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Achievement of Elementary School Students and Attendance in Preschool Programs in Johnson County, Tennessee

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by

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ABSTRACT

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The purpose of this study was to determine if a difference in achievement scores exist between students who attended the Johnson County School System preschool program and those who did not as measured by standardized TCAP achievement test Reading/Language Arts and Math scores of students in the third and fourth grades. The variables of grade level and preschool attendance were considered. The population consisted of students who were in the third or fourth grades in the Johnson County School System during the 2010-2011 school year through the 2012-2013 school year. Data gathered were from the Tennessee Comprehensive Assessment Program achievement test scores obtained from the 2010-2011 school year through 2012-2013 school year and from the preschool attendance student management system. Independent and paired t-tests were used to evaluate differences in the variables.

The investigation of the relationship between attendance in preschool and achievement test scores might assist educators in planning and implementation of future preschool programs within the public school setting.

Findings in this study did not show significance of preschool attendance within the Johnson County School System preschool program in relation to achievement test scores. Scale scores were tested in this model for both third and fourth grade achievement scores. These scores consisted of Reading/Language Arts and Math. Areas tested were found to have no significant

differences for third and fourth grade based on preschool attendance but did have significant differences when third grade was compared to fourth grade of the same students.

DEDICATION

This study is dedicated:

To my loving husband, David, for his patience, love, encouragement, and support in allowing me to follow my dreams. Because of him I am a better person.

To my children, Patrick and Maddie, who have loved me despite my absences and preoccupation during this process. They are my inspiration. I hope that I have taught them to always work hard to achieve your goals and to never give up on your dreams.

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CHAPTER 1

INTRODUCTION

The contribution of early childhood education to the healthy development and future well-being of children who are economically and socially disadvantaged has become a vital public issue with important implications for families, business, private philanthropy, and government. As more attention is focused on increased academic rigor and standardized tests, children's readiness to begin kindergarten becomes increasingly important. Preschool education is seen as a factor in helping families balance childrearing and work responsibilities (Hansen, 2002). Many women are in the labor force with 60% of women working in 2000. This included 73% of all women with children under age 17 and 72% of women with children aged 3 to 5 years (Hansen, 2002). According to the U. S. Census Bureau (2010) 77% of women were working in 2010; of this number 64% were women with children under the age of 6. For these reasons it is important to understand the effect of preschool on children's school readiness. According to Skibbe, Connor, Morrison, and Jewkes (2011) school readiness refers to aspects of children's social and academic development that are associated with children's preparedness for formal schooling.

The largest increase in United States enrollment rates in public and private schools between 1970 and 2007 came from children ages 3 to 4 years old, rising from 20% to 55% (Planty et al., 2009). Nationally, state prekindergarten (Pre-K) enrollment of 3 and 4 year olds reached an estimated 1.4 million children in 2007-2008 and state funding for Pre-K programs was approximately $4.6 billion (Huang, Invernizzi, & Drake, 2012). In 2012 more than 1.3 million children attended state funded Pre-K programs, yet the total state funding for Pre-K programs decreased by more than $548 million across the 40 states that offer Pre-K programs.

Only 28% of 4 year olds were served in state funded Pre-K programs (Barnett, Carolan, Fitzgerald, & Squires, 2012).

Educating the young mind is an important step in readying the child for future learning experiences. The first 5 years of a child's life is a time of enormous growth in linguistic, conceptual, and social competence. Early education offers toddlers learning experiences that benefit them throughout their educational careers (Hansen, 2002).

Federal and state initiatives have emphasized the importance of helping all children develop school readiness skills including early reading skills. In 1990 the National Education Goals Panel created by then President George H. W. Bush and 50 governors set a goal that by the year 2000 all children would start school ready to learn. Evidence has shown that the early years are significant to children's later academic success (Schumacher, Irish, & Lombardi, 2003). Because kindergarten can be such an important beginning educational experience, the United States has been evaluating where it stands with respect to one of eight national educational goals: By the year 2000 all children in America will start to school ready to learn (Austin, 2005). The call for education improvements intensified with the passage of the No Child Left Behind Act of 2001 by which government raised expectations for the achievement of all children including those children from disadvantaged backgrounds (Schumacher et al., 2003).

The Voluntary Pre-K for Tennessee Act was launched in 2005 and by the end of the 2011-2012 school year 18,609 children were served in 934 classrooms throughout the state with every district offering at least one classroom (Barnett et al., 2012). The American Recovery and Reinvestment Act of 2009 provided $787 billion in tax cuts, funding for entitlement programs, and federal grants and loans. The three goals of the Recovery Act were (a) create new jobs and save existing jobs, (b) spur economic activity and invest in long-term growth, and (c) foster

unprecedented levels of accountability and transparency in government spending (The White House, 2009). Race to the Top (RTTT), a $4.35 billion competitive grant, was announced in 2009 by President Barak Obama. This grant was created to spur innovation and reforms in state and local districts' K-12 education and was funded through the American Recovery and Reinvestment Act. Race to the Top emphasized:

- designing and implementing rigorous standards and high quality assessments,
- attracting and keeping great teachers and leaders in America's classrooms,
- supporting data systems that inform decisions and improve instruction, and
- using innovation and effective approaches to turn around struggling schools
- demonstrating and sustaining education reform (Tennessee Department of Education, 2009).

Tennessee was awarded a Race to the Top grant of over $501 million. The main focus for Tennessee was improving student achievement through young students' academic readiness, high school graduates' readiness for college and careers, and higher rates of graduates enrolling and succeeding in postsecondary education (Tennessee Department of Education, 2009).

Statement of the Problem

The purpose of this study was to determine if a difference in achievement scores exist between students who attended the Johnson County School System preschool program and those who did not as measured by standardized TCAP achievement test reading/language arts and math scores for students in the third and fourth grades.

Research Questions

The following research questions guided the study:

RQ1: Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third grade students who attended preschool and those who did not?

RQ2: Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between fourth grade students who attended preschool and those who did not?

RQ3: Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third and fourth grade students who attended preschool?

RQ4: Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third and fourth grade students who did not attend preschool?

Significance of the Study

In the current age of accountability educators must ensure that the strategies and interventions they employ are effective. Preschool education for disadvantaged children has often been considered to increase their cognitive abilities greatly and thus leads to long-term increases in achievement and school success (Prince & Howard, 2002). High quality center-based child care programs can enhance the academic success and life adjustments of children living in poverty. Children who participate in high quality programs are more likely to demonstrate greater language abilities, experience fewer grade retentions, and have less need for remediation services in elementary school (Espinosa, 2010).

The Johnson County School System is located in the Northeast tip of Tennessee and borders the states of Virginia to the north and North Carolina to the south. Johnson County is part of rural Appalachia and is characterized by high rates of poverty and unemployment. The school system consists of seven school buildings, one career technical center, one alternative school, and one Central Office building. Johnson County Schools is a public school system serving 2,290 preschool through 12^{th} grade students. All students attend school for 167 extended school days and teachers are employed for 200 days. It should be noted that Tennessee state law allows school systems in areas that receive a great deal of inclement weather in the winter to

have a 7-hour school day for students and a 7.5-hour teacher day. Thirteen school days are made up through the extended day. These are used for snow days or may be used for staff development if approved by the Tennessee Department of Education.

Johnson County is an economically distressed area and due to location has limited resources available. Additionally, Johnson County has limited prekindergarten child care programs available for children to attend. There are three privately owned and operated daycare centers that parents can pay for their children to attend. There are also two churches that offer half day preschool programs that parents can pay for the child to attend. Teachers in these community programs do not have a teaching degree. All teachers in the Johnson County School Head Start and PreK program have a bachelor's degree in education and must have a preschool endorsement on their teaching license. All support staff must complete the Child Development Association training and must renew this training every 3 years.

The Johnson County School System operates five Head Start funded classrooms within the school system and has added three additional PreK classrooms funded by Tennessee's Lottery PreK Program. The PreK program works in conjunction with the existing Head Start program. The Head Start/PreK program is implemented in four of the five elementary schools. Head Start is a federal program for preschool children from low income families, according to the poverty guidelines published by the federal government. The PreK programs first priority for enrollment is all children who meet free and reduced price lunch income guidelines and are 4 years old by September 30th. If space is available after enrolling children who qualify for free or reduced lunch, the program may enroll children who have disabilities, are English Language Learners, are in state custody, or who are at risk due to abuse or neglect regardless of income. If space is still available after the first 20 days of the new school year all other children may enroll

(State of Tennessee, 2007). These programs offer disadvantaged students the opportunity to attend preschool before entering kindergarten in the same school.

The Johnson County Head Start and PreK programs use *The Head Start Child Development and Learning Framework: Promoting Positive Outcomes in Early Childhood Programs Serving Children 3 to 5 Years Old* (Office of Head Start, 2010) to guide curriculum decisions. The framework outlines the essential areas of development and learning that are to be used by Head Start programs to establish school readiness goals for their children, monitor children's progress, align curricula, and conduct program planning. It is divided into 11 domains that represent the overarching areas of child development and early learning essential for school and long-term success (Office of Head Start, 2010). The Johnson County Schools Head Start and PreK program uses *The Creative Curriculum for Preschool* (Dodge, Colker, & Heroman, 2010) as a resource for curriculum activities for each of the 11 domains. The Johnson County School System has placed emphasis on improving the achievement of disadvantaged children by implementing a preschool program at four of the five elementary schools in the school district. The preschool program works in conjunction with the existing Head Start program in three of the five elementary schools in the district. These programs offer disadvantaged students the opportunity to attend preschool before entering kindergarten in the same school.

This study will provide useful information regarding the district's preschool programs and their effects on achievement scores. While the information gleaned should be beneficial specifically to the Johnson County School System, educators from other school systems seeking information on the associations between preschool attendance and student achievement could also find this study relevant, especially when viewed in conjunction with the existing body of literature.

Definitions of Terms

The following definitions are specific to this study:

1. *Achievement Test:* An assessment that measures a student's knowledge and application skills in various subject areas (i.e., reading, language arts, math, science, and social studies) (Tennessee Department of Education, 2011a).
2. *Early Childhood Education:* ". . . the education of young children from birth through age 8" (Bredekamp, Knuth, Kunesh, & Shulman, 1992, p. 1).
3. *Early Childhood Intervention:* "The provision of educational, family, health, or social services in the first 5 years of life to children at risk of poor outcomes due to economic and environmental disadvantages or developmental disabilities" (Reynolds, Temple, & Ou, 2003, p. 634).
4. *National Institute for Early Education Research (NIEER)*: An organization that supports early childhood education initiatives by providing objective, nonpartisan information based on research (NIEER, 2012).
5. *Tennessee Comprehensive Assessment Program (TCAP)*: An achievement test administered to students in grades 3 through 8 each spring. The achievement test is a timed, multiple choice assessment that measures skills in reading, language arts, math, science, and social studies (Tennessee Department of Education, 2011a).
6. *Tennessee Voluntary Preschool for All Program:* An academic program open to all 4-year-olds in the state of Tennessee with priority given to struggling students from low income families (Tennessee Department of Education, 2008).

Limitations and Delimitations

This was a quantitative study conducted with a limited number of participants. The study was limited to third and fourth grade students enrolled in four rural elementary schools in northeast Tennessee from the 2010-2011 school year to the 2012-2013 school year. Therefore, the results may not be generalized to other rural elementary schools. The study was limited to the following characteristics: The population consisted of students who were in the third and fourth grades during 2010-2011 through the 2012-2013 school years who attended the four elementary schools in the Johnson County School System. During the period for which data were collected, students either received preschool instruction in the Johnson County School System preschool program or did not receive preschool instruction as determined by each student's cumulative records. Another limitation for this study was the lack of information regarding the students who did not attend the Johnson County School System preschool program. This study did not look at the experiences those students had or if they may have attended a different preschool program during the same time that the other students were in the Johnson County School System preschool program.

Overview of the Study

This study is organized into five chapters. Chapter 1 provides an introduction, a statement of the problem, research questions, the significance of the study, definitions, and delimitations. Chapter 2 presents a review of the literature and is organized into the following sections: historical perspectives, theories applied to early childhood curriculum, early childhood studies and effects, funding and benchmarks, curriculum development in early childhood education, basis for preschool programs, and a summary. In Chapter 3 the research methodology is detailed. Information is provided on the research design, the population, data collection, data analysis, and

a summary. Chapter 4 provides an analysis of data and contains a description of the population, and student achievement. Chapter 5 presents a summary of the findings, conclusions, and recommendations for future study.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter provides a review of the literature relevant to attendance in preschool programs and is divided into seven sections: (a) historical perspective, (b) theories applied to early childhood curriculum, (c) early childhood studies and effects, (d) funding and benchmarks, (e) curriculum development in early childhood education, (f) basis for preschool programs, and (g) a summary.

Historical Perspectives

The concept of early childhood education started with European mothers in the early 1800s who educated children outside of their homes. Between 1815 and 1860 over five million families immigrated to the United States. This was also the beginning of the Industrial Revolution and factories began employing many women who, for the first time, needed to work outside of the home (Roby, 1973). Although the origin of the idea of caring for young children in groups was somewhat obscure, most agreed that the French *crèche* was the model for the American day nursery. Crèches cared for young children between the ages of 6 months and 6 years from poor working families. They were designed to reduce the high death rates of infants whose mothers worked in factories during the early 1900s (Roby, 1973). The idea of “infant schools” came to America during this time and schools were set up in churches, factories, and private homes to care for the young while parents were working (Lipoff, 2013).The first United States day nursery was opened in Boston in 1838 by Mrs. Joseph Hale and it provided care for the children of seamen's wives and widows. In 1854 the Nurses and Children's Hospital in New York City opened its version of the day nursery to care for children of working mothers who had

been patients. Two women from Troy, New York, visited the hospital nursery, liked the idea, and opened their own nursery in 1858 (Roby, 1973).

During the Civil War the children of women who worked in hospitals and factories in Philadelphia were served by a nursery that opened in 1863 (Roby, 1973). According to Roby (1973), model day nursery was set up in 1893 at the World's Fair in Chicago and cared for as many as10,000 children who were visitors. By 1898 approximately 175 day nurseries were operating in various parts of the country– enough to warrant the creation of a National Federation of Day Nurseries (Roby, 1973).

Daycare programs were specifically designed to serve those children whose parents could not be at home to care for them. Today daycares also provide services for those parents who see the value in daycare programs. During 1899 in New York City 15,000 children were placed in orphan asylums, called almshouses, at a cost of over half a million dollars. These children were taken from poor families that were unable to meet the needs of their children while working long hours for very little pay (Adamec & Pierce, 2000). Almshouses offered a place for these children to receive care in the absence of other caregivers but were closed when reports of poor sanitation became public. Charitable organizations responded to the vast number of children being removed from their families by opening day nurseries to provide basic needs such as cleanliness and nutrition. The ultimate goal of the day nursery movement was to keep the family intact and prevent the institutionalization of children (Adamec & Pierce, 2000).

According to Roby (1973):

> The first White House Conference on Children and Youth, held in 1909, heralded home life as the highest and finest product of civilization, and urged that children be cared for in their homes whenever possible. The conference recommended mothers' pensions as a substitute for day nursery care, and by 1913, 20 states had enacted laws authorizing financial assistance to indigent mothers. (p. 159)

During the Great Depression of the 1930s the Works Progress Administration (WPA) set up emergency nursery schools to provide work for unemployed teachers. As many as 2,500 nursery schools appeared in the public and private sector by 1940. The WPA nursery funding ended in 1942, the year the Lanham Act established approximately 2,000 daycare centers to enable mothers to enter the work force to support the war effort. Following World War II the Lanham Act day care centers closed (Roby, 1973).

The Economic Opportunity Act (EOA) of 1964 was at the core of President Lyndon Johnson's War on Poverty. It launched programs on multiple fronts to improve the socioeconomic status of children and youth in poverty and with special needs (Yarrow, 2009). One of the most notable child welfare programs associated with the EOA was Head Start. Head Start began in 1965 as a summer program and served more than 580,000 children (Yarrow, 2009). Head Start was designed to help break the cycle of poverty, providing preschool children of low income families with a comprehensive program to meet their emotional, social, health, nutritional, and psychological needs. Head Start serves over a million children and their families each year in all 50 states (Office of Head Start, 2014).

President Lyndon Johnson signed the Elementary and Secondary Education Act in 1965 as a part of the War on Poverty legislation. This Act allocated money to ensure that all students were given a quality education regardless of their economic status. It led to the development of the federally funded Title programs that provide millions of dollars to school systems to help ensure quality education for all students (Spring, 2011). President George W. Bush developed an educational initiative known as *Good Start, Grow Smart.* This initiative was intended to help states and local communities strengthen early learning for young children. Title I, Part A, supported preschool education as an important part of this initiative (U.S. Department of

Education, 2004). The initiative provided training for nearly 50,000 Head Start teachers in the best techniques, assurance that preschool programs are more closely coordinated with K-12 educational programs, and a research effort to identify effective early literacy programs and practices (Wortham, 2007). Providing high quality early childhood experiences can help ensure that children in Title I schools and programs have the foundation to meet academic standards and experience success throughout elementary and secondary school (U.S. Department of Education, 2004).

Georgia became the first state to fund a universal preschool program. The program was funded by income from the state's lottery program. The state partnered with public schools, private nonprofit preschool programs, and Head Start agencies to ensure that programs were available for all 4 year olds who desired to attend (Georgia Department of Early Care and Learning, 2014).

Governor Phil Bredesen of Tennessee outlined his plan for voluntary preschool in January 2005. The governor's plan is available to all 4 year olds in the state of Tennessee with priority to children from low income families. There is no charge to parents for the services, and participation is not compulsory (Tennessee Department of Education, 2014). The state's website for the Pre-Kindergarten program reports 935 PreK classrooms are serving over 18,000 children. All 95 counties in Tennessee now have PreK classrooms. The program has received accolades from the National Institute for Early Education Research on the quality of the program (Tennessee Department of Education, 2014).

At the beginning of the 21st century most of the federal funding that subsidized education and care for children under age 5 came from two programs: Head Start and the Child Care Development Fund (CCDF) (Hansen, 2002). By 2005 69%, or over 800,000, 4 year old children

nationwide participated in some type of state preschool program (Center for Public Education, 2007). According to Barnett et al. (2012) more than 1.1 million 4 year old children participated in a preschool program in the United States by 2012.

Early childhood interventions from birth to the early school grades have received widespread attention as effective ways to prevent learning difficulties and to promote children's wellbeing. According to Reynolds, Temple, Robertson, and Mann (2001) preschool programs have been the centerpiece of many school and social reforms nationwide and expenditures for them have exceeded $20 billion annually. In 2011-2012 total funding for state Pre-K programs from all sources was at least $6.12 billion, which was a decrease from the previous year (Barnett et al., 2012).

Early childhood education programs have a long history in the United States; as early as the 1800s the value of preschool programs was recognized. Preschool programs were originally developed for working mothers but are now seen as a valuable educational resource for any child. Adequate funding continues to be an issue and will require continued support from government.

Theories Applied to Early Childhood Curriculum

Early childhood programs trace their development to early philosophers and educators. Early childhood education has a long tradition of philosophy and teaching, reflecting on the most effective ways to teach children and how children learn best. This section examines some of the most influential philosophers and teachers who have shaped early childhood education.

Friedrich Froebel

European educator Friedrich Wilhelm Froebel (1782-1852) presented a new concept of childhood. Before he presented his theories children were thought of as imperfect miniature adults. Froebel stated childhood was not just a time to prepare for adulthood but was a separate time for learning and growing and the childhood stage had much value in life (Morrison, 1995).

Froebel established the first kindergarten, Kleinkinderbeschaftigungsanstalt, to serve children ages 3 to 7 in 1837 (Morrison, 1995). Froebel's term, *kindergarten*, means children's garden in German, and he suggested that children should be nourished and tended like a garden. His kindergarten had "an emphasis on social development, a concern for the cultivation of creativity, and the concept of learning by doing" (Johnson, 1996, p. 308). "Froebel stated play is the foundation for children's learning and envisioned the kindergarten as the child's bridge between home and school" (Brewer, 2004, p. 36). He suggested that home and school should merge physically and part of the kindergarten day was at home where the teacher spent time with the child and the mother, sharing the child's education. The idea of partnership between parents and teachers is a strong component of most good preschool programs today (Brenner, 1990). High quality preschool programs have the ability to support academic learning as well as child and family welfare. The emphasis placed on parent involvement can be valuable to the children (Hilado, Kallemeyn, Leow, Lundy, & Israel, 2011). Because his theories focused on play, he created the first educational toys, or gifts as he called them, and fostered their use in children's play (Day, 1994). Froebel's kindergarten students learned rhymes and fingerplays and children played as part of their learning. Froebel suggested that teachers needed to maintain a child's interest and use the child's curiosity to plan learning. The teacher was responsible for guidance and direction so children could "become creative, contributing members of society" (Morrison,

1995, p. 66). He declared the teacher should provide activities so children would be able to learn when they were ready to learn (Morrison, 1995). During the process of developing his curriculum and methodology for educating young children Froebel earned the distinction as the "father of kindergarten" (p. 64).

Maria Montessori

Maria Montessori (1870-1952) was an Italian doctor whose life was devoted to developing a system of educating young children (Morrison, 1995). Montessori stated that at 3 years of age the child already has developed the foundations of the human personality and needs the special help of education in the school. Montessori says if we compare our ability as adults to that of the child it would require us 60 years of hard work to achieve what a child has achieved in the first 3 years of life (Montessori, 1949). Montessori's ideas of teaching young children were developed through working with mentally retarded youngsters. As Montessori studied and taught these special-needs children (most from deprived backgrounds) she developed conclusions to include all children. Montessori stated if children were given proper stimulation at the right time, they would learn regardless of their environment.

Montessori's methods included a prepared learning environment and suggested that children's curiosity occurs in different stages thus causing them to acquire knowledge. Montessori found that education is not what the teacher gives; it is a natural process spontaneously carried out by the human individual. It is acquired not by listening to words but by experiences within the environment. The task of the teacher becomes not one of talking but one of preparing a series of motives of cultural activity spread in a specially prepared environment (Montessori, 1949).

Montessori's theory was that all young children experience stages of development, that each stage needed certain types of learning, that learning materials should be designed to match the stages, and suggested the teacher and older students should be mentors to shape the younger students innate capabilities (Brenner, 1990). In the *Absorbent Mind* Montessori (1949) defines the stages of growth. The first of these periods occurs from birth to 6 years of age. This period presents notable differences in the child and this is when the most intelligence is formed. This period is divided into two stages – from 0 to 3 years of age and then from 3 to 6 years of age. The next period is from 6 to 12 years which is a period of growth but without transformations. The third period occurs from 12 to 18 years of age and is also divided into two substages – 12 to15 and 15 to 18 years of age (Montessori, 1949). She theorized that it is crucial to give children a learning environment that affirms early education emphasis on the importance of sensory development. "To this end, most of the educational materials were tactile, to challenge the senses as well as the mind" (Day, 1994, p 12). In 1906, Montessori implemented and perfected those ideas when organizing schools for young children of families who occupied tenement houses under the Roman Association for Good Building (Morrison, 1995). Montessori's ideas are used in many preschool programs and are the guidelines for current Montessori schools (Brenner, 1990).

John Locke

English philosopher John Locke (1632-1704) declared that children were born with a *blank slate* – an unshaped mind containing no innate ideas – and that all behaviors and learning are acquired through interactions with the environment. "The culture would determine what was written on the blank slate" (Dworetzky, 1993, p. 5). In *An Essay Concerning Humane Understanding* Locke (1700) declared no principle is actually accepted by every human being.

Furthermore human beings cannot have ideas in their minds of which they are not aware; therefore, people cannot be said to possess even the most basic principles until they are taught them or experience them for themselves. Locke declared that knowledge was built from ideas, either simple or complex. Simple ideas, which come through experiences, combine in various ways to form complex ideas. There are two types of experiences that allow simple ideas to form in the human mind: sensation– or when the mind experiences the world outside the body through the five senses, and reflection– or when the mind turns inward to recognize ideas about its own functions, such as thinking, willing, believing, and doubting (Locke, 1700). This theory laid the foundation for environmentalism, a theory that views environment rather than heredity as the important factor in the development (especially the cultural and intellectual development) of an individual or group. Based on these ideas Locke promoted early intervention for poor or disadvantaged children (Morrison, 1995).

Jean Jacques Rousseau

Geneva native Jean Jacques Rousseau (1712-1778) stated children learn best when educators recognize their innate goodness and look at their unique interests and activities. Child-centered education still follows Rousseau's theories (Day, 1994). Rousseau's educational beliefs were known as naturalism because he viewed learning as a natural process (Johnson, 1996). "According to Rousseau, a natural education promotes and encourages qualities such as happiness, spontaneity, and the inquisitiveness associated with childhood" (Morrison, 1995, p. 60). His theory was built on educational decisions based on the child's nature. He concluded that children from birth to age 5 learn best from physical experiences and that children from ages 5 to12 learn best by direct exposure and from exploring the environment. When educators advocate hands-on learning they are following Rousseau's guidelines (Brewer, 2004).

Rousseau's views of education were drastic for his time. He provided educators with the idea that they have control over education that comes from social and sensory experiences but have no control over the child's natural growth and development. He spoke of *unfolding*–in which the nature of children "unfolds as a result of maturation according to their innate timetables" (Morrison, 1995, p. 61). These ideas were the beginning of present day developmentally appropriate practices. He maintained it was the responsibility of the early childhood educator and parents to provide appropriate educational experiences at the right time so that children could reach their potential. He also supported the idea that it was useful for children to teach one another as well as to have a teacher, and he did not want teachers to use wordy methods of teaching young children. His idea of child-centered education was novel in the mid-18th century but is a foundation of modern quality preschool education (Morrison, 1995).

Rousseau's educational theory was based on his book *Emile*, first published in 1760, which describes the education of a fictitious boy name Emile (Gray, 2009). The book is partly a novel and partly a philosophical treatise on the natural goodness of human beings and how to preserve that goodness through an education that does not corrupt. Gray (2009) suggested Rousseau's work was the beginning of what is known as child-centered or progressive education.

Johann Pestalozzi

Swiss educator Johann Heinrich Pestalozzi (1746-1827), who was not a scholar nor well-educated, started a school at his farm. He used the ideas of integration of home life, vocational education, and education for reading and writing. His farm school closed due to financial difficulties but he continued his study of education. His focus was that education should follow the child's nature (Morrison, 1995). Pestalozzi had a great understanding of children and recognized the sort of nurture they needed and thought teachers of young children should treat

the students with love, understanding, and patience. He stated teachers should provide the warmth and caring that parents give at home and teachers should be surrogate parents. He also stated public education must consider the family life and education should have a compassion for the poor (Morrison, 1995).

Pestalozzi pointed out that early childhood educators should not teach by using rote learning. He supported the idea that education was based on sensory impressions and experiences and children should participate in real and meaningful activities using manipulatives (counting, measuring, feeling, and touching). His theory included using objects and sensory perception to acquire knowledge (Johnson, 1996). “He stressed the development of the senses, as well as the teaching of basic skills” (Day, 1994, p. 10). Pestalozzi suggested that the best teachers were those who taught children not subjects. He also supported multiage grouping (Morrison, 1995). Pestalozzi suggested that children should be in groups of “various ages so that the older ones could help the younger ones” (Brewer, 2004, p. 36). This theory supports multiage learning as practiced today.

John Dewey

John Dewey’s (1859-1952) progressive education theory emphasizes children and their interests rather than subject matter. According to Morrison (1995) in a classroom based on Dewey’s theories the students learn through social interactions, intellectual pursuit, physical activities, and using manipulatives. Dewey and other progressives maintained that the curriculum should be “based on the children’s interest and should engage children in active experiences” (Brewer, 2004, p. 38).The educator's part in the child’s education is to furnish the environment that stimulates responses and directs the learner's course. Education cannot occur in isolation; it must relate to the world around the child (Dewey, 1922). Dewey’s influence is evident today in

active curriculum that is integrated and contains units developed to reflect the interests of the children.

Jean Piaget

Swiss scientist Jean Piaget (1896-1980) examined the cognitive development of children (Dworetzky, 1993). Piaget began studying children's intellectual development using his own children as subjects. Piaget (1969) based his theories on this research and came to the following conclusions: 1) children play an active role in their own cognitive development and children's cognitive development must include mental and physical activity, 2) experiences supply the foundation children use to develop learning and children learn though interaction with and by adapting their environment, and 3) a child's development is a continuous process and development results from maturation and by transactions or interactions between children and their physical and social environments.

Piaget (1969) contended the period of early childhood was when proper intervention would have its maximum effect upon the development of intelligence. Piaget's theory was a developmental one. Thinking processes change during childhood, and the thinking of a 4 year old is qualitatively different from the thinking of a 14 year old.

According to Piaget (1969) the development of children's thinking is divided into three main stages, and he argued that all children pass through these phases to advance to the next level of cognitive development. Stages cannot be skipped and ages vary as to when children will pass through each phase.

The first stage is the *sensorimotor period* that lasts from birth to 2 years. During the sensorimotor period the infant learns to coordinate movements, pick up things, throw things, crawl, walk, run, stack objects, and recognize a wide variety of situations (Piaget, 1969).

The second stage is *concrete operations* lasting from age 2 to 11 years. This stage is divided into two main substages: the *preoperational period* from 2 to 7 years and *concrete operations period* from about age 7 to 11. In the preoperational period the child learns the use of language and symbols and begins to reflect upon experience and knowledge that earlier were closely tied to action. The substage of concrete operations begins with two major achievements: the child learns how to relate the parts of a collection of objects to the whole and begins to understand conservation of number. In this substage the child is able to consider the possible results of actions that have not actually been occurred (Piaget, 1969).

The final stage is *formal operations* from 11 years onward. During this time adolescents begin to be able to understand a number of concepts that they were previously unable to appreciate. They use symbols related to abstract concepts, formulate hypotheses, and think about abstract relationships and concepts (Piaget, 1969).

Piaget's theory has been influential in modern curriculum design (Hopkins, 2011); however, Piaget's theory does not support the American tendency to try to speed up cognitive development. One of Piaget's emphases was on active involvement in learning. He favored education based on cognitive processes rather than cognitive products, and he proposed that attempting to teach children concepts before they have arrived at them spontaneously is completely useless (Hopkins, 2011). America has veered from this with No Child Left Behind's notion that children are all expected to learn at the same rate.

Lev Vygotsky

Lev Vygotsky (1896-1934) did not agree with Piaget's theory in which children are developers of their own intelligence and language. Vygotsky suggested social interaction supported and developed a child's mental, language, and social development (Morrison, 1995).

Learning and development are interrelated from the child's very first day of life (Vygotsky, 1978). Vygotsky is most known for his concept of the “zone of proximal development” which he defines as the area of development into which a child can be led in the course of interaction with a more competent partner. It is the difference between what the child can accomplish independently and what he or she can achieve in conjunction with another more competent person (Vygotsky, 1962). Vygotsky encouraged social interactions and collaboration as keys to learning and development. Today cooperative learning, coaching, mentoring, and collaboration are built upon those theories.

Abraham Maslow

Children who are poor, particularly those who have experienced long-term poverty, often come to school with many of what Maslow (1954) defined as having their basic needs unfulfilled. According to Maslow humanistic psychology stresses the importance of intrinsic motivation. In his hierarchy Maslow detailed five basic needs of all humans: (a) physiological needs, (b) safety needs, (c) belonging and love needs, (d) self-esteem needs, and (g) the need for self-actualization. Moreover, Maslow emphasized that before higher level needs are perceived lower level needs must be satisfied. Unfortunately for children reared in poverty the many obstacles presented by poverty jeopardize attaining each level of need. The first four levels are:

- physiological: hunger, thirst, bodily comforts;
- safety or security: out of danger;
- belongingness and love: affiliate with others, be accepted; and
- esteem: to achieve, be competent, gain approval and recognition.

According to Maslow (1954) people who had been satisfied in their basic needs throughout their lives, particularly in their earlier years, seemed to develop exceptional power to withstand present or future thwarting of those needs simply because they had strong, healthy character

structure because of basic satisfaction. That is to say, people who had been made secure and strong in the earliest years tended to remain secure and strong thereafter in the face of any threats. According to Weinberg (2011) it is most important for teachers and parents of young children to foster self-actualization. Children cannot learn when their basic needs are not fulfilled.

Early childhood educators have advocated that curriculum and assessment should be based on the best knowledge of theory and research about how children develop and learn with attention given to an individual child's needs and interests in relation to program goals. Considering this information, well-planned preschool programs should provide training to teachers on theories and research in early childhood – especially those theories that could adversely affect the overall continuity of the program in general.

Early Childhood Studies and Effects

The United States historically has resisted major government intrusions into the early years of education because such intervention would be considered a signal of failure on the part of the family (Kagan & Hallmark, 2001). This type of resistance has produced a vicious circle: parents resist government intervention in the education of young children on ideological grounds; the government, for its part, does not produce high quality daycare facilities; parents' resistance to government daycare solidifies because of the low quality of the care. This view of daycare is unfortunate as evidence strongly supports the idea that high quality daycare produces long-term positive outcomes. Studies of specific programs have provided the evidence.

High/Scope Perry Preschool Project

Schweinhart, Barnes, and Weikart (1993) described the effectiveness of one such program:

> The High/Scope Perry Preschool Project has been the focus of an ongoing longitudinal study conducted by the High/Scope Educational Research Foundation of 123 high-risk African American children. Participants were of low socioeconomic status, had low IQ scores, and were at high risk of failing school. Fifty-eight of these 3-and4-year-old children were assigned to the program group, and 65 of these children were assigned to a control group that did not go through the program. Children attended the preschool program Monday through Friday for 2.5 hours per day over a 2-year period. During that same period, a staff to child ratio of one adult for every five or six children enabled teachers to visit each child's family in their home for 1.5 hours each week. In addition parents participated in monthly small group meetings with other parents facilitated by program staff. (p. 1)

Schweinhart et al. (1993) also indicated that only 15% of those who attended the preschool program had been placed in special education programs for mental impairment compared with 34% of the control group. Each year the mean achievement test scores of the program group of children from ages 7 to 14 were noticeably higher than were those of the control group. The difference in the final achievement test scores of the two groups at age 14 was particularly significant: the program group students' scores were 29% higher than the control group's scores. The mean school grade point average of those students who were in the High/Scope Perry Preschool project was higher than that of the control group and 71% of the program group graduated from high school compared with 54% in the control group.

Bracey (2003) also recorded positive results for those in the High/Scope Perry Preschool Project:

> A study of the High/Scope Perry Preschool Project took place regarding these preschool students at the ages of 19 and 27. At age 19, the preschoolers had higher graduation rates and were less likely to have been in special education. The preschoolers also had higher scores on the Adult Performance Level Survey, a test from the American College Testing Program that simulates real life problem situations. By the time the two groups turned 27, 71% of the preschool group had earned high school diplomas or GEDs compared to54% of the control group. (p. 2)

Abecedarian Program

The Abecedarian Randomized Experimental Trial of intensive early childhood education for low-income families began in the 1970s. According to Valenti and Tracey (2009):

> This longitudinal study provided an opportunity to examine adolescent scholastic performance as a joint function of early intervention, personal characteristics, and family factors. The study was multidisciplinary involving a prospective, longitudinal experiment with a 2 x 2 crossover design. The original investigators included developmental and educational psychologists and pediatricians. Study participants were from families who met a predetermined level for having a child with cognitive delays or academic problems. The High Risk Index included such factors as low levels of parental education, low income, single-parent families, and evidence of social disorganization. A very important feature of the Abecedarian program was the random assignment of participants to the treatment or control conditions. (p. 145)

According to Valenti and Tracey of the 57 subjects originally assigned to the experimental group 48 remained in the study throughout the 8-year treatment period; of the 54 controls 42 remained. The results showed the treated preschoolers scored significantly higher on standardized tests of intellectual development during infancy and early childhood. After 3 years school scores on standardized tests of reading and mathematics were significantly higher for children who had preschool treatment. In contrast there were no significant academic or intellectual benefits associated with the school age phase alone; however, academic test scores taken at age 8 displayed a linear increase as the number of early interventions increased. Follow-up studies 4 and 7 years later, when the children were approximately 12 and 15 years old, confirmed that the earlier significant academic advantage associated with preschool persisted throughout 10 years in school. A follow-up study of the group showed that at age 21 those who had received services were more likely to perform well on tests of intelligence, to pursue higher education, and postpone having children.

Chicago Longitudinal Study

The Chicago Longitudinal study (Reynolds et al., 2001) began in 1986 with 1,539 low income minority students in 26 Chicago schools. The study followed these students for 19 years ending when the children were on average 23 to 24 years old. At the 19 year follow up (ages 23

to 24) the children who attended Chicago Child Parent Center programs had significantly better outcomes than the nonpreschool group on:

- high school completion,
- highest grade completed,
- four-year college attendance,
- rate of felony arrest,
- rate of incarceration,
- rate of any conviction, and
- number of months having to receive any type of public aid.

NIEER 5-State Pre-K Study

The National Institute for Early Education Research presented a 2005 study that concentrated on preschool programs in Michigan, New Jersey, Oklahoma, South Carolina, and West Virginia. All of the model preschool program studies indicated positive initial effects. NIEER (Barnett, 2005) found that prekindergarten education for disadvantaged children could greatly increase their cognitive abilities and this could lead to long-term increases in achievement and school success.

Researchers in the NIEER study (Barnett, 2005) collected data on more than 5,000 preschool and kindergarten children in 1,320 classrooms during the fall of 2004. Their findings were:

> Children who attended state-funded preschools showed vocabulary score gains about 31% greater than did children without such programs. This represented an additional 3 months' progress in vocabulary growth at age 4. This measure is strongly predictive of general cognitive abilities and later reading success.
>
> State-funded preschool increased children's gains in math skills by 44%. Skills tested included basic number concepts, simple addition and subtraction, telling time, and counting money.
>
> State-funded preschool produced an 85% increase in print awareness. Children who attended a state-funded preschool program before entering kindergarten knew more letters, letter-sound associations, and were more familiar with words and book concepts. (p. 2)

Effects

According to Weikart (1989) high quality early childhood education programs have given disadvantaged children a much needed intellectual and social head start that could benefit the nation as well as serve as a means of ameliorating the effects of poverty and as a long term socioeconomic investment. Weikart (1989) also stated education had assumed added importance in light of statistics showing that 22% of America's children – 4.8 million of the country's children under age 6 – lived in poverty. An African American child was three times more likely than a Caucasian child to be born in poverty and a Hispanic child was twice as likely as a Caucasian child to be poor. The consequences of growing up poor in American society, according to Weikart (1989), were bleak with limited futures for poor youngsters and result in related socioeconomic problems such as teen pregnancy, soaring school dropout rates, a growing scarcity of skilled workers, unemployment, and rising crime rates. The United States Census Bureau (2013) reported 21.8% of the nation's children under age 18 were living in poverty in 2012.

Longitudinal studies, some of which followed preschool graduates into adulthood, have identified many positive and significant relationships between preschool participation and task-related, social, and attitudinal outcomes. According to Cotton and Conklin (2001) preschool graduates outshone nonparticipants in several ways. They had:

1. fewer referrals for remedial classes or special education;
2. fewer retentions;
3. higher grades;
4. greater social and emotional maturity;
5. more frequent high school graduation/GED completion;
6. greater academic motivation, on-task behavior, capacity for independent work, and time spent on homework;

7. lower incidence of absenteeism/detentions;
8. better attitudes toward school;
9. better self-esteem and greater internal locus control;
10. lower incidence of illegitimate pregnancy, drug use, and delinquent acts;
11. more sports participation; and
12. higher future aspirations and more postsecondary education. (p. 5)

Young people who had attended preschool as children continued to be more successful in later life than those who did not attend. Adults who had attended preschool as children were found to have:

- higher employment rates with better earnings and, correspondingly, a lower incidence of dependence on welfare;
- fewer arrests and antisocial acts; and
- better relationships with family members, a higher incidence of volunteer work, and more frequent church attendance. (Cotton & Conklin, 2001, p. 6)

The general theme of these studies has been that high quality early preschool experiences could set in motion a chain of events that pervades a child's life through high school and beyond while increasing the quality of his or her life experiences along the way. The weight of evidence from carefully drawn studies of preschool child development programs indicated that disadvantaged children who had attended high quality early childhood development programs were better prepared for school both intellectually and socially than children who did not attend such programs and that this early start probably helped them achieve greater success in school. Fewer poor children who attended high quality preschool programs have needed special education classes or have been required to repeat a grade. Their greater success in school has also been the catalyst for greater success in adolescence and adulthood. Their rates of delinquency, teenage pregnancy, and welfare usage were lower and their rates of high school completion and employment were higher (Weikart, 1989).

Funding and Benchmarks

Huang et al. (2012) stated that nationally, state preschool enrollment of 3 and 4 year olds reached an estimated 1.4 million children in 2007-2008 and state funding for preschool programs was approximately $4.6 billion. Barnett et al. (2012) reported in the *State of Preschool 2012 Yearbook* the United States saw a decrease of more than $548 million across the 40 states that offer preschool. Tennessee ranks 13 out of 40 based on the amount of resources spent on preschool but Tennessee also had cuts in 2012 funds (Barnett et al., 2012).

Barnett et al. (2012) stated that growth in quality programs also had been slow to develop. Of these programs only Arkansas, Alaska, North Carolina, and Rhode Island met all 10 of NIEER's quality benchmarks, and seven state programs – Arkansas, Iowa, Kentucky, Minnesota, Oklahoma, Tennessee, and Washington – achieved 9 of the 10 benchmarks.

Ewen and Matthews (2007) reported that Title I federal funding may be used to support preschool programs; in 2007 states received $12.8 billion in Title I funds to go toward K-12 education. These monies are flexible enough to allow local districts to fund preschool activities from their allocations. The funds may be layered with child care subsidies, Head Start, and state prekindergarten funding to extend or expand services for young children.

In the Report on Preschool Programs ("Title I Holds Promise," 2006) it was affirmed:

> While most of the program's [Title I] massive $13 billion budget goes toward K-12 education, the rules are flexible enough to allow local districts to fund preschool activities from their allotted funds. Agencies also could blend Title I with other funding streams to expand Head Start, childcare, pre-K and other early childhood services. (p. 1)

In addition to funding education services, the Report on Preschool Programs suggested Title I could also support health and social services tied to early childhood programming (Ewen & Matthews, 2007). Considering the costs and benefits of investing in early childhood programs

that meet high standards, policymakers might wish to review the potential savings to taxpayers that have been suggested by researchers. According to Schumacher et al. (2003):

> Using a cost-benefit analysis of the Abecedarian Project, the National Institute for Early Education Research estimated that every dollar paid for the preschool program generates a four-dollar return to the children, their families, and all taxpayers. This took into account the increased earnings of the participants and their mothers, increased earnings of future generations, and savings to school districts because participants are less likely to require special education. However, the analysis did not account for potential savings caused by the reduced crime rates that have been found in later years. (p. 11)

The most effective interventions have been implemented with strong fidelity by trained staff while including goal-oriented curricula informed by child development research, ensuring that children's nutritional and other health needs have been met, and often including a parent focused component to support children's development.

In his February 2013 State of the Union address President Barak Obama outlined a proposal for working with states to ensure accessible universal preschool for all 4 year olds. The White House later clarified saying preschool would be guaranteed for 4 year olds whose families earn 200% of the federal poverty level or less (The White House, 2013). When Obama released his fiscal year 2014 budget on April 10, 2013, he stated his universal preschool plan would be funded through a 94 cent tobacco tax with the administration planning on paying $75 billion over the span of 10 years in grants and $750 million in development grants to improve quality in existing programs. The federal share of funding would be 90% in the first year, slowly declining to about 25% after a decade.

The Voluntary Pre-K for Tennessee Act of 2005 was passed with strong bipartisan support increasing the state's investment in Early Childhood Education and access for students. Tennessee's program targets at-risk 4 year olds, with *at-risk* being defined as those who qualify for free and reduced lunch programs (Tennessee Department of Education, 2013). The ultimate

goal is to provide access to all 4 year olds in the state. The program is funded through $10 million in state revenue while the expanded program is funded through $25 million of recurring state lottery funds and $45 million from the state's general fund, bringing the total investment in Tennessee's Pre-K program for the 2007-2008 school year to $80 million. This amount has continued to increase to $87,687,500 in the 2012-2013 school year (Tennessee Department of Education, 2013).

The effect of high quality universal preschool policies on economic growth indicated that a universal prekindergarten policy could add $2 trillion to annual United States spending by 2080 when a national program could cost the federal government approximately $59 billion but could generate enough additional growth in federal revenue to cover the costs of the program several times over (Sawhill, Tebbs, & Dickens, 2006). President Obama stated in a 2007 speech in Manchester, New Hampshire (as cited in Weinstein, 2007, p.3), "For every $1 we invest in these programs (childcare and preschool), we get $10 back in reduced welfare rolls, fewer health care costs, and less crime."

Quality preschool programs are a huge expense to the U. S. as billions are spent each year. The number of children attending preschool programs has increased over the years as parents and society have seen the value of the program, yet funding continues to decrease. Early childhood education is frequently one of the first items to be underfunded or eliminated. However, the lasting benefits of preschool programs far outweigh the cost.

Curriculum Development in Early Childhood Education

Bredekamp et al. (1992) stated curriculum was an organized framework that delineated the content children were to learn; it was a process through which children achieved identified curricular goals; it was what teachers did to help children achieve those goals; and it was the

context in which teaching and learning occurred. The curriculum of any program should be an important aspect to structure the learning environment. Bredekamp et al. (1992) stated:

> An important contribution to the field of child development and early childhood education was the creation of Guidelines for Developmentally Appropriate Curriculum and Assessment in Programs Serving Children 3 through 8. The National Association for the Education of Young Children (NAEYC) and the National Association Early of Childhood Specialists in the State Departments of Education (NAECS/SDE) jointly developed these guidelines to assist teachers and supervisors to: make informed decisions about appropriate curriculum, content, and assessment; evaluate existing curriculum and assessment practices; and advocate for more appropriate approaches. (p. 4)

Bredekamp et al. further stated:

> These national organizations called for schooling to place greater emphasis on: (a) active, hands-on learning; (b) conceptual learning that leads to understanding along with acquisition of basic skills; (c) meaningful, relevant learning experiences; (d) interactive teaching and cooperative learning; and (e) a broad range of relevant content, integrated across traditional subject matter divisions. (p. 2)

Schumacher et al. (2003) stated the National Research Center examined model programs with long-term effectiveness and the following were found to be present in most programs:

1. curriculum content and learning processes that cultivated school related knowledge with a heavy focus on language development;
2. qualified teaching staff who used reflective teaching practices aided by highly qualified supervisors;
3. low child-teacher ratios and small class sizes;
4. intense and coherent programming; and
5. collaborative relationships with parents. (p. 5)

In addition to these key program standards the National Research Center suggested that the provision of comprehensive health and family nutrition and social support services was necessary to promote school readiness for poor children (Schumacher et al., 2003). A focus on comprehensive services was particularly important for disadvantaged children who had less access to health care and nutrition and whose families might have needed additional social

services or help accessing them. Poor children were almost twice as likely to be reported in fair or poor health as were nonpoor children. According to Schumacher et al. (2003):

> Poor children experience increased rates of low birth weight and infant mortality, growth stunting, and lead poisoning, factors that are associated with cognitive and emotional problems. For example, low birth weight is linked with physical disabilities, reduced IQ, and grade repetition. The NRC concludes that environmental factors play a crucial role in children's early years. (p. 10)

Cotton and Conklin (2001) stated other investigators had found, not surprisingly, that more didactic, academically oriented programs produced greater short-term cognitive gains than did other models. The learning of 3 to 5 year olds is a result of playroom actions and experiences (Stephen, 2012). Barnett (2008) states teachers in preschool programs should receive intensive supervision and coaching and they should be involved in a continuous improvement process for teaching and learning. According to Katterjohn (2006) the goal of early childhood development programs should be to improve a child's capacity to develop and learn.

Thus, when implementing preschool programs effectively all those involved must take note continuously of the entire educational system and evaluate current plans within the context of the changing whole. In order to do this effectively educators must have adequate training that focuses on an understanding of child development and be able to implement this knowledge in all aspects of their classrooms. The best early childhood programs maintain strong program standards to ensure the conditions in which children are more likely to learn.

Basis for Preschool Programs

The 2012 report from the Annie E. Casey Foundation shared the latest Kids Count survey that showed 16.4 million children were living in poverty in the United States with 26% of children in Tennessee living in poverty (Anne E. Casey Foundation, 2012). In the United States the field of education is becoming increasingly attuned to the importance of preschool programs.

Educators agree such programs facilitate children's academic and social adjustment while contributing to their acquisition of the skills and knowledge associated with academic success (Aos, Mayfield, Lieb, Miller, & Pennuci, 2004).The statistics indicate a continued need for preschool programs for at-risk children. When children begin school already behind they tend to continue to fall further and further behind. High quality early childhood education could help close this gap.

One component of America's Goals 2000 was that every child would come to school ready to learn; unfortunately, that element has not been the case for millions of American children. Many of the nation's children have not been coming to school physically, socially, emotionally, or cognitively ready to learn. Prince and Howard (2002) found approximately 13 million American children reared in poverty entered school with poor health and nutrition, low self-esteem, attention problems, violent experiences, and low expectations. Consequently many of these children have come to school with their own agenda which has focused on survival and attainment of basic needs (Prince & Howard, 2002).

No Child Left Behind Act

The No Child Left Behind Act of 2001 was signed into law on January 8, 2002, by President George W. Bush. This act was a reauthorization of the Elementary and Secondary Education Act that was enacted in 1965 (U. S. Department of Education, 1965). At the core of the No Child Left Behind Act were a number of measures designed to drive broad gains in student achievement and to hold states and schools more accountable for student progress. According to *Education Week* (No Child Left Behind, 2011) there were distinct requirements set by the law:

- Annual testing: By the 2005-2006 school year, states were required to begin testing students in grades 3-8 annually in reading and mathematics.

- Academic Progress: States were required to bring all students up to the "proficient" level on state tests by the 2013-2014 school year. Individual schools had to meet state "adequate yearly progress" targets toward this goal for both their student populations as a whole and for certain demographic subgroups.
- Report Cards: Starting with the 2002-2003 school year states were required to furnish annual report cards showing a range of information including student-achievement data broken down by subgroup and information on the performance of school districts.
- Teacher Qualifications: By the end of 2005-2006 school year every teacher in core content areas working in a public school had to be "highly qualified" in each subject taught.
- Reading First: The act created a new competitive grant program called Reading First, funded at $1.02 billion in 2004, to help states and districts set up "scientific, research based" reading programs for children in grades in K-3.
- Funding Changes: Through an alteration in the Title I funding formula the No Child Left Behind Act was expected to target resources better to school districts with high concentrations of poor children and greater flexibility in spending. (p. 2)

No Child Left Behind testing begins at third grade. The effects of legislation are being felt in preschools because policy makers believe that an early start on developing academic skills will help children reach the standards they are expected to achieve in elementary school. According to Stipek (2006) preschool teachers are being pressured to begin teaching children the basic academic skills assessed under NCLB. Children from low income families begin school, on average, over a year behind their middle class peers in basic academic competencies. The pressure NCLB has put on preschool educators to teach academic skills could stimulate constructive practices that will increase all children's academic performance, but it also has the potential of doing more harm than good by promoting educational practices that undermine children's enthusiasm for learning. It could also reduce attention to other intellectual abilities that are not tested under NCLB such as development of critical, analytic, and creative thinking and reasoning skills (Stipek, 2006). In order to make positive steps forward in preschool education standards and assessments should be appropriate for preschool children. Stipek reported we must

invest in the training of preschool teachers and pay teachers at a level that reflects the expertise needed for such an important and demanding job.

Tennessee SB 1776 Bill

During the 38th Legislative Assembly Tennessee passed bill SB 1776 that stated beginning with the 2011-2012 school year a student in the third grade may not be promoted to the next grade level unless the student has shown a basic understanding of curriculum and has the ability to perform the skills required in the subject of reading as demonstrated by the student's standardized test results. Such student may be promoted if the student participates in an approved research-based intervention prior to the beginning of the next school year; the act does not apply to any student who has an Individualized Education Plan (IEP) pursuant to the federal Individuals with Disabilities Education Act (Tennessee Department of Education, 2011b). Due to this bill the TCAP Reading/Language Arts assessment will be used to determine retention. Any student who does not score proficient or advanced on this assessment will not be promoted to the fourth grade unless the student attends a research-based intervention prior to fourth grade. Third grade has become a flashpoint in primary education because it is the stage when children are no longer learning to read but are reading to learn. If children have not mastered reading by third grade they will find it difficult to handle increasingly complex lessons in science, social studies, and math. Schools began factoring standardized test scores into students' grades during the 2011-2012 school year as well. This state mandate required the TCAP scores in all subject areas to constitute between 15% and 25% of the student's final semester grade with the amount left to the discretion of each district (Tennessee Department of Education, 2011a).This was the first time that students were held accountable for standardized test scores. With this bill and other accountability measures in place, it is increasingly important for schools turn to preschool and

early grades to ensure students gain early literacy skills. School systems need to make sure they have a strong research-based reading and literacy program in preschool through second grade. The strongest teachers need to be placed in these key positions to ensure a quality foundation for all students.

First to the Top

Tennessee continues to work toward improving the quality of education for all students. The First to the Top (FTTT) reforms were designed to improve student learning and educational attainment across Tennessee. The state has set specific, measureable, and achievable performance targets for 2014-2015 and 2019-2020. The targets set are the same for all students. In 2010-2011 the state focused its efforts in school readiness on early grades reading calling for an additional 13,597 proficient or advanced third grade students statewide by 2014-2015 which would be 2010-2011's Pre-K cohort (Tennessee Department of Education, 2010).

Summary

Children need early education to develop social competence and exploit their learning potential. Many other countries have surpassed the United States in seeing the importance of preschool education for all children. Over the past decade states and school districts have made progress in expanding access to preschool and have been working to coordinate the efforts of preschool, child care, Head Start, and other early childhood programs to build a high quality continuum of early learning. However, the U.S. is still a long way from being able to provide preschool for every child. Unequal access to early education is worrisome because learning gaps are developing among children in the preschool years, and children who are behind when they enter school are unlikely to perform as well as their peers. While Tennessee has made progress in

expanding preschool programs, there is still much to do. The current system of early education is disjointed and federal investment is weak.

The evidence is clear about the benefits of preschool education for children, public education, and taxpayers. High quality early childhood education represents one of the best investments the U.S. can make. Participation in an educational program prior to kindergarten is no longer viewed as a privilege but rather a vital component to educational success.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this study was to determine if a difference in achievement test scores exist between students who attended the Johnson County School System preschool program and those who did not as measured by standardized TCAP achievement test reading/language arts and math scores for students in the third and fourth grades. This was an archival quasi-experimental study employing both independent t-tests as well as paired t-tests to analyze the data in an effort to determine associations between attendance in a preschool program and the students' third and fourth grade achievement test scores in reading/language arts and math. The purpose of an independent t-test is to determine if there is a statistically significant difference in the dependent variable between two different populations of subjects (McMillan & Schumacher, 2010). The purpose was to determine if attendance in a preschool program results in increased achievement and to provide information for use in future decision making. This study used standard scores from the TCAP which are comparable across grade levels.

Research Questions and Null Hypotheses

The following research questions and corresponding null hypotheses guided the study:

RQ1: Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third grade students who attended preschool and those who did not?

$HO1_1$: There is no significant difference in reading/language arts scores on the TCAP achievement test between third grade students who attended preschool and those who did not.

$HO1_2$: There is no significant difference in math scores on the TCAP achievement test between third grade students who attended preschool and those who did not.

RQ2: Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between fourth grade students who attended preschool and those who did not?

$HO2_1$: There is no significant difference in reading/language arts scores on the TCAP achievement test between fourth grade students who attended preschool and those who did not.

$HO2_2$: There is no significant difference in math scores on the TCAP achievement test between fourth grade students who attended preschool and those who did not.

RQ3: Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third and fourth grade students who attended preschool?

$HO3_1$: There is no significant difference in reading/language arts scores on the TCAP achievement test between third and fourth grade students who attended preschool.

$HO3_2$: There is no significant difference in math scores on the TCAP achievement test between third and fourth grade students who attended preschool.

RQ4: Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third and fourth grade students who did not attend preschool?

$HO4_1$: There is no significant difference in reading/language arts scores on the TCAP achievement test between third and fourth grade students who did not attend preschool.

$HO4_2$: There is no significant difference in math scores on the TCAP achievement test between third and fourth grade students who did not attend preschool.

Population

Johnson County Schools is a public school system located in Johnson County in the northeast section of Tennessee. It is characterized by high poverty rates (21.8%), and the economically disadvantaged student population comprises 68.5% of the population. During the

period of data gathered for this study (2010-2011 through 2012-2013) an average of 2,290 students attended the five elementary schools, one middle school, and one high school. The population in this study consisted of those students who were in the third or fourth grades in the Johnson County School System during the 2010-2011 school year through the 2012-2013 school year and took the Tennessee Comprehensive Assessment Program (TCAP). The breakdown as to third and fourth grade students is shown in Table1.

Table 1

Population Demographics of Third and Fourth Grade Students in the Johnson County School System

	2010-2011	2011-2012	2012-2013
	N	*N*	*N*
Third Grade Students	144	129	157
Fourth Grade Students	141	144	129
Total	285	273	286

Of this population, 472 students did not attend the Johnson County Preschool Program and 372 did attend the Johnson County Preschool Program. This resulted in 56% who did not attend the Johnson County Preschool Program and 44% who did. Table 2 shows a summary of those students who attended preschool and those who did not attend preschool by grade level.

Table 2

Preschool Attendance by Grade Level in the Johnson County School System

	2010-2011	2011-2012	2012-2013
	N	*N*	*N*
Third Grade Students	61	59	91
Fourth Grade Students	41	61	59
Total	102	120	150

Instrumentation

Student achievement was measured using the Tennessee Comprehensive Assessment Program (TCAP) test. This is a test of achievement adopted by the state of Tennessee for the purpose of measuring student achievement, scale scores, and proficiency. Students in grades 3 through 8 take the TCAP each spring. The achievement test is a timed, multiple choice assessment that measures skills in reading, language arts, mathematics, science, and social studies. The reading-language arts portion of the TCAP test consists of two subtests: reading and language arts. This test, given in grades 3 and 4, assesses language, vocabulary, writing/research, communication and media, logic, informational text, and literature. The math portion in grades 3 and 4 assess mathematical processes, number and operations, algebra, geometry and measurement, data analysis, statistics, and probability. All of the TCAP tests given determine if a child is below basic, basic, proficient, or advanced in the academic areas tested (Tennessee Department of Education, 2011b). Scores were taken from reports supplied by the State of Tennessee.

Data Collection

The director of schools for Johnson County School System granted approval for this study on September 10, 2013. After initial approval was obtained from the director of schools, the ETSU Institutional Review Board granted permission to pursue completion of the study on January 27, 2014. Data were collected on students who were in the third and fourth grade during the 2010-2011 school year through the 2012-2013 school year. Demographic data including grade level, school, and preschool attendance were collected for each student. The data for those students who attended a preschool program within the Johnson County Tennessee School System and those who did not attend the preschool program were provided to the researcher from the Preschool Supervisor who had previously retrieved the information from the preschool computer database. The TCAP achievement scale score from the third and fourth grade years were retrieved by the researcher from the Department of Education testing results website, Pearson Access. A unique identification number was assigned to each student for the purposes of this study.

Data Analysis

Data were entered into a PC using Microsoft Office 2010 as the word processing program. These data were then transferred into SPSS statistical package. A data file was created and various statistical procedures were applied.

Independent t-tests were conducted to address research questions 1 and 2, and paired t-tests were conducted to address research questions 3 and 4 in order to identify any significant differences between groups. All data were analyzed at the .05 level of significance.

Summary

This chapter focused on the process to determine the effectiveness of a preschool program on the achievement scores of the population. To answer research questions 1 and 2 an independent t-test was conducted, and a paired t-test was conducted to answer research questions 3 and 4. The results of these t-tests are presented in Chapter 4 along with a summary of the results and a description of the population.

CHAPTER 4

ANALYSIS OF DATA

The purpose of this study was to determine if a difference in achievement scores as measured by standardized TCAP Reading/Language Arts and Math scores for students in the third and fourth grades exists between those who attended the Johnson County School System preschool program and those who did not. Data were collected for the 2010-2011 school year through the 2012-2013 school year from archival data located in the Johnson County School System's central office and the Department of Education testing data website, Pearson Access.

Of the 874 students who were third or fourth graders during the 2010-2011 school year through the 2012-2013 school year, those who did not take the Tennessee Comprehensive Assessment Program (TCAP) or took a modified version of the TCAP were excluded from the study. The resulting population numbered 844 students.

Independent sample t-tests were used in this study to evaluate the difference in preschool attendance on the achievement test scores in reading/language arts and math of third and fourth graders. Paired-samples t-tests evaluated TCAP reading/language arts and math scores for students in the third grade to the fourth grade scores to determine whether there is a significant difference in the mean scores.

This chapter is organized into four sections, each of which is associated with one or more of the guiding research questions presented in Chapter 1. Third grade TCAP test scores in relation to preschool attendance are presented first. The second section contains the fourth grade TCAP scores in relation to preschool attendance. A comparison of TCAP scores of the same students from third to fourth grade who attended preschool is the third section. The final section

is a comparison of TCAP scores of the same students from third to fourth grade who did not attend preschool. The study used standard scores that are comparable across grade levels.

Research Question 1

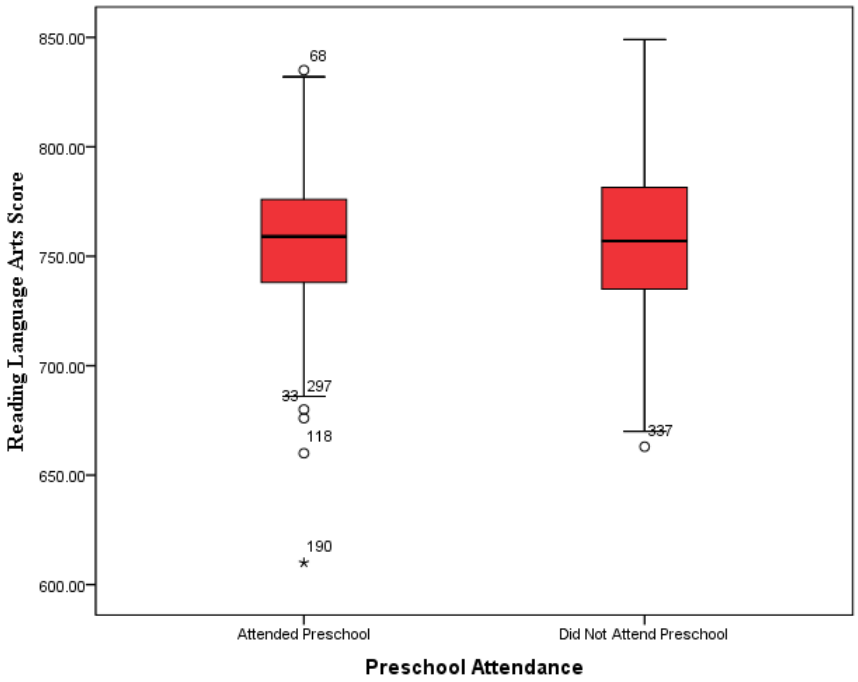
Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third grade students who attended preschool and those who did not? To answer this research question an independent samples t-test was conducted.

The following hypotheses were tested concerning third grade TCAP scores:

$Ho1_1$: There is no significant difference in reading/language arts scores on the TCAP achievement test between third grade students who attended preschool and those who did not.

$Ho1_2$: There is no significant difference in math scores on the TCAP achievement test between third grade students who attended preschool and those who did not.

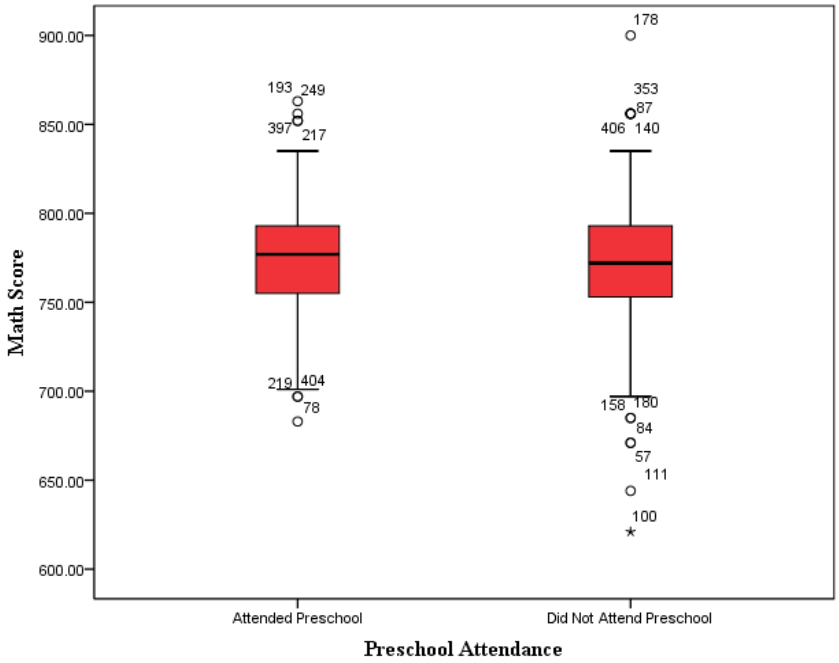
There was no significant difference in the reading/language arts achievement test scores between third grade students who attended preschool and those who did not. The test was not significant, t(.212) = .488, p=.832. Therefore, the null hypothesis was retained. The effect size for attendance in preschool was small (.01). The reading/language arts achievement test scores' mean for third grade students who attended preschool (M = 757.37, SD=31.93) was almost identical to the mean of third grade students who did not attend preschool (M=756.72, SD=31.54). The 95% confidence interval for the difference in means was quite wide, ranging from -5.39 to 6.69. Figure 1 shows the boxplot for the third grade reading/language arts scores by preschool attendance.



○= an observation between 1.5 times to 3.0 times the interquartile range
*= an observation 3.0 times the interquartile range

Figure 1. Boxplot of third grade reading/language arts scores by attendance in the Johnson County preschool program.

When comparing the math achievement test scores there was no significant difference between third grade students who attended preschool and those who did not. The test was not significant, t(425) = .23, p=.822. Therefore, the null hypothesis was retained. The effect size for attendance in preschool was small (<.01). The math achievement test scores' mean for third grade students who attended preschool (M = 764.54, SD=33.44) was almost identical to the mean of third grade students who did not attend preschool (M=765.31, SD=37.04). The 95% confidence interval for the difference in means was quite wide, ranging from -7.49 to 5.95. Figure 2 shows the boxplot for the third grade math scores by preschool attendance.



○= an observation between 1.5 times to 3.0 times the interquartile range
*= an observation 3.0 times the interquartile range

Figure 2. Boxplot for third grade math scores by attendance in the Johnson County preschool program.

Research Question 2

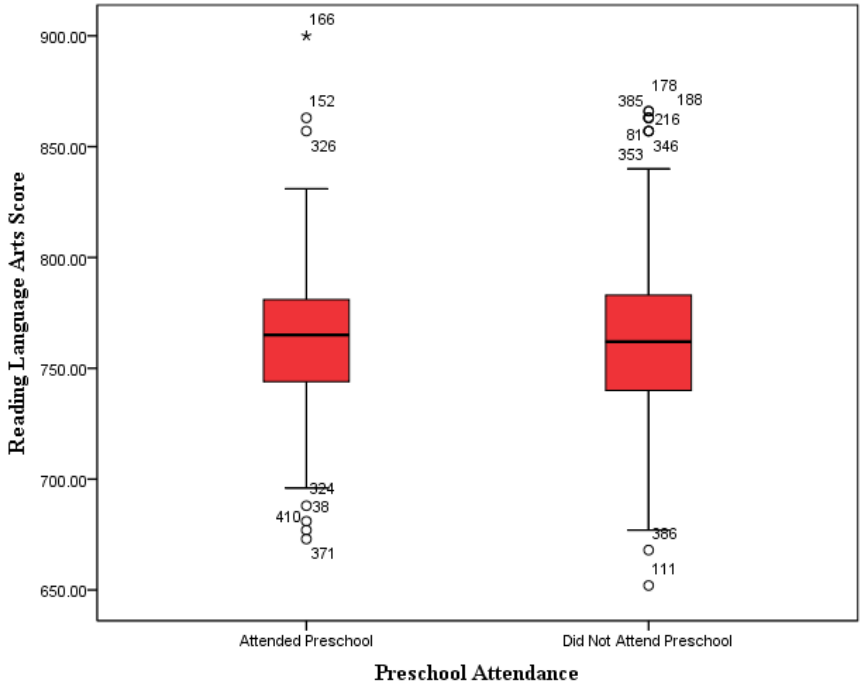
Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between fourth grade students who attended preschool and those who did not?

The following hypotheses were tested concerning fourth grade TCAP scores:

$Ho2_1$: There is no significant difference in reading/language arts scores on the TCAP achievement test between fourth grade students who attended preschool and those who did not.

$Ho2_2$: There is no significant difference in math scores on the TCAP achievement test between fourth grade students who attended preschool and those who did not.

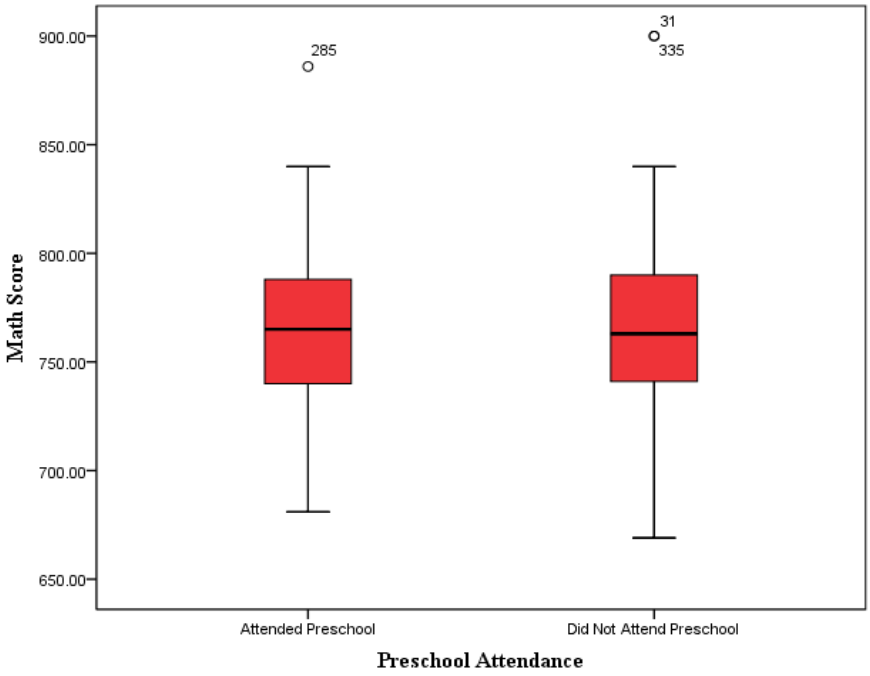
There was no significant difference in the reading/language arts achievement test scores between fourth grade students who attended preschool and those who did not. The test was not significant, t(.409) = .48, p=.635. Therefore, the null hypothesis was retained. The effect size for attendance in preschool was small (<.01). The reading/language arts achievement test scores' mean for fourth grade students who attended preschool (M = 764.25, SD=33.81) was almost identical to the mean of third grade students who did not attend preschool (M=762.53, SD=36.83). The 95% confidence interval for the difference in means was quite wide, ranging from -5.39 to 8.84. Figure 3 shows the boxplot for the fourth grade reading/language arts scores by preschool attendance.



○= an observation between 1.5 times to 3.0 times the interquartile range
*= an observation 3.0 times the interquartile range

Figure 3. Boxplot for fourth grade reading/language arts scores by preschool attendance in the Johnson County preschool program.

Comparing the math achievement test scores between fourth grade students who attended preschool and those who did not revealed there was no significant difference. The test was not significant, t(.409) = .81, p=.417. Therefore, the null hypothesis was retained. The effect size for attendance in preschool was small (<.01). The math achievement test scores' mean for fourth grade students who attended preschool (M = 774.37, SD=31.85) was almost identical to the mean of third grade students who did not attend preschool (M=771.46, SD=37.32). The 95% confidence interval for the difference in means was quite wide, ranging from -4.13 to 9.95. Figure 4 shows the boxplot for the fourth grade math scores by preschool attendance.



○= an observation between 1.5 times to 3.0 times the interquartile range

Figure 4. Boxplot for fourth grade math scores by preschool attendance in the Johnson County preschool program.

Research Question 3

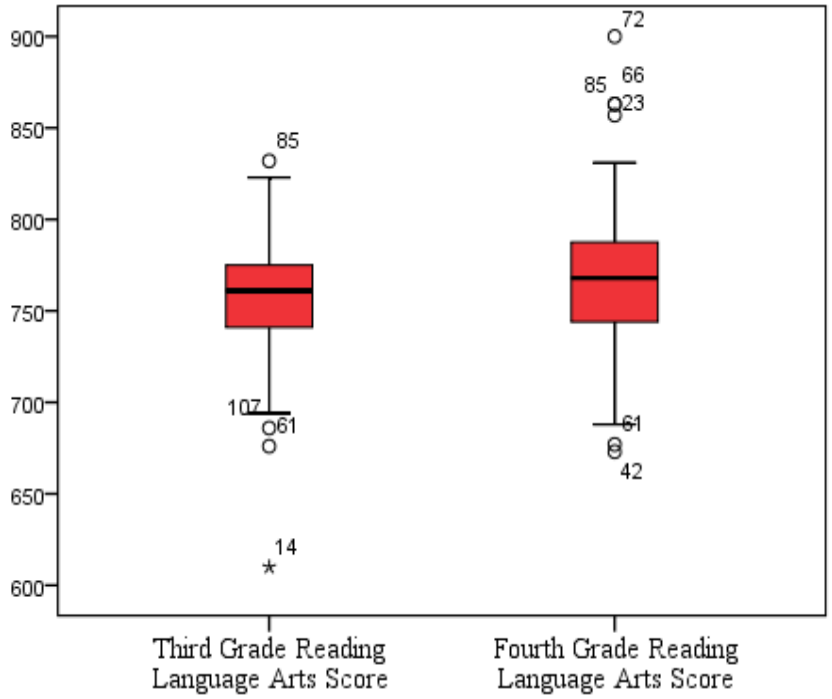
Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third and fourth grade students who attended preschool? To answer this question a paired samples t-test was conducted.

The following hypotheses were tested concerning differences in third and fourth grade TCAP scores in reading/language arts and math:

$Ho3_1$: There is no significant difference in reading/language arts scores on the TCAP achievement test between third and fourth grade students who attended preschool.

$Ho3_2$: There is no significant difference in math scores on the TCAP achievement test between third and fourth grade students who attended preschool.

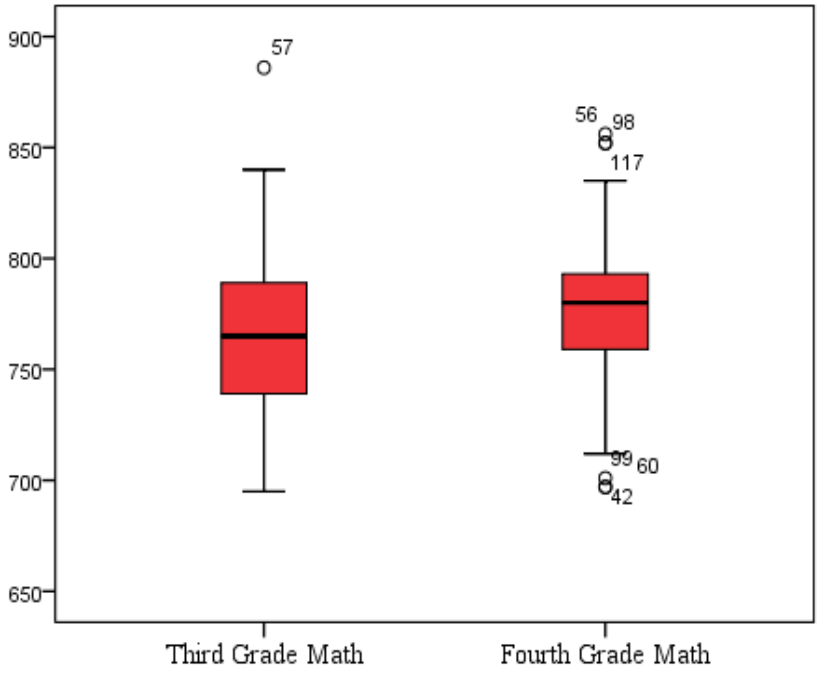
A paired samples t-test was conducted to evaluate whether there was a difference in TCAP reading/language arts TCAP scores for students in third and fourth grades who attended preschool in the Johnson County School System. The results indicated that the mean third grade reading/language arts score (M=758.48, SD=32.36) was significantly lower than the mean fourth grade reading/language arts score (M=766.87, SD=36.51), $t(119) = -3.40$, $p < .01$. This was significant; therefore, the null hypothesis was rejected. The standardized effect size index, *d*, was .31, with considerable overlap in the distributions for the TCAP scores as shown in Figure 5. The 95% confidence interval for the means difference between the two scores was -13.28 to -3.51.



○= an observation between 1.5 times to 3.0 times the interquartile range
*= an observation 3.0 times the interquartile range

Figure 5. Boxplot of third grade reading/language arts TCAP scores compared to fourth grade TCAP scores for students who attended the Johnson County preschool program.

The results of the paired samples t-test indicated that the mean third grade math score (M=766.41, SD=35.09) was significantly lower than the mean fourth grade math score (M=776.49, SD=30.33), $t(119) = -4.26$, $p < .01$. The test was significant; therefore, the null hypothesis was rejected. The standardized effect size index, *d*, was .39 with considerable overlap in the distributions for the TCAP scores as shown in Figure 6. The 95% confidence interval for the means difference between the two scores was -14.77 to -5.39.



○= an observation between 1.5 times to 3.0 times the interquartile range

Figure 6. Boxplot of third grade math TCAP scores compared to fourth grade TCAP scores for students who attended the Johnson County preschool program.

Research Question 4

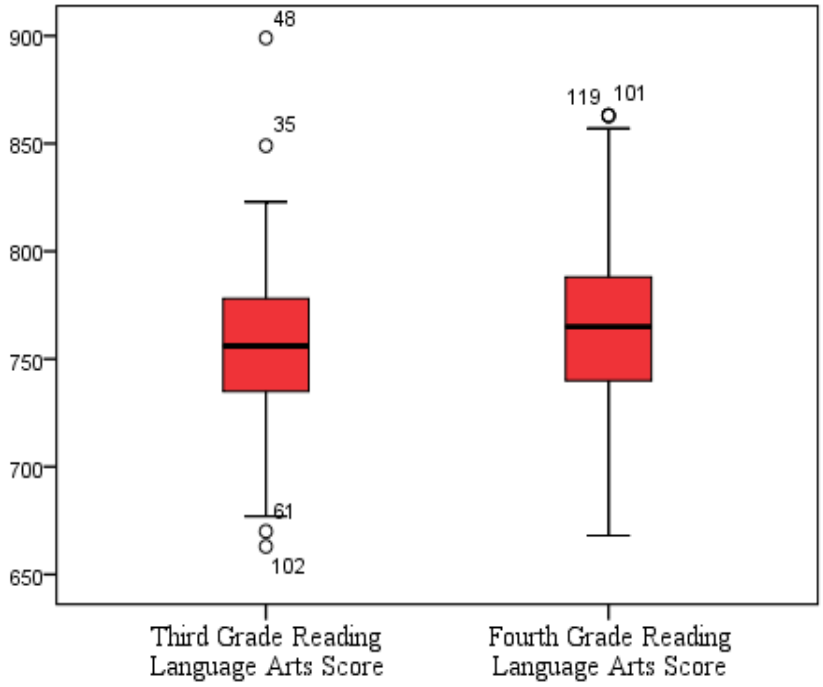
Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third and fourth grade students who did not attend preschool? To answer this question a paired samples t-test was conducted.

The following hypotheses were tested concerning differences in third and fourth grade TCAP scores in reading/language arts and math:

$Ho4_1$: There is no significant difference in reading/language arts scores on the TCAP achievement test between third and fourth grade students who did attend preschool.

$Ho4_2$: There is no significant difference in math scores on the TCAP achievement test between third and fourth grade students who did not attend preschool.

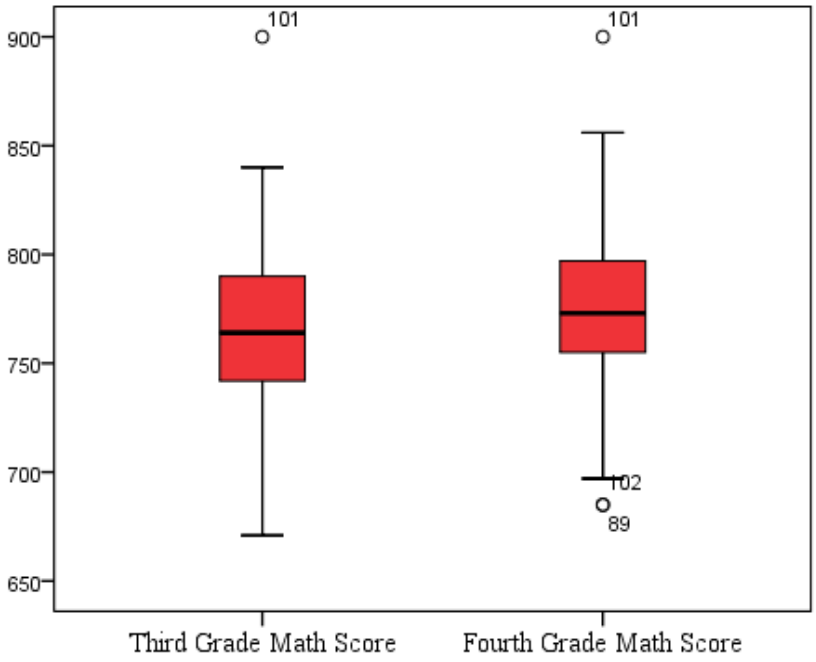
A paired samples t-test was conducted to evaluate whether there was a difference in TCAP reading/language arts scores for students in third and fourth grades who did not attend preschool in the Johnson County School System. The results indicated that the mean third grade reading/language arts score (M=756.21, SD=33.58) was significantly lower than the mean fourth grade reading/language arts score (M=765.03, SD=38.29), t(149) = -3.86, p < .01. This was significant; therefore, the null hypothesis was rejected. The standardized effect size index, *d*, was .32, with considerable overlap in the distributions for the TCAP scores as shown in Figure 7. The 95% confidence interval for the means difference between the two scores was -13.33 to -4.30.



○= an observation between 1.5 times to 3.0 times the interquartile range

Figure 7. Boxplot of third grade reading/language arts TCAP scores compared to fourth grade TCAP scores for students who did not attend the Johnson County preschool program.

The results of the paired samples t-test indicated that the mean third grade math score (M=765.70, SD=36.96) was significantly lower than the mean fourth grade math score (M=774.23, SD=34.55), t(149) = -4.04, p < .01. The null hypothesis was rejected. The standardized effect size index, *d*, was .33, with considerable overlap in the distributions for the TCAP scores as shown in Figure 8. The 95% confidence interval for the means difference between the two scores was -12.70 to -4.36.



○= an observation between 1.5 times to 3.0 times the interquartile range

Figure 8. Boxplot of third grade math TCAP scores compared to fourth grade TCAP scores for students who did not attend the Johnson County preschool program.

Summary

Careful summary and interpretation is necessary to provide meaningful conclusions, summary of findings, and recommendations. These are presented in Chapter 5.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This study was conducted to determine if a difference in achievement scores as measured by standardized TCAP achievement test reading/language arts and math scores for students in the third and fourth grades exists between students who attended the Johnson County School System preschool program and those who did not. A summary of the findings is presented along with conclusions and recommendations for future research.

This study, which was organized and presented over five chapters, used a quantitative research design and investigated the difference in TCAP achievement scores in reading/language arts and math for students in third and fourth grades based on attendance in the Johnson County School System preschool program. Chapter 1 includes the introduction, statement of the problem, research questions, significance of the study, definitions of terms, delimitations and limitations, and an overview of the study. Chapter 2 provides a review of literature that addressed the following areas of preschool education: historical perspectives, application of theories, early childhood studies and effects, funding and benchmarks, curriculum development, and a basis for preschool programs. Chapter 3 describes the research methodology and procedures that were used during this quantitative study. Chapter 4 provides a description of quantitative data related to this study along with the four research questions that guided the investigation. Chapter 5 includes a summary of findings, conclusions about this research, recommendations for future study, and recommendations for the Johnson County School System's Preschool Program.

Implementation of preschool programs nationwide has increased over the past 8 to 9 years. This increase has been linked primarily to studies that have been conducted to determine

the effectiveness of preschool programs on students' achievement. The growing body of research has revealed both positive and negative effects from the implementation of preschool programs. Additionally, the accuracy of much of the research has been questioned.

The review of literature traced the history of the implementation of preschool programs in the United States. Information was presented regarding the inception of preschools in the 1800s, research begun in the 1970s on the effects of preschool, and the recent focus on assessing the implementation of preschool programs within public schools.

Early childhood programs trace their development to early philosophers and educators. The review of literature examined some of the most influential philosophers and teachers who have shaped early childhood education. This information included such people as Friedrich Froebel who developed the first kindergarten in 1837, Maria Montessori who stated that if children were given proper stimulation at the right time they would learn regardless of their environment, and Jean Piaget who studied the cognitive development of children and proposed that children learn through active involvement. The literature review included a list of philosophers and teachers who have helped to influence the modern education world.

A review of research studies focusing on preschool programs and their overall effect on achievement, retention, special education referrals, dropout rates, attendance, higher employment rates, arrests rates, and cost effectiveness was presented. Longitudinal studies, some of which followed preschool graduates into adulthood, have identified many positive and significant relationships between preschool participation and task-related, social, and attitudinal outcomes. According to Cotton and Conklin (2001), preschool graduates outshone nonparticipants in several ways. They had:

1. fewer referrals for remedial classes or special education;
2. fewer retentions;

3. higher grades;
4. greater social and emotional maturity;
5. more frequent high school graduation/GED completion;
6. greater academic motivation, on-task behavior, capacity for independent work, and time spent on homework;
7. lower incidence of absenteeism/detentions;
8. better attitudes toward school;
9. better self-esteem, greater internal locus control;
10. lower incidence of illegitimate pregnancy, drug use, and delinquent acts;
11. more sports participation; and
12. higher future aspirations and more postsecondary education. (p. 5)

Young people who attended preschool as children continued to be more successful in later life than those who did not attend. Adults who had attended preschool as children were found to have:

- higher employment rates and better earnings and, correspondingly, a lower incidence of dependence on welfare;
- fewer arrests and antisocial acts; and
- better relationships with family members, a higher incidence of volunteer work, and more frequent church attendance. (Cotton & Conklin, 2001, p. 6)

Researchers in the NIEER study (Barnett, 2012) collected data on more than 5,000 preschool and kindergarten children. Their findings were:

- Children who attended state-funded preschools showed vocabulary score gains about 31% greater than did children without such programs. This measure is strongly predictive of general cognitive abilities and later reading success.
- State-funded preschool increased children's gains in math skills by 44%. Skills tested included basic number concepts, simple addition and subtraction, telling time, and counting money.
- State-funded preschool produced an 85% increase in print awareness. Children who attended a state-funded preschool program before entering kindergarten knew more letters, letter-sound associations, and were more familiar with words and book concepts (p. 2).

A serious problem for preschool education is funding. In 2012 the United States had 40 states that offered state funded preschool programs and only 12 of those states ranked 9 or 10 on NIEER's quality benchmarks (Barnett et al., 2012). The literature review examined how much is spent on preschool education and who is providing the money.

Although much of the current research as documented in the NIEER study (Barnett, 2012) has indicated a positive effect from attendance in quality preschool programs, the inability to generalize this information necessitates evaluation studies at the local level to make responsible and educationally sound decisions.

Summary of Findings

The findings of this study were contradictory to much of the information presented in the review of literature. Although the findings provided answers to the original research questions, they did not concur with those of other researchers. The following is a restatement of the research questions and a summary of the findings related to each.

Research Question 1

Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third grade students who attended preschool and those who did not?

For third grade reading/language arts achievement test scores the difference between students who attended preschool and those who did not was not significant. Likewise, there was no significant difference in math achievement scores between third grade students who attended preschool and those who did not.

Research Question 2

Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between fourth grade students who attended preschool and those who did not?

Research findings for fourth grade reading/language arts achievement scores indicated that there was no significant difference between scores for students who attended preschool and those who did not. The fourth grade math achievement scores also indicated that there was no significant difference in math achievement scores between those students who attended preschool and those who did not.

Research Question 3

Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third and fourth grade students who attended preschool?

The results from the paired samples t-test found that there was a significantly higher difference in reading/language arts achievement scores from third (M=758.48, SD=32.36) to fourth (M=766.87, SD=36.51) grade for those students who attended preschool. Likewise, the math achievement scores from third (M=766.41, SD=35.09) to fourth (M=776.49, SD=30.33) grade showed a significantly lower difference for students who attended preschool.

Research Question 4

Is there a significant difference in reading/language arts and math scores on the TCAP achievement test between third and fourth grade students who did not attend preschool?

The results from the paired samples t-test found that third (M=756.21, SD=33.58) grade scores were significantly lower than fourth (M=765.03, SD=38.29) grade for those students who did not attend preschool. Likewise, the math achievement scores from third (M=765.70, SD=36.96) to fourth (M=774.23, SD=34.55) grade showed a significantly higher difference for students who did not attend preschool.

Conclusions

This study indicated that no significance was found regarding preschool attendance and achievement scores for students in the third and fourth grades. Even though there was significance shown from third to fourth grade achievement scores this was evident with both groups. No conclusions about the benefits of the Johnson County School System preschool program can be made due to the lack of evidence of the equality of the two groups before students attended the Johnson County Schools preschool program. Although there was no weight apparent concerning preschool attendance attached to achievement scores in this study, as presented in the literature review there was an overall effectiveness regarding preschool attendance to the long-term success of individuals (Aos et al., 2004). Furthermore, the difference in those long-term studies and the findings presented in this study was the follow-up data needed to present the effect of attendance to a preschool program on the population's success into adulthood. The effectiveness of the Perry Preschool Project and the Abecedarian project were based on model programs rather than large scale study from a school.

According to Wilson (2000):

> The High/Scope Perry Preschool Project has been the focus of an ongoing longitudinal study conducted by the High/Scope Educational Research Foundation of 123 high risk African American children. Participants were of low socioeconomic status, had low IQ scores, and were at high risk of failing school. Fifty-eight of these 3 and 4 year old children were assigned to the program group, and 65 of these children were assigned to a control group that did not go through the program. Children attended the preschool program Monday through Friday for 2.5 hours per day over a 2 year period. During that same period, a staff to child ration of one adult for every five or six children enabled teachers to visit each child's family in their home for 1.5 hours each week. In addition, parents participated in monthly small group meetings with other parents facilitated by program staff. (p. 2)

Although the Johnson County School System has some of the advantages listed in the Perry Preschool Project, such as staff to student ratio, there are still some benefits addressed in the

Perry Preschool project that are not currently available in the overall content of the Johnson County School System's preschool program such as weekly teacher visits and monthly group meetings for parents facilitated by the school system.

The population in this study has not reached an adequate age and educational level to determine if the associations of the preschool program would show the same outcomes in later life as listed by Cotton and Conklin (2001) in the literature review. No firm conclusions could be drawn about the relative merits of attending the Johnson County School System preschool program. The data could not be validated because of:

1. the lack of data concerning the socioeconomic status of students in grades 3 and 4;
2. the lack of data concerning the special education status of students in grades 3 and 4;
3. the lack of data concerning the attendance rates of students in grades 3 and 4;
4. the lack of data concerning attendance in a preschool program other than the Johnson County School System preschool;
5. the lack of data concerning the academic performance of the participating children in second grade and longitudinal extension of the study through high school in terms of GPAs, ACT, and SAT scores, graduation rates, and college attendance rates.

Recommendations for Practice

After analyzing the data it became apparent that the Johnson County School System's preschool program would benefit from continued data analysis. The Johnson County School System's preschool program would also profit from a follow-up study on academic performance of students in second grade, a longitudinal extension of this study through high school in terms of students' special education referral rates, truancy rates, grade retention (failure) rates, grade point averages, nationally standardized test scores (such as ACT and SAT), high school graduation rates, and college entrance rates.

The results indicated that there was not a statistically significant difference between reading/language arts and math achievement test scores in third and fourth grades between

students who attended preschool and those who did not. However, the research showed a significant difference when scores were compared from third to fourth for each group – those who attended preschool and those who did not.

Johnson County school administrators are advised to keep the preschool program currently in place throughout all the elementary schools. Understanding the importance of quality preschool experiences to all children is important when developing preschool programs to help raise achievement test scores later. Future research should follow these participants through high school graduation to determine the long-term effects of preschool attendance while looking at all areas of education.

Recommendations for Future Study

Several recommendations for future research were prompted by this study. Based on the data presented in the literature review a long-term study as to the effectiveness of preschool attendance would be beneficial. Although this study did not determine a difference between preschool attendance in the Johnson County School System and nonattendance regarding third and fourth grade achievement test scores in reading/language arts and math, it would be feasible to follow the population in this study to determine if preschool attendance does indeed affect long-term success.

The Johnson County School System does not presently ask parents about pertinent information regarding preschool attendance during the registration process. If this information were made available it could be logged into a database that would allow the school system to have the ability to follow students throughout their attendance and determine the effectiveness of any programs that had been implemented during their educational process. In addition this would give a truer indication of the results of preschool intervention. This database could, as well, allow

school officials to follow students demographically by ethnicity, primary language, retentions, special education referrals, dropout rates, graduation rates, ACT and SAT scores, socioeconomics, and by attendance in any type of preschool program.

A study could also be conducted to determine which academic areas on the standardized tests showed the most gains for those students who attended the Johnson County School System preschool program. A study of this type would allow educators in the Johnson County School System to determine which academic areas are most in need of improvement based on the TCAP scores obtained annually from the state department of education. Further examination of the third grade curriculum and teaching strategies need to be conducted to determine if there could be a grade level curriculum problem across the district in the third grade. It would also be beneficial to examine other factors that could possibly influence achievement in the third and fourth grades.

The results of this study were not anticipated based upon the literature review; however, the study proved beneficial overall because of the knowledge gained in regard to what components constitute a successful and well-planned preschool program. Because of continued focus from governmental agencies on preschool attendance research on preschool programs will continue to be at the forefront of all local, state, and national governmental policies.

Summary

This study examined the difference in TCAP achievement reading/language arts and math scores of students in the third and fourth grades from 2010-2011 school year through the 2012-2013 school year based on attendance in the Johnson County School System preschool program. This study provides useful information regarding the district's preschool programs and their effects on achievement scores. The study could benefit educators seeking information on the associations between preschool attendance and student achievement, especially when viewed in conjunction with the existing body of literature.

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APPENDICES

Appendix A

Letter of Permission

Letter of Permission

September 9, 2013

Mr. Morris Woodring
Director of Schools for the Johnson County School System
211 N. Church Street
Mountain City, Tennessee 37683

Dear Mr. Woodring,

I am a student at East Tennessee State University. I am in the Educational Leadership and Policy Analysis doctoral program. The study I am interested in completing is looking at the Johnson County School System preschool program and how it impacts achievement scores on the third and fourth grade TCAP in elementary students at Doe, Mountain City, Roan Creek, and Shady Valley Elementary Schools.

I would like to request your permission to obtain and analyze the records of the students who are in third and fourth grade during the 2010-2011 through the 2013-2014 school year. I do not need social security numbers and will not identify any students by names or any other identifying information.

I trust that the findings of this study may be beneficial to your school system and other school systems when determining if attendance in preschool education impacts student achievement in the third grade.

Sincerely,

Emogene South

Permission is granted to Emogene South to obtain and analyze records of third and fourth grade students from 2010-2011 through 2013-2014.

Morris Woodring — Signature

9.10.13 — Date

Appendix B

IRB 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

January 27, 2014

Emogene South

Re: Achievement of Elementary School Students and Attendance in Preschool Programs in Johnson County, Tennessee
IRB#: c0114.5sw
ORSPA #: n/a

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

- xform New Protocol Submission; Permission Letter from Director of Johnson County School System; Letter to Parents from Director of Johnson County School System; References; CV

On **January 24, 2014**, a final approval was granted for a period not to exceed 12 months and will expire on **January 23, 2015**. The expedited approval of the study will be reported to the convened board on the next agenda.

This study has been granted a **Waiver or Alteration of Informed Consent** by Chris Ayres, Chair, ETSU IRB under category 45 CFR 46.116(d)(1-4). Those determinations are as follows: (1) research involves no more than minimal risk to the participants as it is only analysis of existing data/records; (2) the waiver or alteration will not adversely affect the rights and welfare of the subjects as it is only analysis of existing data/records; (3) the research could not practicably be carried out without the waiver or alteration as it would be difficult to contact a significant number of the parents and obtain parental consent and (4) providing participants additional pertinent information after participation is not appropriate as it is only analysis of existing data/records; there is no contact with any subjects and data will be de-identified by the PI.

Based on the review of the **Child Advocate** the IRB determined that no greater than minimal risk to children is presented as only archived records will be used and all child individual identifiers will be purged. The requirement for parental permission is waived under 45 CFR 46.116 (d). The requirement for assent is waived or altered. The research involves no more than minimal risk to the participants because the data on the children is archival only and no direct contact with children will take place. The waiver or alteration will not adversely affect the rights and welfare of the

participants because the child data is archival in nature and will not be linked. The research could not practicably be carried out without the waiver alteration because it is not possible to reasonably contact each student. Future students and parents may be provided with information based on the findings of the study if pertinent.

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 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 [21 CFR 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,
Chris Ayres, Chair
ETSU Campus IRB

VITA

EMOGENE CAROL SOUTH

Education:	Ed. D. Educational Leadership 2014 East Tennessee State University Johnson City, TN
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	Masters of Education 1994 East Tennessee State University Johnson City, TN
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Professional Experiences:	Principal Doe Elementary 2011 – Present Johnson County School System Mountain City, TN
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	Elementary Education Teacher 1991-2001 Johnson County School System Mountain City, TN