindergarten.

According to Dalton (2011) entering students who are younger perform lower academically than do their older peers. Because most redshirted children have birthdates just before the local cut-off date, these children would be among the youngest in their class had they not been redshirted and would likely experience the negative effects of

relative age. Dalton also stated that by the end of third grade, students who are younger still perform lower in reading ability. Advocates maintain that redshirted students tend to adjust better socially and emotionally than their younger counterparts and are developmentally prepared (Carlson, 2009).

The research on redshirting varies on whether it helps or hinders. Some posit that instead of “the gift of time” that would be wasted (Hu, 2011); it would be better to enroll the student into the kindergarten program because the school setting would provide the stimulation needed for emotional and intellectual growth (Chen, 2009). The birth date of someone does not measure success, but the quality of stimulation provided by the child’s environment does (Chen, 2009).

Wang and Aamodt (2011) presented a strong case against redshirting. In high school, redshirted children are less motivated and have lower performance. By adulthood, they are no better off in wages or education attainment – in fact, their lifetime earnings are reduced by 1 year. In short, the analogy to athletics does not compare to academics. Educators should ask what approach gives children the greatest opportunity to learn? Wang and Aamodt suggest that parents who want to give their young children an academic advantage have a powerful tool – school itself. They also recommend that high-achieving students skip a grade because acceleration is a powerful intervention with effects on achievement that are twice as large as programs for the gifted. Grade-skippers even report more positive social and emotional feelings.

With relatively few studies on delaying kindergarten (redshirting), parents approach the decision with emotion, distress, and limited facts on the phenomenon (Dougan & Pijanowski, 2011). Because few studies have been published in mainstream

media about academic redshirting or its relative age affects, parents should be better informed. They need to know the data that shows younger children have lower test scores (Datar, 2006; Diamond, 1983, Lin et al., 2009; Oshima & Domaleski, 2006; Yesil-Dagli, 2006). The research conducted concerning relative age provides evidence that simply being older compared to a child's classmates increases the potential for higher reading and math skills (Datar, 2006; Diamond, 1983; Lin, et al, 2009; Yesli-Dagli, 2006) and lessens the child's risk of being retained in elementary school (Martin, Foels, Clanton & Moon, 2004).

According to the National Association for the Education of Young Children and National Association of Early Childhood Specialists in State Departments of Education (2001), "Delaying children's entry into school and/or segregating them into extra-year classes actually labels children as failures at the onset of their school experience" (p. 4). The decision to delay a child's entry into school at times promotes a sense of inadequacy or self-consciousness. This action may affect children's view of self-worth and their ability to function successfully in kindergarten. Diversity and socioeconomic factors affect how parents determine if children will enter kindergarten on time. It is in this area that we begin to evaluate children's home lives (The Trust for Early Education, 2005). Race and social class distinctions become a criterion that affects a child's readiness for kindergarten, as a child's academic and behavioral education begins in the home.

Birth Order and Educational Performance

In numerous studies, demographers, sociologists, psychologists, and economists have investigated the association between birth order and educational achievement (Circirelli, 1978; Steelman, 1985). Studies differ in the set of factors they hold constant,

but most studies include family size or the interval between siblings. Although some studies have found that ability and achievement appears to decline with birth order, holding constant family size (Circirelli, 1978; Steelman, 1985), others have found that this disappears when a range of other relevant variables are held constant (Hauser & Sewell, 1985). Hanushek (1992) found that, although it is always better to be in a smaller family, there is no particular advantage associated with birth order. Instead, he argued that first born children outperform second born children because first-born children live in families that are, on average, smaller than families of second-born children. Hanushek (1992) found no evidence of birth order effects on educational performance.

Birth order differences persist on some outcomes, particularly on reading comprehension, reading recognition, and picture-vocabulary tests, but the differences disappear for mathematics (Gerner & Lillard, 2006). It is suggested that parents and teachers adjust to remediate mathematics performance differences of children who happen to be of a higher order birth, but that any changes in the behavior of parents and teachers does not resolve differences in other types of learning, as measured by these tests (Gerner & Lillard, 2006).

Black (2012), found that younger children in families are likely to be less educated and earn less than their older siblings. She said there is little to no effect from parents' education, family size, and peer differences in the long-run. However, there are effects from birth order and family income and, to some extent, school starting age (Black, 2012). Younger children may be getting the short end of the stick, as there is strong evidence that the birth order effect is important, suggesting that increased family size negatively affects the youngest child (Black, 2012). While family size does not seem

to matter very much, birth order does. There are theories about why birth order matters – time with parents and time spent teaching the youngest versus being the youngest.

According to Black's (2012) findings the first child, on average, receives about 75% of a year of additional schooling than the fifth child, with evidence suggesting the effects are slightly larger for girls than boys.

A study by Belmont and Marolla (1973) found that intelligence drops with increasing birth order. The researchers obtained data on family size, birth order, and intelligence test results from approximately 400,000 19-year-old Dutch men (Belmont & Marolla, 1973). The evaluation found that children from large families did not score as well on intelligence tests as children from smaller families regardless of birth order position (Belmont & Marolla, 1973). Also, within most families firstborns scored higher than later-born children (Belmont & Marolla, 1973). Zajonc (2001) offers a reason for this discrepancy in intellectual performance between first- and last-born children. He suggests that an older child, until the birth of younger siblings, will be exposed to only adult language, while later-born children will be exposed to adult language but also to the less mature vocalizations of their older siblings. According to Zajonc (2001) this dilutes the verbal environment of the younger sibling, which becomes more pronounced for each additional child born. This differential exposure to mature language may be the reason for the later-born child's reduced performance on verbal fluency, vocabulary, and reading comprehension tests as compared to a first-born child.

Brain Research

Research by Kostelc and Koprowski (2001) on brain development and its link to behavior reported:

Scientists and educators have come to realize that it is the combination of genetic and environmental influences—nature and nurture—that ultimately determines a baby’s makeup. The environment plays a pivotal role in brain development.

Optimal brain growth depends on good health, positive experiences with caregivers, and opportunities for appropriate stimulation. Adequate sleep is important for brain development, so consistent routines that provide enough sleep and quiet times are essential. The baby’s early experiences cause physical changes to the brain that will tremendously impact later life. Parents and caregivers, as designers of their child’s world, play the most important role in helping the baby’s brain make these connections. Parents and primary caregivers provide the kinds of experiences that lay the groundwork for the child’s abilities in learning, language, relationships, motor functions, and emotions. (p. 3)

Given the explosion of knowledge in the realm of early childhood cognitive development and the importance of early emotional and language learning for future success, neuroscience training for day care workers and preschool teachers becomes an even greater imperative with perhaps a greater societal impact (Dubinsky, 2010).

“There are windows of opportunity during which the brain is developing for certain activities, such as language, speech, movement, or reading. Each of the brain’s systems (vision, hearing, language, emotions, and motor) has its own window of

opportunity” (Kostelc & Koprowski, 2001, p. 21). Tierney and Nelson (2009) concluded that lack of a healthy, nurturing environment may cause the brain to *miswire* and lead to abnormal brain development. The first years of brain development build a bridge to later skills. A brain deprived of proper stimulation will result in strong and lasting negative effects (Mansy, 2014).

In brain research, Bruer (1997) emphasized the rapid increase of synapses that connect neurons in the brain, starting in infancy and continuing into later childhood. Until age ten, a child’s brain contains more synapses than at any other time in his/her life. Early childhood experiences fine tune the connections by reinforcing and maintaining synapses that are repeatedly used and snipping away unused synapses. This period of high synaptic density and experiential fine tuning is a critical period in a child’s cognitive development. It is the time when the brain is particularly efficient in acquiring and learning a range of skills. During this critical period, children can benefit most from rich, stimulating learning environments. If, during this critical period, we deprive children of such environments, significant learning opportunities are lost forever. (p. 4, as quoted in Allen, 2009, p. 12)

Brain development proceeds in waves, and the timing of the windows is different for each skill a child develops. Children reared in conditions of great deprivation and neglect have smaller, less active brains than children who encounter the richness of daily life in an active, supportive family (Kostelc & Koporowski, 2001, p. 22).

According to Reichman (2005) children who are born with a low birth weight are at greater risk of failure in the area of cognition and overall school performance. Students who are born at a low birth weight are more likely to be identified with academic disabilities. Preterm children are more likely to have greater difficulty completing tasks involving reading, spelling, and math. A majority of low birth weight children are born to African-American mothers. Birth weight is a health issue that represents 13% of the racial gap in school readiness (Currie, 2005).

Brain research showed that there are certain aspects of development such as cognitive control that are essential to academic success. According to Noble, Tottenham, and Casey (2005) “a student’s ability to concentrate without distraction depends on the prefrontal cortex of the brain” (p. 77). This area of brain research supports the idea that the difference between an adult and a child concentrating on completing an assigned task has nothing to do with the ability to complete a task, but on stages of maturation instead.

The brain is considered the focal point of memory and learning activity and the ability to socialize appropriately. Jensen (2002) said to, “encourage physical activity such as dance to help construct cognitive abilities, he also stresses the importance of teachers being aware of what stimulates the brain such as dance or music to reinforce student learning” (p. 2). Jensen’s concept of brain research supports Froebel’s writings that play is one of the chief learning tools that affects a child’s ability to learn.

Before age 8 standardized achievement measures are not accurate enough to be used for decisions about individual children. Naturalistic observational methods, rather than paper and pencil tests, are most appropriate in assessing children’s emerging capacities (Rhode Island Kids Count, 2005).

Family Structure

Nelson (2005) analyzed data from 10,000 kindergarten children to determine if learning activities in the home had an impact on young children's cognitive skills in kindergarten. The study concluded that parents who engage in multiple formal and informal learning activities with their child on a regular basis increased their child's school readiness in math and literacy as well as providing an increased positive approach to learning. Parents are their child's first teacher (Epstein & Sanders, 2006), and a primary goal of any quality preschool program should be to understand that children are best understood in the context of their family, community, and culture.

There is a growing body of work in the field of family research that points to the importance of positive father involvement on child development (e.g. Carlson & Magnuson, 2011; Downer, Campos, McWayne, & Gartner, 2008; Marsiglio, Amato, Day, & Lamb, 2000). Researchers have shown that positive fathering matters for children at different stages of development (e.g. Cabrera et al., 2004; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). Researchers have also suggested that father involvement may be especially important for children from low-income backgrounds, particularly as they enter into formal educational settings (Downer et al., 2008). The transition to school has been regarded as an important phase for all children because it sets the stage for future academic experiences (Entwisle & Alexander, 1993; 1998).

CHAPTER 3

RESEARCH METHODOLOGY

This chapter includes the quantitative methodology and procedures used in this study. Chapter 3 is organized into the following sections: research questions and null hypotheses, population or sample, instrumentation, data collection, data analysis, and a summary of the chapter.

The purpose of this ex post facto quantitative study was to examine the independent and dependent variables that affect school readiness for kindergarten students in 1 southwest Virginia school districts as measured by the PALS test scores. In addition, the study examined the relationship between the chronological age of students at kindergarten entry and their PALS scores. The students were grouped by October-April birthdays and May-September birthdays; whether or not they attended preschool; and whether or not they were redshirted.

Research Questions and Null Hypotheses

These 10 research questions and corresponding null hypotheses guided the research:

RQ1: Is there a significant relationship between Spring kindergarten PALS (Phonological Awareness Literacy Screening) scores and Spring first grade PALS scores?

Ho1: There is no significant relationship between kindergarten PALS scores with first grade PALS scores.

RQ2: Is there a significant difference between Fall PALS scores of kindergarten students who have birthdays that fall between October-April and Fall PALS scores of kindergarten students who have birthdays later in May-September?

Ho2: There is no significant difference between Fall PALS scores of kindergarten students who have birthdays that fall between October-April and Fall PALS scores of kindergarten students who have birthdays later in May-September.

RQ3: Is there a significant difference between kindergarten Fall PALS scores of students who attended preschool and Fall PALS scores of students who did not?

Ho3: There is no significant difference between kindergarten Fall PALS scores of students who attended preschool and Fall PALS scores of students who did not.

RQ4: Is there a significant difference in Fall PALS scores of kindergarten students who were first born and Fall PALS scores of students who were not first born?

Ho4: There is no significant difference in Fall PALS scores of kindergarten students who were first born and Fall PALS scores of student who were not first born.

RQ5: Is there a significant difference in Spring PALS scores of kindergarten students who attended preschool and Spring PALS scores of kindergarten students who did not attend preschool?

Ho5: There is no significant difference in Spring PALS scores of kindergarten students who did attend preschool and Spring PALS scores of kindergarten students who did not attend preschool.

RQ6: Is there a significant difference in Spring PALS scores of kindergarten students who are first born and Spring PALS scores of kindergarten students who are not first born?

Ho6: There is no significant difference in Spring PALS scores of kindergarten students who are first born and Spring PALS scores of kindergarten students who are not first born.

RQ7: Is there a significant difference in Spring PALS scores of kindergarten students who have birthdays between October-April and Spring PALS scores of kindergarten students who have birthdays between May-September?

Ho7: There is no significant difference in Spring PALS scores of kindergarten students who have birthdays between October-April and Spring PALS scores of kindergarten students who have birthdays between May-September.

RQ8: Is there a significant difference in Spring PALS scores of first grade students who are first born and Spring PALS score of first grade students who are not first born?

Ho8: There is no significant difference in Spring PALS scores of first grade students who are first born and Spring PALS scores of first grade students who are not first born.

RQ9: Is there a significant difference in Spring PALS scores of first grade students who attended preschool and Spring PALS scores of first grade students who did not attend preschool?

Ho9: There is no significant difference in Spring PALS scores of first grade who attended preschool and Spring PALS scores of first grade students who did not attend preschool.

RQ10: Is there a significant difference in Spring PALS scores of first grade students who have birthdays between October-April and Spring PALS scores of first grade students who have birthdays between May-September?

Ho10: There is no significant difference in Spring PALS scores of first grade students who have birthdays between October-April and Spring PALS scores of first grade students who have birthdays between May-September.

Population

This study was conducted in a school district in southwest Virginia comprised of four elementary schools serving 1,169 students in pre-k through fifth grade, one middle school serving students in grades 6-8, and one comprehensive high school serving students in grades 9-12. Three of the four elementary schools, the middle school, and the high school qualify for Title I funding because approximately 72.66% of the student population is economically disadvantaged as defined by participation in the free-or-reduced priced meals program. The school district's ethnic diversity is characterized by 85.8% White, 6.5% African American, 0.7% Asian, and 6.77% Multiracial.

The students who comprised the population of this study were eligible to enroll in regular kindergarten classes. After receiving the approval of the East Tennessee State

University Institutional Review Board (Appendix A), permission was requested (Appendix B) and approval was received (Appendix C) to collect data from three of the schools in the local school district that participated in the PALS testing. All the students who were included in this study took the PALS test in kindergarten. Within the schools that participated in the PALS testing, 210 students attended kindergarten.

Instrumentation

The PALS test was used to gather students' academic performance data in phonics and reading. The PALS test is a phonological awareness literacy screening based on Virginia's Standards of Learning (SOLs). The PALS tests are published by the University of Virginia Curry School of Education and are required to be administered during a state-mandated testing window each fall, winter, and spring.

The independent variables that were studied included chronological age at kindergarten entry, birth order, and participation in preschool programs in the local school district. The dependent variables that were studied included the kindergarten PALS test score and the first grade PALS test score. The statistical tests used to analyze the data included the independent samples t-test and the correlation. The PALS-K provides an assessment tool with good evidence of validity that can be used reliably to screen students in kindergarten for difficulty in emergent literacy. PALS-K test results show evidence of both internal consistency and inter-rater reliability, indicating that it can be administered and scored consistently, according to the University of Virginia Curry School of Education (1997). PALS-K is designed for kindergarten students and consists of seven subtasks. Certain subtask scores are combined to create a summed

score, which is used to identify students for additional instruction. PALS-K tasks included:

- Group Rhyme (Screening)
- Individualized Rhyme (Diagnostic)
- Group Beginning Sound (Screening)
- Individual Beginning Sound (Diagnostic)
- Alphabet Recognition (Screening and diagnostic)
- Spelling (Screening and diagnostic)
- Concept of Word (Diagnostic)
- Word Recognition in Isolation (diagnostic)(optional)

To enhance reliability and validity of the participant survey, a pilot test was completed whereby the survey was given to a group of teachers taking graduate courses. Their comments and suggestions were taken into account and the survey was revised accordingly.

Data Collection

Data were gathered with the permission of the participating school district and did not require student participation beyond testing that is normally required as a part of the regular academic program. The students were categorized into these groups:

- Students with birthdays between October and April enrolled in kindergarten, who took the PALS Fall Test, and who were deemed ready for first grade. This group of kindergarten students was coded *KR*.

- Students with birthday between May and September enrolled in kindergarten who took the PALS Fall Test, and who were deemed ready for first grade. This group of kindergarten students was coded *YK*.
- Students who attended preschool, were enrolled in kindergarten, and took the Fall PALS Test. This group of kindergarten students was coded *PK*.

After independent samples t-tests were conducted, using all the students in each student group, another set of independent samples t-tests were conducted using equal student groups.

The East Tennessee State University Institutional Review Board provided an exempt status for the research study (Appendix A). Likewise, permission to conduct the study using data from the Bristol Virginia Public Schools district was received (Appendix C). The results of the study were also shared with the district's director of testing.

The researcher collaborated with the director of testing to retrieve test reports through PALS Access. The reports included gender, birthday, and preschool experience for each student in addition to test scores. Data regarding birth order and redshirting were provided by school principals and classroom teachers. To ensure that each child's identity was protected, the names were omitted from all reports by the school system's director of testing.

The kindergarten and first grade PALS tests were given to all students following the PALS test administration guidelines. Data were analyzed using a t-test to determine if there was a relationship between school readiness and preschool experience, birthdays, birth order, and redshirting. Data were analyzed from the fall PALS score of first grade students deemed ready and kindergarten PALS scores of first graders who were deemed

not ready. This study proposed to evaluate the relationship between school readiness skills as measured by the PALS assessment and the academic achievement of kindergarten and first grade students. The purpose was also to examine how readiness skills, which preschool and kindergarten teachers identified, affect kindergarten students and have an effect on those preparing for kindergarten.

Prior to data collection the Institutional Review Board of East Tennessee State University granted permission (Appendix A) to conduct the research, and written permission to collect archival data was obtained from the superintendent of the participating school system (Appendix C). PALS test scores were gathered by the school system's director of testing and the data analyzed for this research were collected from the school system with assistance from the school system's director of testing. The data were maintained on a personal computer and analyzed using version 15 of the Statistical Package for the Social Sciences (SPSS) computer software program.

Data Analysis

A series of Pearson correlations was used to address Research Question 1 which examined the relationship between Kindergarten PALS scores and First Grade PALS scores. Independent T tests were used to address Research Questions 2-10 which examined the birthdays of kindergarten students that fell between October-April and birthdays of kindergarten students that fell between May-September. Independent T tests were also used to determine if there was a significant difference between kindergarten fall PALS scores of students who attended preschool and PALS scores of students who did not. All data were analyzed at the .05 level of significance.

Chapter Summary

Chapter 3 consisted of the presentation of the research design, population, instrumentation, data collection, data analysis, research questions, and null hypotheses used in this study. The study's results were derived from quantitative data obtained from the PALS scores of kindergarten and first grade students in a southwest Virginia school district. In addition, the testing instrument was described and explained. Null hypotheses based on research questions were listed and statistical tests were identified for each.

CHAPTER 4

FINDINGS

The research questions presented in Chapter 1 and the hypotheses introduced in Chapter 3 are addressed in this chapter. The purpose of this study was to evaluate the relationship between school readiness skills as measured by the PALS (Phonological Awareness Literacy Screening) assessment and the academic achievement of kindergarten and first grade students. The purpose was also to examine how readiness skills that preschool and kindergarten teachers identified affect kindergarten students and have an effect on those preparing for kindergarten.

Test scores for kindergarten PALS scores and first grade PALS scores were compared. Test scores were collected from 1 elementary school in southwest Virginia. This study was guided by 10 research questions and the corresponding null hypotheses. The information gathered from the study also examined birth order and the effects on readiness.

This chapter presents the results of statistical analyses of the research questions identified in Chapters 1 and 3. Quantitative data were analyzed with a series of independent samples *t* tests and a Pearson correlation coefficient.

Research Question 1

RQ1: Is there a significant relationship between Spring PALS (Phonological Awareness Literacy Screening) scores of kindergarten students and Spring PALS scores of first grade students?

Ho1: There is no significant relationship correlation between Spring PALS scores of kindergarten students and Spring PALS scores of first grade students.

A Pearson correlation coefficient was computed to assess the relationship between Spring kindergarten PALS scores and Spring first grade PALS scores. The correlation was statistically significant. There was a strong, positive correlation between the two variables, $r(62) = .681, p < .001, n = 61$. Therefore, the null hypothesis was rejected. The coefficient of determination, r^2 , indicated that 46% of the variance in Spring kindergarten PALS scores and Spring first grade PALS scores. Figure 1 shows a scatterplot summary of the results. Overall, there was a strong positive correlation between Spring kindergarten PALS scores and Spring first grade PALS scores.

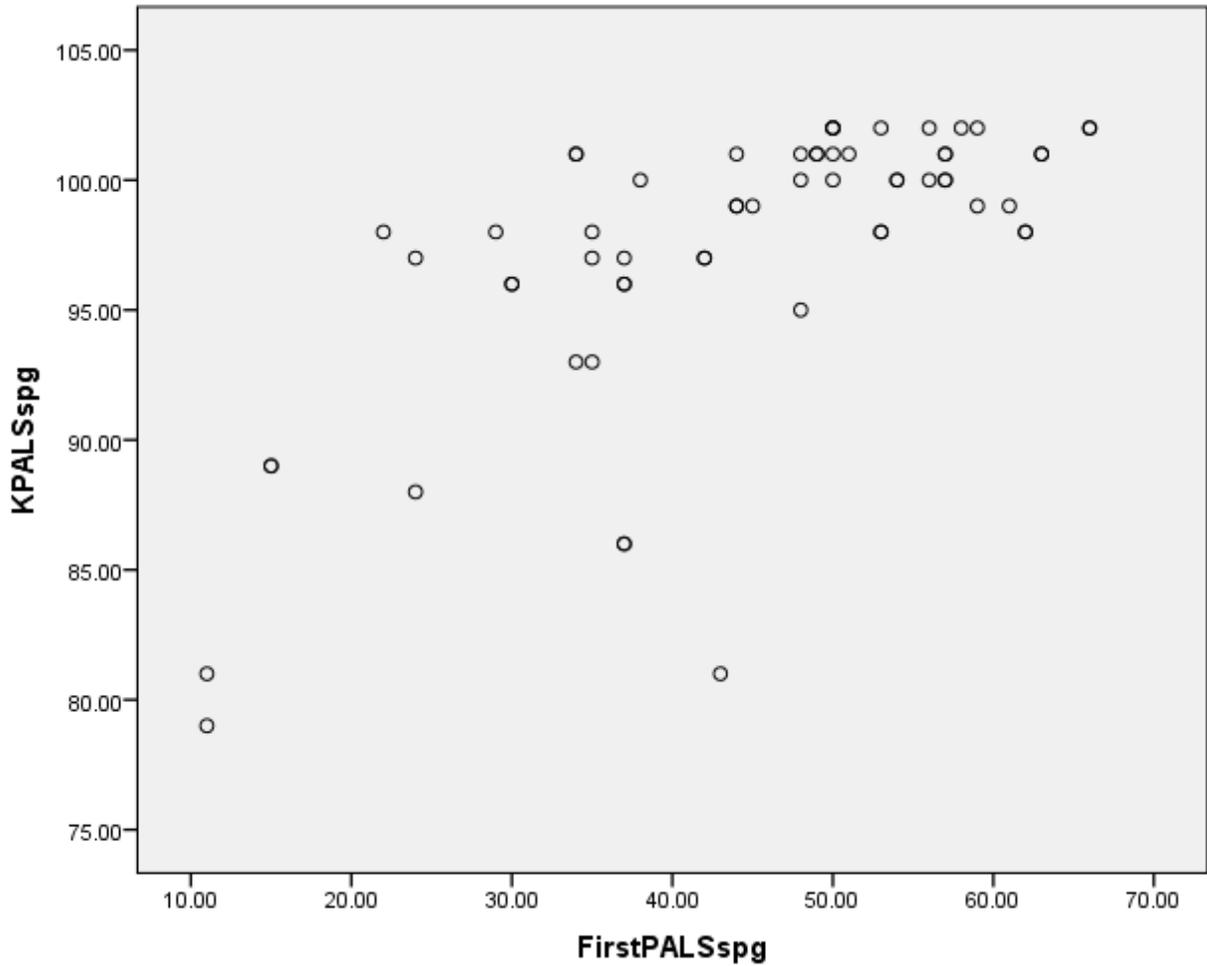


Figure 1. Kindergarten Spring PALS scores and First Grade PALS scores.

Research Question 2

RQ2: Is there a significant difference between Fall PALS scores of kindergarten students who have birthdays that fall between October-April and Fall PALS scores of kindergarten students who have birthdays between May-September?

Ho2: There is no significant difference in Fall PALS scores of kindergarten students who have birthdays that between October-

April and Fall PALS scores of kindergarten students who have birthdays between May-September.

An independent-samples t test was conducted to evaluate whether Fall kindergarten PALS scores differed among students born in October-April and students born in May-September. The Fall kindergarten PALS scores was the test variable and the grouping variable was the birthdays in October-April or May-September. The test was not significant, $t(60) = .888, p = .378$. Therefore, the null hypothesis was retained. The η^2 was .0129, which indicated a small effect size. Students with birthdays in October-April ($M = 60.14, SD = 19.86$) tended to score about the same as those with birthdays in May-September ($M = 64.07, SD = 25.11$). The 95% confidence interval for the difference in means was 6.35 to 16.49. Figure 2 shows the distribution for the two groups.

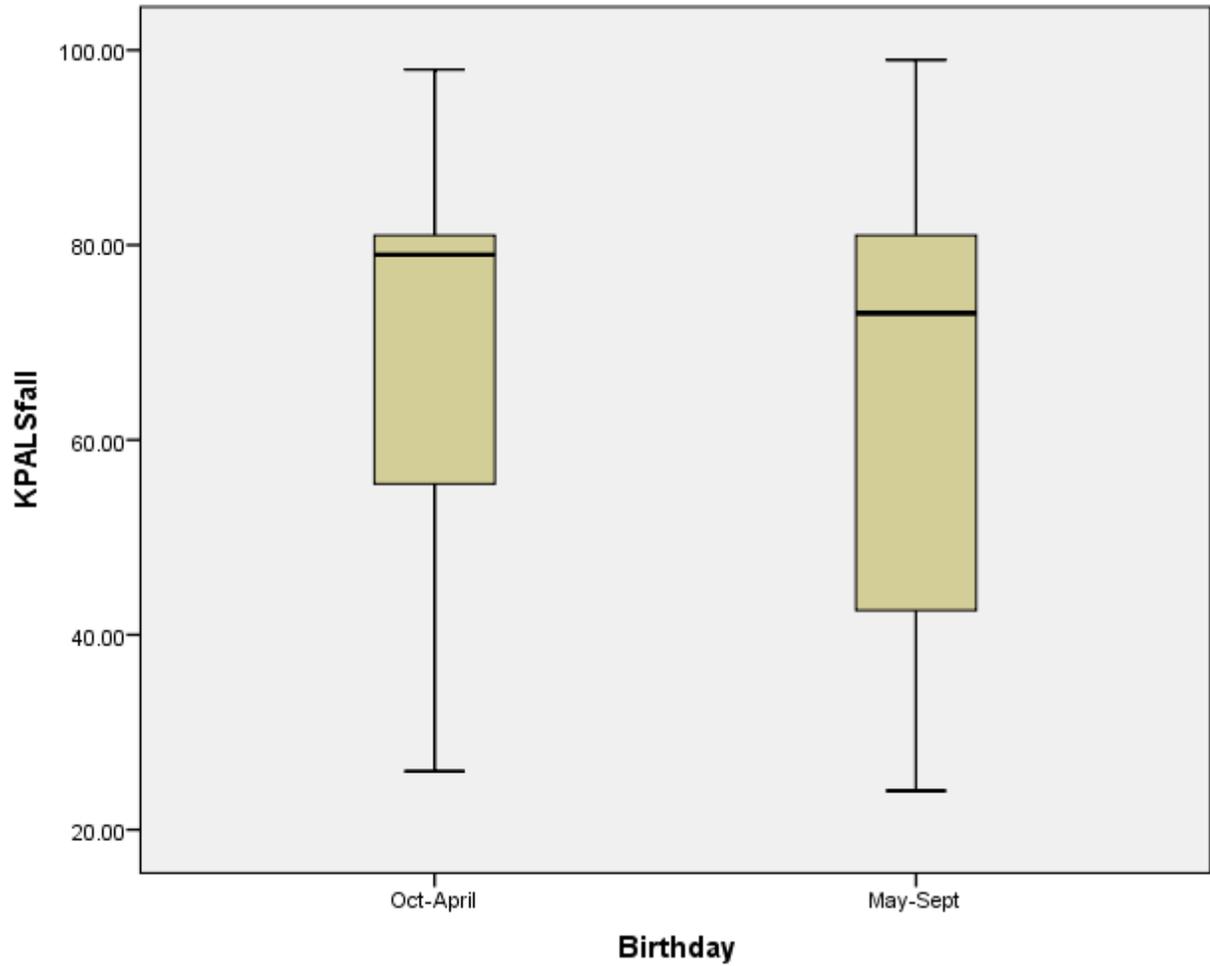


Figure 2. Kindergarten Fall PALS scores and Students' Birthdays.

Research Question 3

RQ3: Is there a significant difference between Fall PALS scores of kindergarten students who attended preschool and Fall PALS scores of kindergarten students who did not attend preschool?

Ho3: There is no significant difference in Fall PALS scores of kindergarten students who attended preschool and Fall PALS scores of kindergarten students who did not attend preschool.

An independent-samples *t* test was conducted to evaluate whether Fall kindergarten PALS scores differed among kindergarten students who attended preschool and kindergarten students who did not attend preschool. The Fall PALS scores was the test variable and the grouping variable was attending preschool or not attending preschool. The test was not significant, $t(60) = .386$, $p = .701$. Therefore, the null hypothesis was retained. The n^2 was .00024, which indicated a small effect size. Kindergarten students who attended preschool ($M = 65.97$, $SD = 22.68$) tended to score about the same as those kindergarten students who did not attend preschool ($M = 68.18$, $SD = 22.04$). The 95% confidence interval for the difference in means was 9.268 to 13.696. Figure 3 shows the distribution for the two groups.

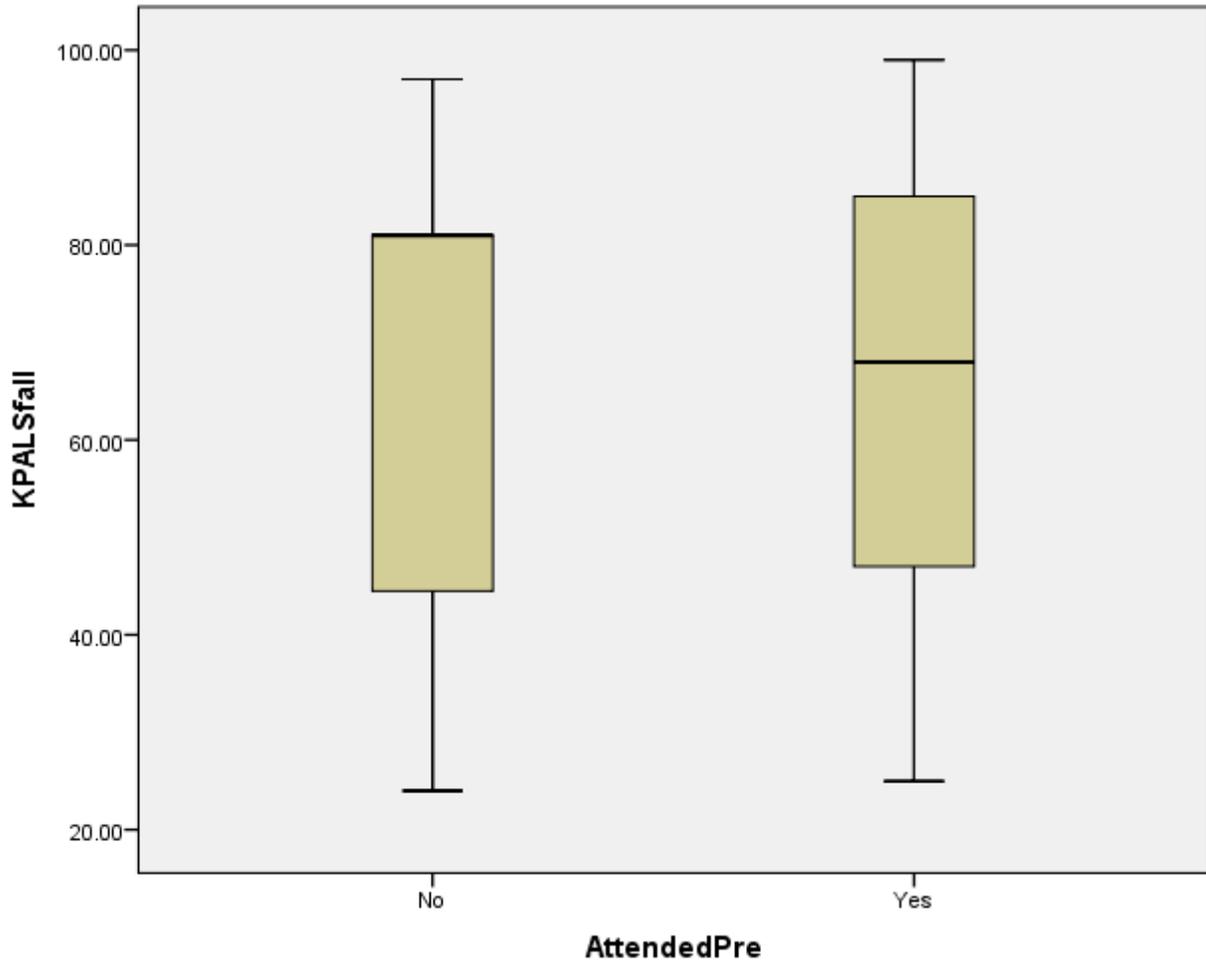


Figure 3. Kindergarten PALS scores and students who attended preschool.

Research Question 4

RQ4: Is there a significant difference in Fall PALS scores of kindergarten students who were first born and Fall PALS scores of kindergarten students who were not first born?

Ho4: There is no significant difference in Fall PALS scores of kindergarten students who were first born and Fall PALS scores of kindergarten students who were not first born.

An independent-samples t test was conducted to evaluate whether the mean amount of Fall PALS scores differed among kindergarten students who were first born and kindergarten students who were not first born. The test was not significant, $t(60) = .689, p = .494$. Therefore, the null hypothesis was retained. The η^2 index was .007, which indicated a small effect size. Students in the first born group ($M = 69.66, SD = 18.85$) tended to score about the same as those in the group that were not first born ($M = 65.53, SD = 23.90$). The 95% confidence interval for the difference in means was 16.127 to 7.867. Figure 4 show the distribution for the two groups.

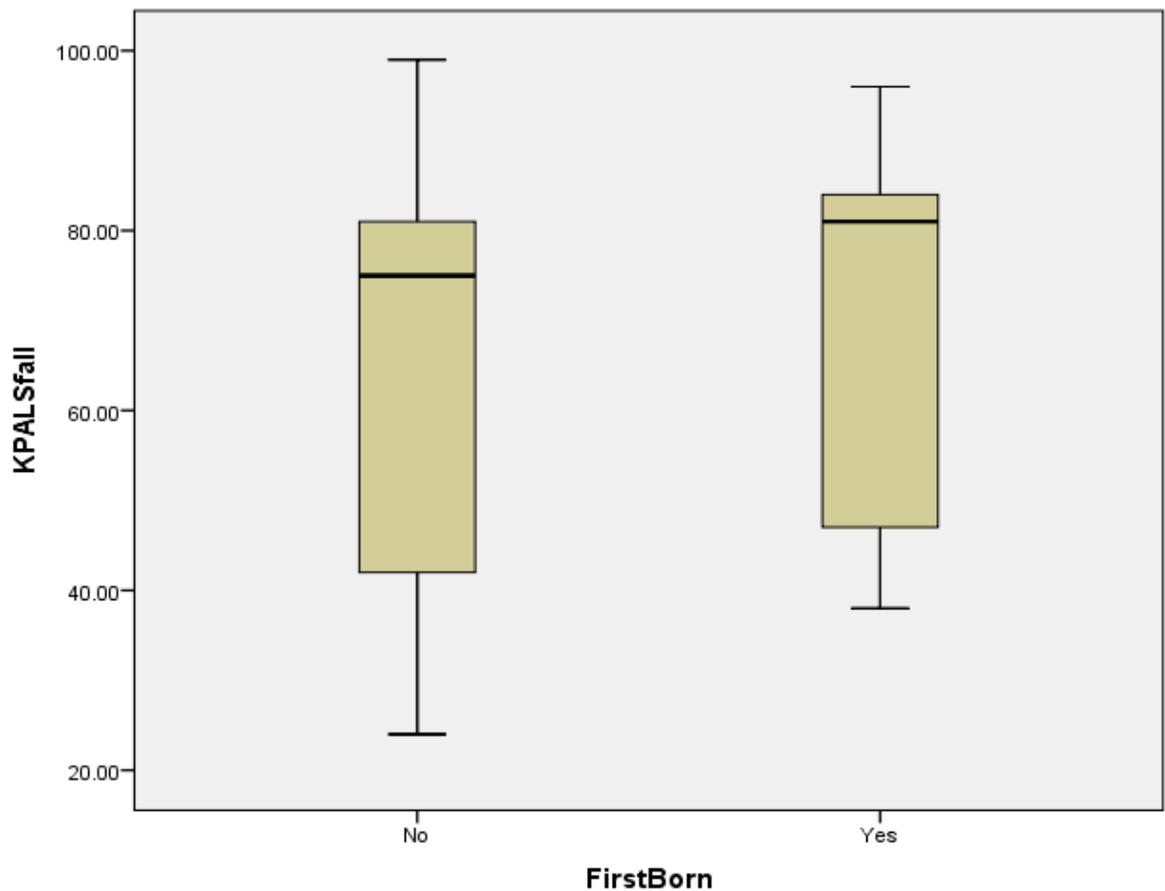


Figure 4. Kindergarten PALS scores and first born students.

Research Question 5

RQ5: Is there a significant difference in Spring PALS scores of kindergarten students who attended preschool and Spring PALS scores of kindergarten students who did not attend preschool?

Ho5: There is no significant difference in Spring PALS scores of kindergarten students who attended preschool and Spring PALS scores of kindergarten students who did not attend preschool.

An independent-samples t test was conducted to evaluate whether Spring PALS scores differed among kindergarten students who attended preschool and kindergarten students who did not attend preschool. The Spring PALS scores was the test variable and the grouping variable was attended preschool or did not attend preschool. The test was not significant, $t(61) = 1.912, p = .061$. Therefore, the null hypothesis was retained. The n^2 was .06, which indicated a small effect size. Students in the preschool group ($M = 98.34, SD = 4.28$) tended to score about the same as those who did not attend preschool ($M = 94.46, SD = 11.02$). The 95% confidence interval for the difference in means was 7.934 to .177. Figure 5 shows the distribution for the two groups.

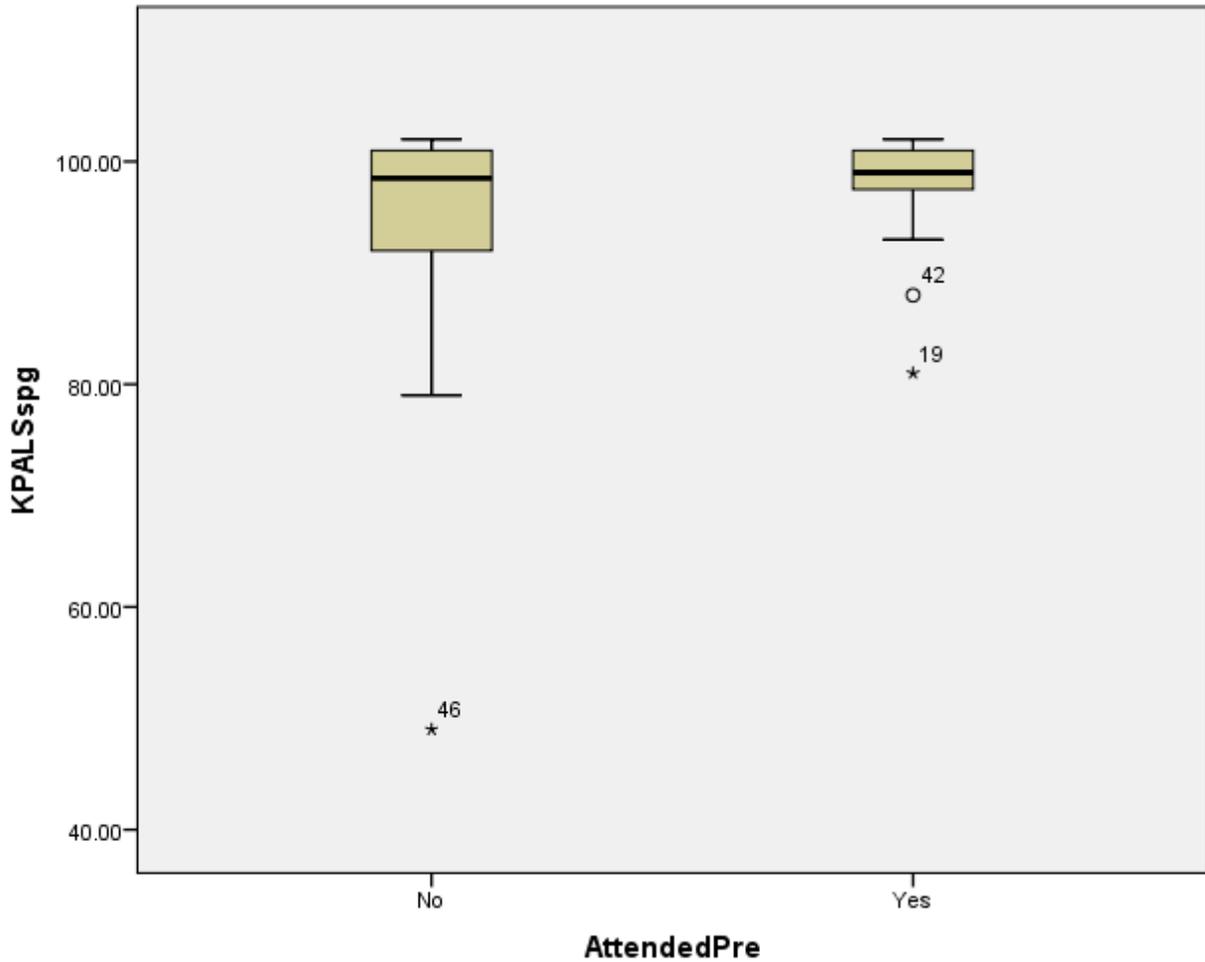


Figure 5. Kindergarten Spring PALS scores and students who attended preschool.

Research Question 6

RQ6: Is there a significant difference in Spring PALS scores of kindergarten students who are first born and Spring PALS scores of kindergarten students who are not first born?

Ho6: There is no significant difference in Spring PALS scores of kindergarten students who are first born and Spring PALS scores of kindergarten students who are not first born.

An independent-samples t test was conducted to evaluate whether Spring PALS scores differed among kindergarten students who are first born and students who are not first born. The Spring PALS scores was the test variable and the grouping variable was the first born and not first born condition. The test was not significant, $t(61) = .520, p = .605$. Therefore, the null hypothesis was retained. The η^2 index was .004, which indicated a small effect size. Students in the first born group ($M = 97.38, SD = 6.22$) tended to score about the same as those in the not first born group ($M = 96.23, SD = 9.03$). The 95% confidence interval for the difference in means was 5.535 to 3.249. Figure 6 shows the distributions for the two groups.

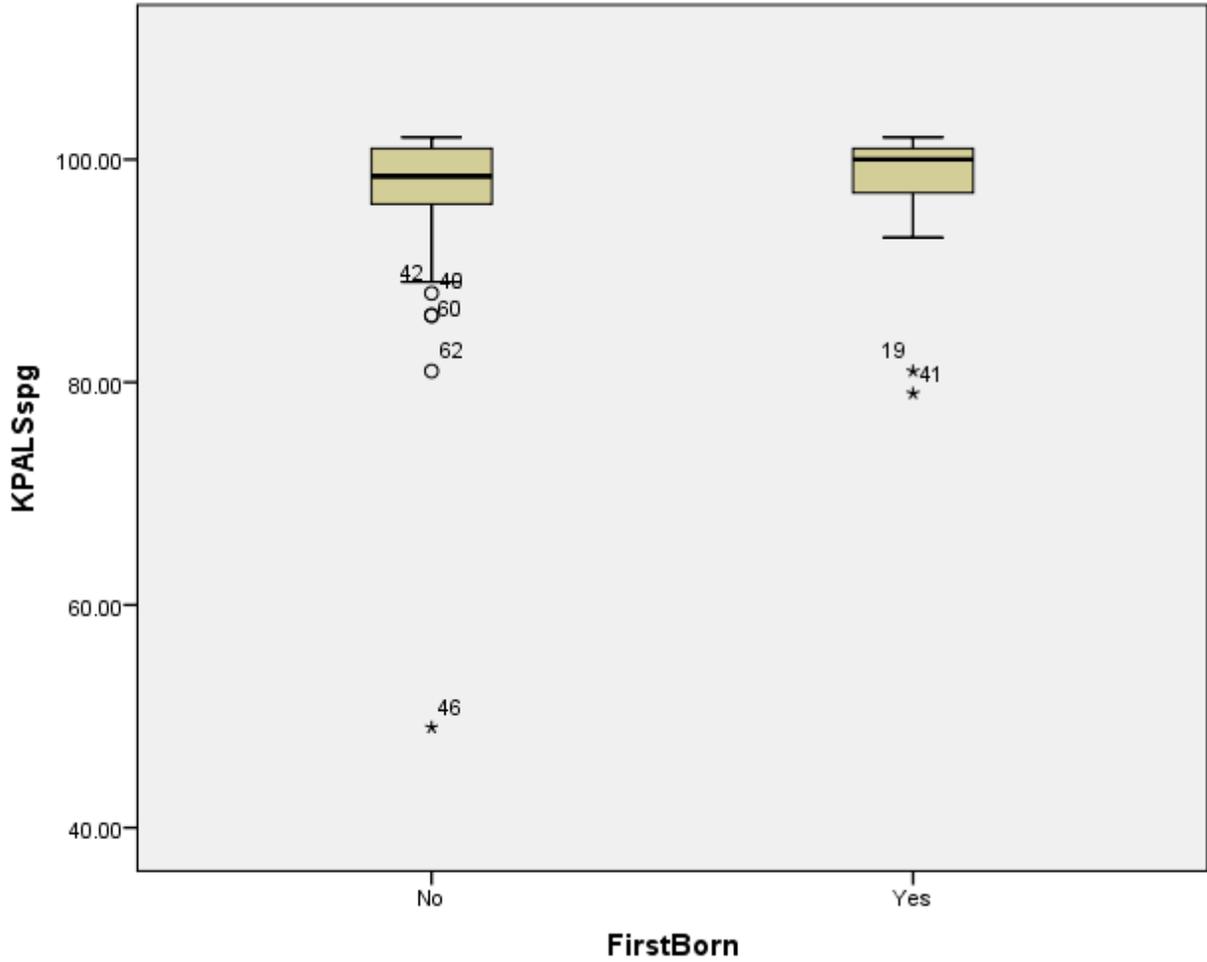


Figure 6. Kindergarten Spring PALS scores and first born students.

Research Question 7

RQ7: Is there a significant difference in Spring PALS scores of kindergarten students who have birthdays between October-April and Spring PALS scores of kindergarten students who have birthdays between May - September?

Ho7: There is no significant difference in Spring PALS scores of

kindergarten students who have birthdays between October-April and Spring PALS scores of kindergarten students who have birthdays between May-September.

An independent-samples *t* test was conducted to evaluate whether the Spring PALS scores differed among kindergarten students who birthdays were between October- April and Spring PALS scores of kindergarten students who have birthdays between May-September. The Spring PALS scores was the test variable and the grouping variable was birthdays between October-April and birthdays between May-September. The test was not significant, $t(61) = .411, p .411$. Therefore, the null hypothesis was retained. The η^2 index was .002, which indicated a small effect size. Students in the October-April group ($M = 97.00, SD = 5.69$) tended to score about the same as those in the May-September group ($M = 96.14, SD = 10.58$). The 95% confidence interval for the difference in means was 3.313 to 5.027. Figure 7 shows the distributions for the two groups.

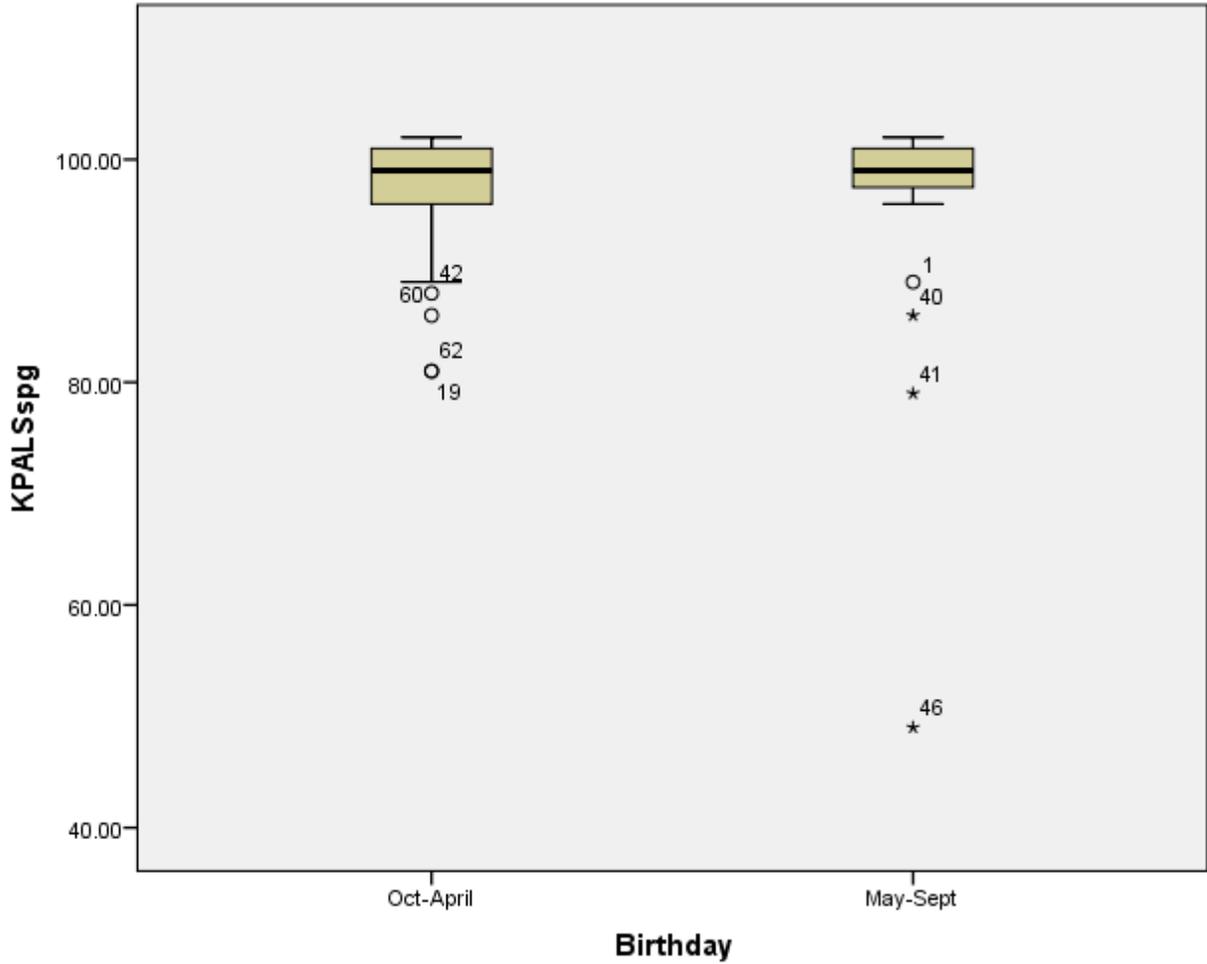


Figure 7. Kindergarten Spring PALS scores and birthdays.

Research Question 8

RQ8: Is there a significant difference in Spring PALS scores of first grade students who are first born and Spring PALS scores of first grade students who are not first born?

Ho8: There is no significant difference in Spring PALS scores of

first grade students who are first born and Spring PALS scores
students who are not first born.

An independent-samples t test was conducted to evaluate whether Spring PALS scores differed among first grade students who are first born and first grade students who are not first born. The Spring PALS was the test variable and the grouping variable was first grade students who are first born and first grade students who are not first born. The test was not significant, $t(69) = .996, p = .323$. Therefore, the null hypothesis was retained. The η^2 index was .014, which indicated a small effect size. Students in the first born group ($M = 46.34, SD = 12.84$) tended to score about the same as those in the group that were not first born ($M = 42.79, SD = 14.61$). The 95% confidence interval for the difference in means was 10.67 to 3.56. Figure 8 shows the distributions for the two groups.

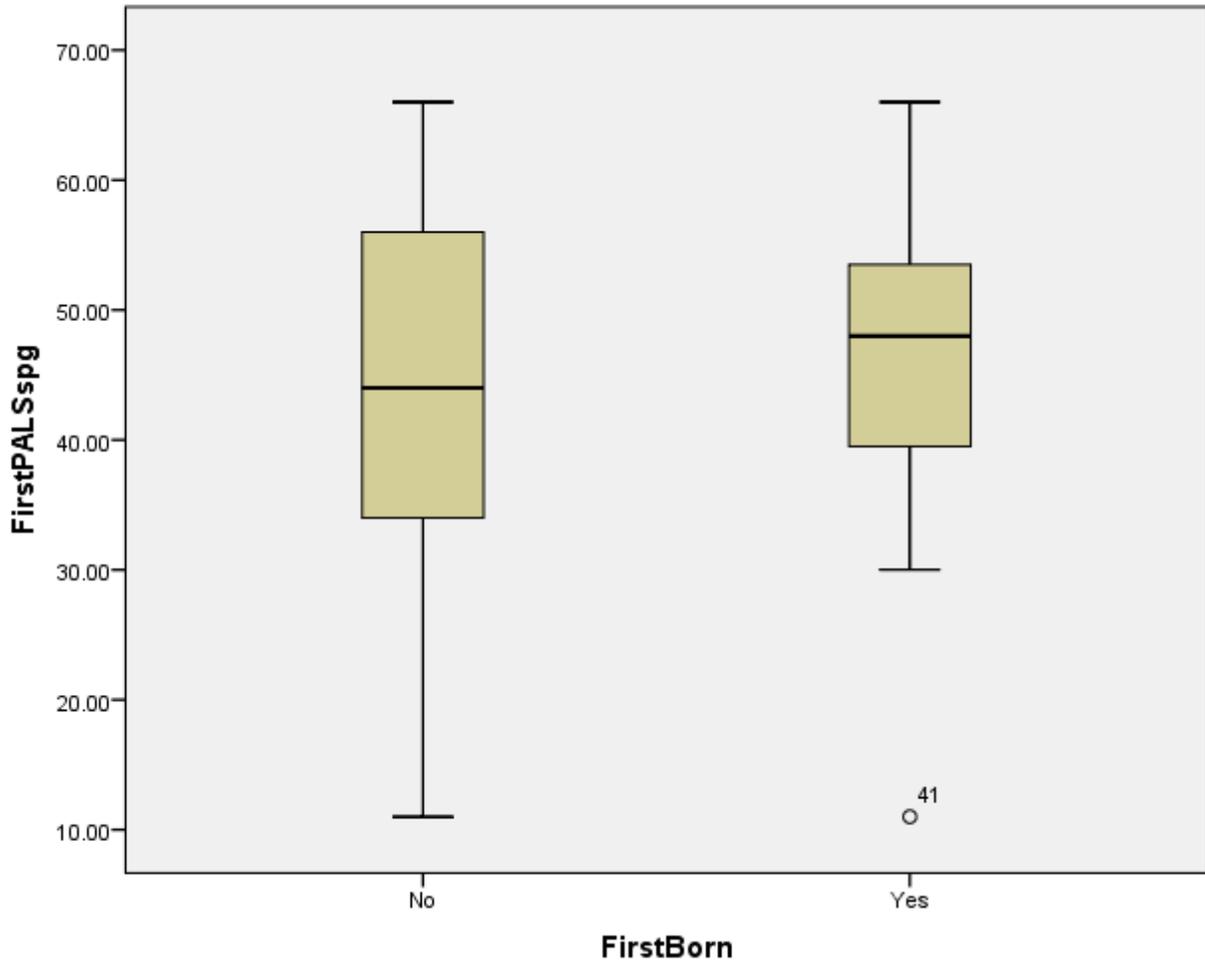


Figure 8. First Grade PALS scores and first born students.

Research Question 9

RQ9: Is there a significant difference in Spring PALS scores of first grade students who attended preschool and Spring PALS scores of first grade students who did not attend preschool?

Ho9: There is no significant difference in Spring PALS scores of first grade students who did attend preschool and Spring PALS scores of first grade students who did not attend preschool.

An independent-samples t test was conducted to evaluate whether Spring PALS scores differed among first grade students who did attend preschool and first grade students who did not attend preschool. The Spring PALS scores was the test variable and the grouping variable was first grade students who did attend preschool and first grade students who did not attend preschool. The test was not significant, $t(69) = 1.96, p = .05$. Therefore, the null hypothesis was retained. The η^2 index was 0.05, which indicated a small effect size. Students who did attend preschool ($M = 47.11, SD = 12.95$) tended to score about the same as those that did not attend preschool ($M = 40.68, SD = 14.62$). The 95% confidence interval for the difference in means was 12.96 to .1099. Figure 9 shows the distributions for the two groups.

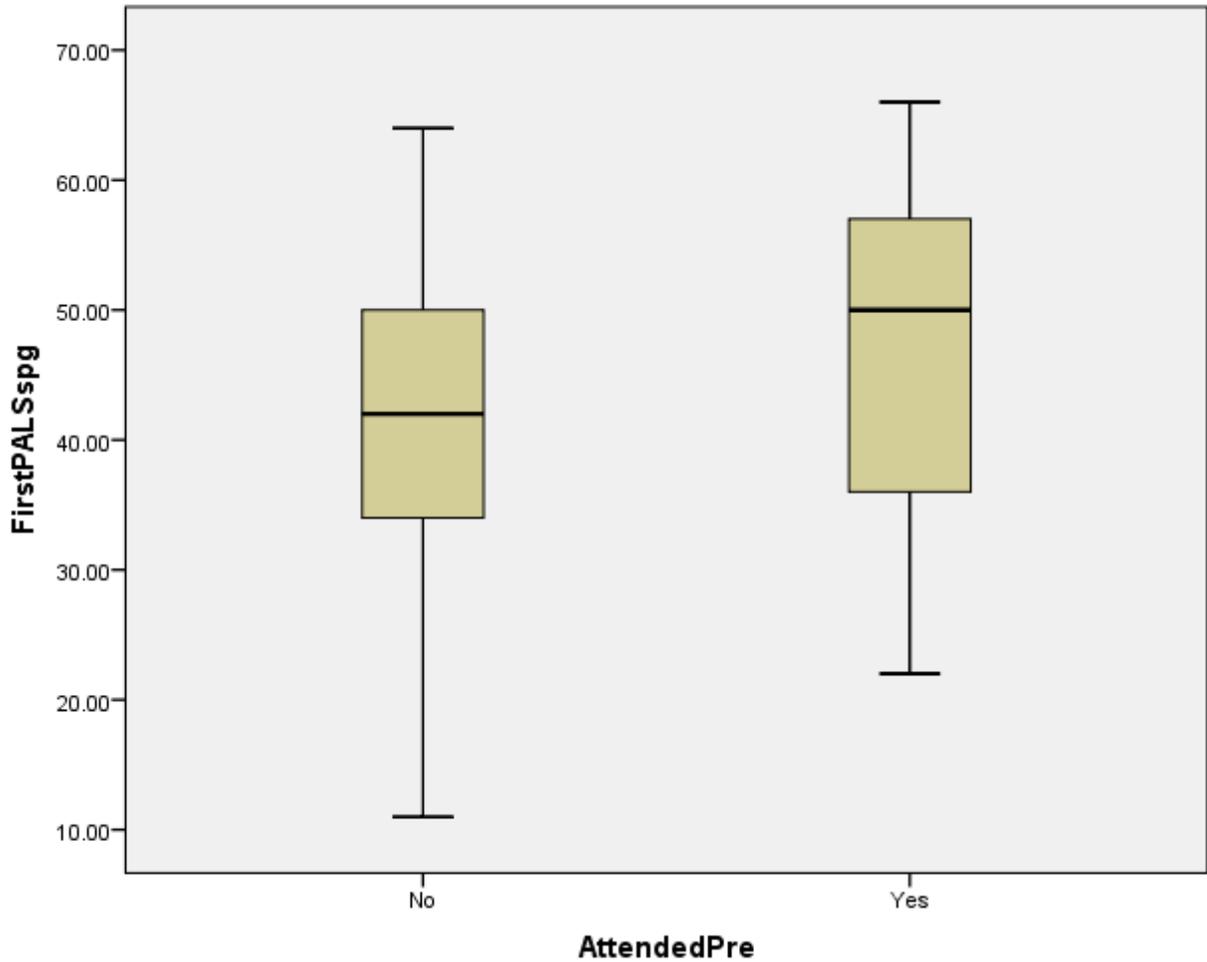


Figure 9. First Grade Spring PALS scores and those students who attended preschool.

Research Question 10

RQ10: Is there a significant difference in Spring PALS scores of first grade students who have birthdays between October-April and Spring PALS scores of first grade students who have birthdays between May-September?

Ho10: There is no significant difference in Spring PALS scores of first grade students who have birthdays between October-April and Spring PALS scores of first grade students who have birthdays between May- September.

An independent-samples t test was conducted to evaluate whether Spring PALS scores differed among first grade students who have birthdays between October-April and first grade students who have birthdays between May-September. The Spring PALS scores was the test variable and the grouping variable was first grade students who have birthdays between October-April and first grade students who have birthday between May-September. The test was not significant, $t(69) = .137, p = .892$. Therefore, the null hypothesis was retained. The η^2 index was .0002, which indicated a small effect size. Students in the October-April group ($M = 44.15, SD = 13.57$) tended to score about the same as those in the May-September group ($M = 43.69, SD = 14.84$). The 95% confidence interval for the difference in means was 6.26 to 7.19. Figure 10 shows the distributions for the two groups.

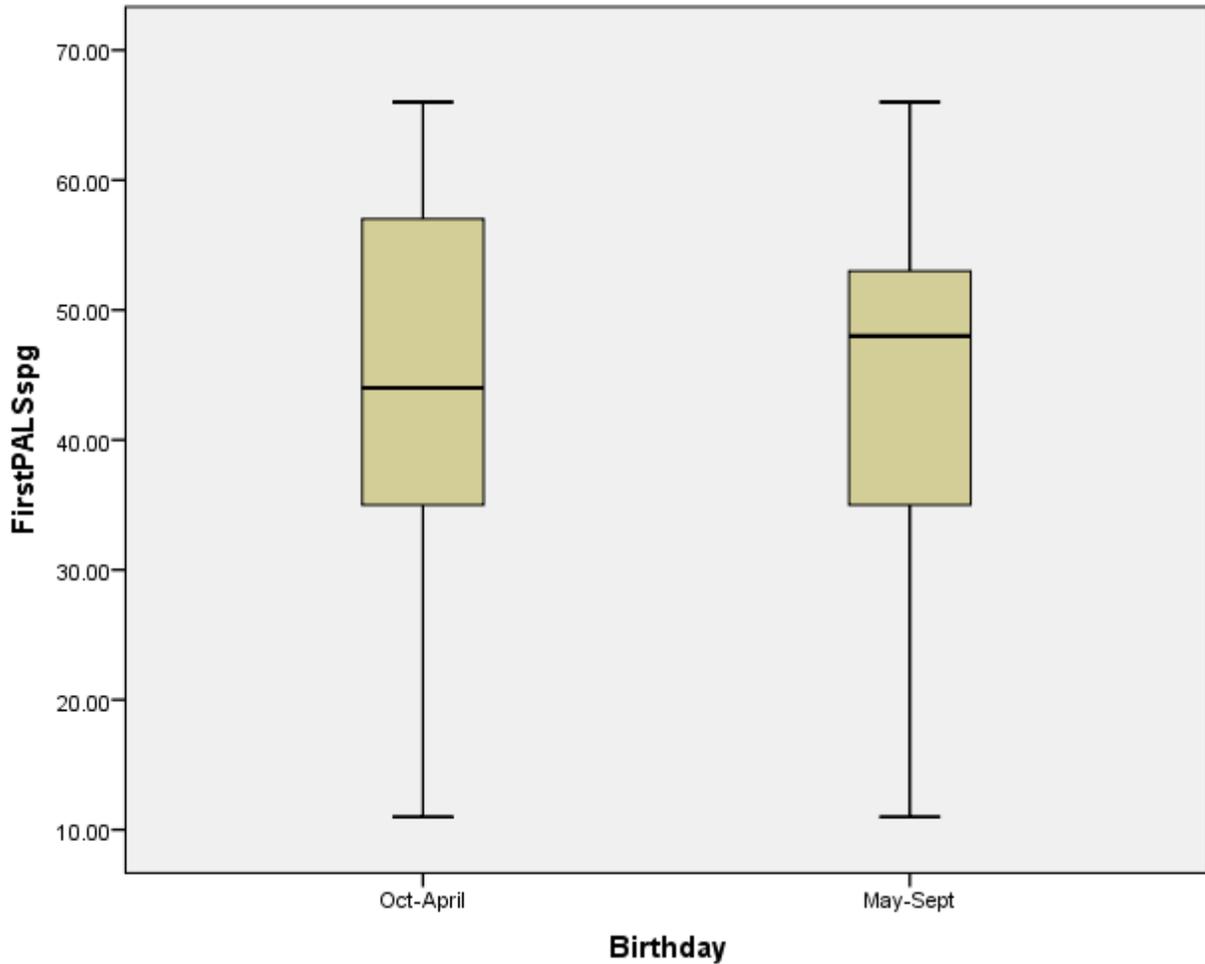


Figure 10. First Grade Spring PALS scores and birthdays.

Chapter Summary

This chapter presented the data obtained from participants from one Southwest Virginia School district. There were 10 research questions and 10 null hypotheses. All data were collected through the school district’s reading coach. RQ1 results indicated a strong positive correlation between the Spring kindergarten PALS scores and Spring first grade PALS scores. Other results indicated that there were no significant differences in

the Fall kindergarten PALS scores of students who were born in October-April and students born in May-September, Fall kindergarten PALS scores of students who attended preschool and kindergarten students who did not attend preschool, Fall PALS scores of kindergarten students who were first born and the Fall PALS scores of kindergarten students who were not first born, Spring PALS scores of kindergarten students who attended preschool and students who did not attend preschool, Spring PALS scores of kindergarten students who were first born and kindergarten students who were not first born, Spring PALS scores of kindergarten students who have birthdays between October-April and students who have birthdays between May-September, Spring PALS scores of first grade students who were first born and first grade students who were not first born, Spring PALS scores of first grade students who attended preschool and first grade students who did not attend preschool, or Spring PALS scores of first grade students who have birthdays between October-April and students who have birthdays between May-September.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter contains the findings, conclusions, and recommendations for readers who may use the results as a resource when reviewing and revising School Readiness Assessments. The purpose of this quantitative study was to investigate the relationship between students' kindergarten PALS scores and first grade PALS scores in a southwestern Virginia school district. PALS scores from preschool, kindergarten, and first grade students were used in the study. The data were collected to examine trends related to the purpose of this study. Specifically, this research was guided by 10 research questions on PALS scores and later academic achievement. The study was conducted using data from preschool, kindergarten, and first grade PALS scores from 62 students. Students were not identified during the data collection. Data were reorganized and information was extrapolated based upon various subcategories of students.

Summary of Findings

Analysis of the results of the PALS scores revealed this information:

1. There was a significant positive relationship between Spring kindergarten PALS scores and Spring first grade PALS scores.
2. Results for RQ2 indicated that there was no significant difference in Fall PALS scores of kindergarten students who have birthdays between October-April and Fall PALS scores of kindergarten students who have birthdays between May-September.

3. Results for RQ3 indicated that there was no significant difference in Fall PALS scores of kindergarten students who attended preschool and Fall PALS scores of kindergarten students who did not attend preschool.
4. Results for RQ4 indicated that there was no significant difference in Fall PALS scores of kindergarten students who were first born and Fall PALS scores of kindergarten students who were not first born.
5. Results for RQ5 indicated that there was no significant difference in Spring PALS scores of kindergarten students who attended preschool and Spring PALS score of kindergarten students who did not attend preschool.
6. Results for RQ6 indicated that there was no significant difference in Spring PALS scores of kindergarten students who are first born and Spring PALS scores of kindergarten students who are not first born.
7. Results for RQ7 indicated that there was no significant difference in Spring PALS scores of kindergarten students who have birthdays between October-April and Spring PALS scores of kindergarten students who have birthdays between May-September.
8. Results for RQ8 indicated that there was no significant difference in Spring PALS scores of first grade students who are first born and Spring PALS scores of students who are not first born.
9. Results for RQ9 indicated that there was no significant difference in Spring PALS scores of first grade students who did attend preschool and Spring PALS scores of first grade students who did not attend preschool.

10. Results for RQ10 indicated that there was no significant difference in Spring PALS scores of first grade students who have birthdays between October-April and Spring PALS scores of first grade students who have birthdays between May-September.

Results indicated that none of the analyses showed significant differences in the Fall and Spring PALS scores for kindergarten and first grade students. However, there was a strong positive correlation between Spring PALS scores of kindergarten students and Spring PALS scores of first grade students indicating that these results are significant indicators of academic achievement for language arts literacy. The literature review indicated similar findings in other educational studies demonstrating a need to identify in which elementary students can be successful in school. School readiness and preschool participation, and early instruction are areas that influence student learning and success.

Conclusions

Kindergarten readiness has a significant impact on students' early success in school and later academic achievement. It is an issue that needs attention and consideration because of its long-term impact. Parents, teachers, administrators, and communities need to understand that the early academic success of students can have a profound effect on students' lives and capabilities. The formative years are critical and need to be seized because the window of opportunity will be lost. A child's cognitive development develops early and early childhood education programs need to prepare children so they will have a desire and passion to learn. In an age of standardized testing

the most important elements for learning are being overlooked. Research in cognitive neuroscience has shown that imagination, play, creativity, and curiosity are essential for learning. Early childhood education programs need to develop curriculums that will cultivate curiosity in the classrooms and promote imaginative, pretend play.

Legislators, communities, and school leaders need to review the research and data to improve programs to ensure children enter kindergarten ready to succeed. An age-appropriate assessment may also provide adequate information concerning a child's skills, maturity, behavior, and readiness. Age and birthdays should not be the only considerations for deciding if a child is ready to enter kindergarten. The stakes are too high and more information is needed to determine if a child is ready to succeed in kindergarten. Parents also must also be educated about the importance of their role in their child's education. Education needs to develop some new and innovative approaches to promoting education to the public so more children can be successful in school.

Recommendations for Practice

Based upon the analysis and results of this research, the following recommendations for practice were identified:

1. Effective Early Childhood Programs. Teachers and administrators should assess children's development and learning and plan the curriculum accordingly. Developmentally appropriate programs should be created to enhance development and learning and should demonstrate an impact on student learning and achievement.

2. Transition Programs. Early childhood programs should create a smooth transition from one level of schooling to the next. Problems may be academic, social/emotional, or behavioral if transitions are not managed well. Programs should not use age and birthdays for entrance into them. Developmental needs of young children should be the main factor in the early education of children. Developmentally appropriate assessments should be used to determine the appropriate classroom environment for children to assist in smooth transitions.

3. Informing Policymakers. Policymakers have established a data-drive effort to make teaching less subjective, more objective, and more scientific. Early childhood education programs should not be focused on measurement-driven instruction and competency tests. Teachers have always assessed learning informally based on their observations and experience with the students. Policymakers need to understand that relying on data-driven educational policy, rather than classroom experience, may be detrimental to the learning environment.

4. Paradigm shift in education for administrators and teachers. There are many variables and factors that affect a student's education when they begin their formal education. Teachers and administrators need to understand that they may need to create a new perspective for the changes in program planning. Teachers and administrators need to challenge themselves as they challenge their students and allow their students to see them as learners themselves.

Recommendations for Further Research

The purpose of this study was to investigate school readiness and how it affects kindergarten students when they begin school. Participants of the study included preschool, kindergarten, and first grade students PALS scores from 1 elementary school in Southwest Virginia. In this study, a null hypothesis was rejected and others were retained. Overall, results showed a positive correlation between kindergarten PALS scores and first grade PALS scores. These recommendations are proposed for adding to the research on school readiness and preparing students for their formal education beginning in kindergarten: (uneven spacing between lines again)

1. This study should be replicated using additional school districts that administer the PALS assessment to give greater accuracy and reveal whether there is a consensus elsewhere.
2. This study focused exclusively on the PALS assessment for school readiness; it could be modified to include other skills.
3. This study involved preschool, kindergarten, and first grade PALS scores; other data could be collected to determine how to best serve students when they enter school that prepares them for later school success.
4. This study should be replicated comparing public school practices of placing students in grades based on birthdays to private or charter schools, where more flexibility is available.
5. The study showed a significant correlation between PALS scores in kindergarten and PALS scores in first grade. A study should be conducted to compare second grade PALS scores and third PALS scores to determine

if there is a significant relationship between PALS scores in kindergarten through third grade.

6. With the focus on more rigorous academic standards in kindergarten, a long-term study should be conducted to track kindergarten students to determine how many of them will be prepared for later school success based on their age and preschool experience.
7. A quantitative study could be conducted comparing PALS scores of kindergarten students who score above the benchmarks and the literacy/reading programs that are used to build their skills. The study could provide valuable information about how data is used to develop a stronger curriculum.

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APPENDICES

APPENDIX A

East Tennessee State University Institutional Review Board Approval



EAST TENNESSEE STATE UNIVERSITY

Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707

Phone: (423) 439-6053
Fax: (423) 439-6060

IRB APPROVAL- Initial Expedited Review

November 30, 2015

Jeannette Triplett

Re: Students' Phonological Awareness Literacy Screening and School Readiness
IRB#:c1115.2sd

ORSPA#:

The following items were reviewed and approved by an expedited process:

- new protocol submission, PICV

On **November 30, 2015**, a final approval was granted for a period not to exceed 12 months and will expire on **November 29, 2016**. The expedited approval of the study will be reported to the convened board on the next agenda.

The IRS has approved your study request to work with children as a vulnerable population. This approval was granted under category 1: this study presents no more than minimal risk to children because the data exist already and are reflective of test scores from a measure that the children took as part of their standard education. There are no interventions proposed. The variables of interest are not those which would identify any children involved, nor would they put them at any risk. The researcher has identified plans for de-identifying and protecting data that seem consistent with current research practice.

The IRS determined **parental permission is waived** under 45 CFR 46.116 (d).



The research involves no more than minimal risk to the participant as data have been collected already and will be coded to protect the children's identities. The waiver or alteration will not adversely affect the rights and welfare of the participants as the data already exist and no identifying information will be used. The research could not be practicably carried out without the waiver or alteration since all valid scores will be needed for a valid analysis and it would be impossible to get consent from all parents. Providing participants with additional pertinent information after participation is NOT appropriate as there is no information to provide.

The IRS determined that the **requirement for assent is waived or altered** because all of the following are true: The research involves no more than minimal risk to the participants. The waiver or alteration will NOT adversely affect the rights and welfare of the participants. The research could NOT practicably be carried out without the waiver or alteration. Providing participants additional pertinent information after participation is NOT appropriate. This is because participants are unaware that they are in the study, as the data are pre-existing as part of their educational record. Notifying them once the study has been completed would also potentially identify participants and compromise confidentiality.

Federal regulations require that the original copy of the participant's consent be maintained in the principal investigator's files and that a copy is given to the subject at the time of consent.

Projects involving Mountain States Health Alliance (MSHA) must also be approved by MSHA following IRB approval prior to initiating the study.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research cannot be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following its implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,
Stacey Williams, Chair
ETSU Campus IRB



Accredited Since December 2005

APPENDIX B

Letter to Superintendent of Schools

March 10, 2015

Dear Superintendent of Schools:

I am currently working on my doctorate in Educational Leadership at East Tennessee State University. My dissertation is on school readiness skills as measured by the PALS assessment and the academic achievement of kindergarten and first grade students. I would like to request permission for Joseph Van Pelt Elementary School to participate in this study.

For this study, PALS scores of first grade students will be statistically compared to their kindergarten PALS scores and their academic achievement. Preschool experience, birthdays, and birth order will also be examined to determine how they affect school readiness.

As we work to prepare student for kindergarten, we are facing more challenges because of the rigorous academic standards that kindergarten students are expected to master. Educators will be required to examine existing programs as well as implement innovative programs to ensure students experience success at school. This study will provide data comparing the academic success of students and their PALS scores. Insights from this study may influence the further examination of the preschool and kindergarten curriculums to help students achieve optimal success in school.

Please respond by email at your earliest convenience.

Thank you,

Jeannette Triplett
Joseph Van Pelt Elementary School
Bristol, Virginia City Schools
ETSU Doctoral Student

Work #: 276-821-5770
Email: triplettj@goldmail.etsu.edu

APPENDIX C

Approval by Superintendent of Schools

From: Rex Gearheart
Sent: Friday, April 24, 2015 8:16 AM
To: Jeannette Triplett
Subject: Support

Jeannette,

I ran across your request to study readiness skills in our district, and I support your efforts and ideas. This correspondence should serve as permission to proceed and support for your study. I look forward to seeing your results. Thanks!

Rex Gearheart, Superintendent
Bristol Virginia Public Schools
220 Lee Street
Bristol, Virginia 24201
(276)-821-5600
Fax to (276)-821-5601
rgearheart@bvps.org

VITA

JEANNETTE DARR TRIPLETT

- Education: East Tennessee State University, Johnson City, TN, Doctor of Education, Educational Leadership, 2016.
East Tennessee State University, Johnson City, TN, Master of Education, December 13, 1997.
Clemson University, Clemson, SC, Bachelor of Textile Technology, August, 1984.
- Professional Experience: Teacher (Grades K, 3), Bristol Virginia City Schools, Bristol, VA, 1991- Present.
- Professional Affiliations: Communications Representative
Mentor Program for New Teachers
Student Teacher Supervisor