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The Association between Type of Preschool Experience
and Student Achievement of Economically Disadvantaged Students
in Four Northeast Tennessee Schools

A dissertation
presented to
the faculty of the Department of
Educational Leadership and Policy Analysis
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Doctor of Education

by
Robin Wade McClellan
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ABSTRACT

The Association between Type of Preschool Experience and Student Achievement of Economically Disadvantaged Students in Four Northeast Tennessee Schools

by

Robin Wade McClellan

The purpose of this study was to determine if an association exists between preschool experience and student achievement in third grade as reported by criterion referenced Tennessee Comprehensive Assessment Program (TCAP) scores in four schools in northeast Tennessee with at least 80% of its students receiving free or reduced lunch. The variable under study was the presence and type of preschool experience.

Descriptive statistics were employed to present school demographic data. A causal comparative approach using convenience sampling was the foundation for this study. Analyses of variance (ANOVAs) were used to investigate differences in achievement as categorized by varying preschool experiences.

An analysis of the results indicated mixed results. A significant difference was found only in the content area of math. Post hoc tests revealed a difference that favored students with private preschool experience as opposed to state- or federally-funded preschool experience. No significant differences were found in any other content area. A two-way analysis of variance was conducted to evaluate the interaction between preschool experience and gender on reading/language arts, math, science, and social studies scale scores. No significance was found to indicate an interaction between preschool experience and gender.

Cross-tabulated tables were also used to determine the percentage of students in each preschool category that achieved advanced, proficient, or below proficient status as determined by Tennessee state guidelines. The highest percentages of students achieving advanced status in each content area were those with private preschool experience.

DEDICATION

I consider the completion of this study and doctoral program a great accomplishment. As with all great accomplishments, I give all of the honor, credit, and glory to God.

Thank you to my husband and soul mate, Patrick, who has provided me with an endless amount of patience, support, love, and laughter.

Thank you to my great teachers: my parents, David and Jane Wade, and my grandparents, J. D. and Mildred King and Albert and Mary Ann Wade, who have given me the gifts of a strong religious and educational foundation.

Thank you to my brother, Jason, and the King, Wade, and McClellan family members and special friends who have encouraged me when I needed hope, pushed me when I struggled, and gave me strength when I was weak.

Finally, this dissertation is dedicated to the memory of my precious Aunt Judy Morrison who first inspired me to do great things for children in the public school setting.

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CHAPTER 1

INTRODUCTION

Americans constantly strive to make advancements in all areas of the country's operation: the economy, education, security, defense, and health and human services, among others. Because these departments are tightly bound to the economy, the national budget receives careful and precise deliberation. Growth in the economy fosters growth and innovation in other sectors. James J. Heckman, winner of the Nobel Prize in Economic Sciences in 2000, discussed several solutions to foster the nation's economic growth by addressing human capital. These interventions take one of two forms: education and/or job training (Heckman, 2000). Therefore, education is key to individual, local, regional, and national progress.

Since taking office in 2001, President George W. Bush has communicated that education is his top priority (U.S. Department of Education, 2004). In the No Child Left Behind (NCLB) education reform submitted to Congress on January 23, 2001, President Bush outlined four major components of the law: (1) holding schools and school systems accountable for student learning, (2) the use of research-based practices, (3) increased choice for parents, and (4) more control at the local level (U.S. Department of Education).

Within the accountability component, the NCLB legislation emphasized the importance of focusing on every child and battling

achievement gaps in the subgroups of ethnicity, socioeconomic status, individuals with disabilities, and limited English proficient children (U.S. Department of Education, 2004). Schools are now mandated to give standardized tests at certain grade levels, disaggregate data according to specified subgroups, and address notable gaps as evidenced by the data.

Despite efforts to close the gaps between these subgroups and children with more advantages, our nation's schools continue to struggle. Heckman (2000) contended that intervention in a disadvantaged person's early childhood years were most cost-effective and made the greatest impact. He asserted, "Policies that seek to remedy deficits incurred in early years are much more costly than early investments wisely made. . . . The later in life we attempt to repair early deficits, the costlier the remediation becomes" (Heckman, p. 5). In answer to Heckman's solution of early intervention, Ramey and Ramey (2004) portrayed the urgency of the need for quality early childhood programs. They stated, "The commitment to improving K-12 academic achievement must begin by providing children in the pre-K years with a rich array of effective learning opportunities" (p. 473).

Tennessee must take action in compliance with the guidelines set forth by the NCLB legislation. Schools not meeting minimum standards for adequate yearly progress (AYP) the first year are designated as "Target Schools." Schools not meeting minimum standards for more than two years in a row are categorized as "High

Priority Schools." Tennessee's Department of Education (2003) formulated a schedule for intervention.

During the first year, schools not meeting expectations (target schools) are given a warning and receive support in the form of technical assistance from the Tennessee Department of Education. If progress is not made during the second year, the school enters the phase "School Improvement 1," in which parents of students in Title I schools "have the option of transferring to a higher-performing public school or a charter school within their district" (U.S. Department of Education, 2004, p. 21).

During the third year, the phase titled "School Improvement 2" brings a refocus on school improvement and support at both the local and state levels. Parents in Title I schools are offered free tutoring services for their children.

Schools not making necessary improvements by the fourth year move into a phase titled "Corrective Action," in which the school is placed on probation and more drastic measures, such as removal of staff, may be taken by the state. The next two years ("Restructuring 1" and "Restructuring 2") bring even harsher mandates, which may include a takeover by other agencies and a replacement of staff and administration (Tennessee Department of Education, 2003).

Of the 1,677 schools operating within the state of Tennessee, 86 were designated as target schools and 165 were designated as high priority schools for the 2004-2005 school year. Furthermore,

even stricter minimum standards for demonstrating AYP have been placed on upcoming years. Thus, it is vital for Tennessee's legislators to make the changes necessary to address the gaps in achievement and the deficiencies in obtaining AYP (U.S. Department of Education, 2004).

Although there are multiple solutions to attempt to remedy the situation, many experts, both in and out of the field of education, place emphasis on early intervention. Heckman (2000) noted the importance of funding early childhood education. "The best evidence supports the policy prescription: invest in the very young and improve basic learning and socialization skills" (Heckman, p. 4).

Several studies have already been conducted in other areas of the country to determine the impact of a preschool experience on disadvantaged children. As noted by Gormley and Gayer (2003), "Ultimately, it is hoped that such programs will improve students' cognitive development, pre-language skills, social and emotional development, and motor skills, at least in the short run" (p. 2).

In the High/Scope Perry Preschool Study, a significant positive association was found between preschool experience and academic, social, and emotional development of at-risk children as proven throughout four decades (Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005). Among other affirmative outcomes, more of the participants, when queried as adults, graduated from high school, owned a home, were employed, and had

savings accounts. Also vital to a more global perspective is the fact that significantly fewer of the participants were arrested and/or incarcerated. According to Schweinhart, after 40 years of data collection, for every dollar spent on the preschool experience, \$17.07 was returned to society.

Similarly, the Abecedarian Study found that preschool experience was positively associated with increased cognitive and socioemotional development of at-risk children (Ramey & Ramey, 2004). The preschool experience was felt throughout the lives of the participants, as the researchers found fewer special education referrals, less retentions, better jobs after high school, and more students enrolled in college of the children served in the treatment group (Ramey & Ramey, 2004).

Research conducted in 2003 in the pre-K program in Tulsa, Oklahoma, also concluded that preschool was a beneficial experience for young children (Gormley & Gayer, 2003). Gormley and Gayer found preschool experience to increase cognitive/knowledge scores, motor skills, and language scores. Those children most impacted were ethnically or racially diverse students and students who qualified for the free-lunch program.

Through these pieces of research, the message is clear: "For economically disadvantaged children, early childhood education substantially improves cognitive development during early childhood and produces long-term increases in achievement (learning) and school success" (Barnett, 1995, p. 11). The Committee for Economic

Development (CED) challenged the federal government to intervene and establish state-based, universal preschools available for all young children. They asserted that, "The nation needs to reform its current haphazard, piecemeal, and under-funded approach to early learning by linking programs and providers into coherent state-based systems" (Committee for Economic Development, 2002, p. 1).

Statement of the Problem

The problem addressed in this study was to determine if an association existed between type of preschool experience and student achievement in third grade as reported by criterion referenced Tennessee Comprehensive Assessment Program (TCAP) scale scores in four schools in Northeast Tennessee with at least 80% of its students receiving free or reduced lunch. Demographic information and quantitative analyses were used to explore this relationship. Additionally, through an analysis of test scores and demographic data, this study differentiated among no preschool experience and three types of preschools attended by third graders in northeast Tennessee: state- or federally-funded preschools, Head Start, or private preschools.

Significance of the Study

Since achievement gaps between socioeconomic classes are the focus of national attention and federal and state spending, educators need to identify means by which to narrow this gap.

According to Smith (2004), "Achieving the goals of No Child Left Behind requires a radical education reform: the provision of high-quality early education programs for all children, especially children of color and children in poverty" (p. 38). Tennessee's Governor Phil Bredesen also expressed his belief in the impact of preschool experience on children, especially those living in poverty. He chose voluntary preschools as one of his top priorities and used research to support his stance (Tennessee Department of Education, 2004b).

This study was significant in providing current data regarding the association between the type of preschool experience, if any, and achievement to teachers, administrators, and policy makers. This study, which focused on third grade achievement scores and was conducted in four K-5 elementary schools with at least 80% of their students receiving free/reduced-lunch, analyzed the differences in achievement of students based on the presence and type of preschool experience.

Limitations

Federal mandates protect the confidentiality of each student's free/reduced-lunch status; consequently, because of that protection, individual students cannot be labeled nor compared based on socioeconomic status. In order to compensate for that challenge, I chose only schools whose total population of students

receiving free/reduced-lunch was greater than 80%. The purposive sampling precludes the ability to generalize findings.

Assumptions

It is assumed that all third grade students were placed in classrooms led by teachers who were highly qualified in their content area as defined by NCLB. It is also assumed that the Tennessee Comprehensive Assessment Program (TCAP) was administered in similar environments, under optimal testing conditions, and with the same instructions given to students by teachers as set forth by CTB/McGraw-Hill.

Delimitations

This study was confined to all third grade students in four northeast Tennessee elementary schools where the total free/reduced-lunch student population was greater than 80%.

Definition of Terms

For the purposes of this study, the following definitions apply:

Academic Achievement - Success as measured by the Tennessee Comprehensive Assessment Program (TCAP).

Achievement Gap - Differences in academic achievement between the subgroups of ethnicity, socioeconomic status, individuals with

disabilities, and limited English proficient children (U.S. Department of Education, 2004).

Criterion-Referenced Test (CRT) - A test designed to measure proficiency on a set of pre-established criteria (U.S. Department of Education, 2004).

Developmentally Appropriate Practices - Decisions and behaviors based on knowledge of child development and individual needs (Bredekamp & Copple, 1997).

No Child Left Behind - Education reform legislation submitted to Congress by George W. Bush in 2001 (U.S. Department of Education, 2004; Tennessee Department of Education, 2003).

Proficiency - A score as measured by the number of questions a student answered correctly on a criterion referenced test (CRT). In Tennessee, the minimum score for proficiency in each subject area is set forth by the Tennessee Department of Education in accordance with guidelines from the U.S. Department of Education (Tennessee Department of Education, 2003).

Low Socioeconomic Status/Economically Disadvantaged - Children who receive free/reduced-lunch at school (Tennessee Department of Education, 2004a).

Retention - Holding students back from promotion to the next grade level at the end of the school year (Ramey & Ramey, 1994).

Research Questions

In order to investigate the association between preschool experience and achievement, the following research questions were posed:

1. To what extent, if any, is there an association between preschool experience and reading/language arts proficiency as measured by TCAP scale scores in third grade?
2. To what extent, if any, is there an association between preschool experience and math proficiency as measured by TCAP scale scores in third grade?
3. To what extent, if any, is there an association between preschool experience and science proficiency as measured by TCAP scale scores in third grade?
4. To what extent, if any, is there an association between preschool experience and social studies proficiency as measured by TCAP scale scores in third grade?
5. To what extent, if any, do gender and preschool experience affect reading/language arts proficiency as measured by TCAP scale scores in third grade?
6. To what extent, if any, do gender and preschool experience affect math proficiency as measured by TCAP scale scores in third grade?
7. To what extent, if any, do gender and preschool experience affect science proficiency as measured by TCAP scale scores in third grade?

8. To what extent, if any, do gender and preschool experience affect social studies proficiency as measured by TCAP scale scores in third grade?
9. To what extent, if any, is there an association between preschool experiences and proficiency levels for reading/language arts, math, science, and social studies?

Overview of Study

This study is comprised of five chapters. Chapter 1 is the introductory chapter containing the statement of the problem, significance of the study, limitations, delimitations, definition of terms, and research questions. Chapter 2 includes a review of both past and current literature related to the topic. Chapter 3 describes the research design, subjects, procedures, instruments, data collection, and data analysis used to accomplish this study. Chapter 4 contains the statistical analyses and findings of the study. Chapter 5 is comprised of a summary of the findings, conclusions, and recommendations for future studies.

CHAPTER 2
REVIEW OF LITERATURE

On January 6, 2002, President George W. Bush signed a significant piece of educational legislation titled No Child Left Behind (NCLB). As evidenced by the title, President Bush called for a refocus on at-risk children. In this reform, Congress mandated that educational institutions pay particular attention to gaps between the diverse subgroups of ethnicity, race, gender, socioeconomic status, English language learners (ELL), and special education (U.S. Department of Education, 2004).

According to the 2004 Tennessee Statewide Report Card, which depicts each school's achievement and growth as measured by the TCAP, the area of greatest concern for students and schools in Tennessee is within the subgroup of economically disadvantaged students (Tennessee Department of Education, 2004a). With 49.9% of Tennessee students receiving free/reduced-lunch (thus qualifying to be considered "economically disadvantaged"), attention must be paid to this population (Tennessee Department of Education, 2004a).

The Economically Disadvantaged

The Children's Defense Fund (2004) defined poverty and discussed its implications for children. It noted:

It is not surprising that to many Americans poverty means only inadequate income. However, poverty is not just an issue of

income; it represents a constellation of issues, including insufficient income and jobs with limited opportunity, lack of health insurance, inadequate education, and poor nutrition. Poverty puts children at an unfair disadvantage for future opportunities. (Children's Defense Fund, p. 2)

According to this organization, poverty baselines are determined by the U.S. Census Bureau. "In 2003, a family of three was considered to be living in poverty if they earned less than \$14,824 a year. For a family of four, the poverty level was \$18,660" (Children's Defense Fund, 2004, p. 1).

Educational researchers have attempted to address gaps in achievement between economically advantaged and disadvantaged students for many years. Ramey and Ramey (2004), prominent researchers in the field of early childhood education and early intervention, noted that "high-risk children without a solid pre-K educational foundation are likely to start kindergarten approximately 2 (or more) years behind their agemates who are reared in more typical environments" (p. 475). Ramey and Ramey (1994) explained the disparity in home environments:

Sometimes, when basic necessities are lacking, parents must place top priority on housing, food, clothing, and health care. Educational toys, games, and books may appear to be luxuries, and parents may not have the time, energy, or

knowledge to find innovative and less-expensive ways to foster young children's development. (p. 194)

A Plan for Their Future

With a foundation of scientific evidence, Ramey and Ramey (1999) summarized seven essential experiences to foster normal early childhood development:

1. Encourage exploration.
2. Mentor in basic skills.
3. Celebrate developmental advances.
4. Rehearse and extend new skills.
5. Protect from inappropriate disapproval, teasing, and punishment.
6. Communicate richly and responsively.
7. Guide and limit behavior. (p. 145)

Because many families in poverty do not have resources to access these experiences, the answer lies in early intervention. On a state level, Tennessee's Governor Phil Bredesen recently signed into legislation action toward narrowing the gap between levels of socioeconomic status in terms of an early intervention approach. His legislation included the use of lottery monies, state funds, and local funds to establish the Tennessee Voluntary Pre-Kindergarten Program, with at-risk students and needy communities receiving first priority (Tennessee Department of

Education, 2004b). After a seven-year pilot program, basic requirements of the newly proposed pre-K program are:

1. Licensed teachers, with pre-K endorsement
2. Low teacher-student ratios
3. Small class sizes
4. Age-appropriate curriculum

In order to understand the implications of a voluntary preschool program, attention must be paid to the importance of learning in the early years, history of early childhood education, indicators of quality programs, and past research on the impact of preschool experience.

The Importance of Learning in the Early Years

The importance of learning and development in the early years is best described in regard to physical development, cognitive development, and socioemotional development (Santrock, 2003).

In regard to physical development, the child in his/her early childhood years gains an average of 6 pounds per year and grows 2½ inches in height. The brain also continues to develop, with an increase in myelination, which stimulates "the speed of information traveling through the nervous system. Some developmentalists believe myelination is important in the maturation of a number of children's abilities" (Santrock, p. 252). Additionally, visual acuity improves and gross and fine motor skills develop rapidly

during this phase of life due to the preschooler's high levels of activity (Feldman, 2001).

Cognitively, the early childhood years are a time of vast learning opportunities. Jean Piaget and Lev Vygotsky contributed significantly to the body of knowledge regarding cognitive development. Jean Piaget, a Swiss psychologist, studied many children, including his own, and developed a theory of cognitive development. According to Piaget's theory, children between the ages of two and seven were generally in the preoperational stage of development (Pulaski, 1980). As noted by Santrock (2003), "It is a time when stable concepts are formed, mental reasoning emerges, egocentrism begins strongly and then weakens, and magical beliefs are constructed" (p. 274). Like Piaget, Lev Vygotsky's conclusions also stemmed from research-based observations. According to Santrock, Vygotsky's theory of development was based on three major premises:

1. The child's cognitive skills can be understood only when they are developmentally analyzed and interpreted.
2. Cognitive skills are mediated by words, language, and forms of discourse, which serve as psychological tools for facilitating and transforming mental activity.
3. Cognitive skills have their origins in social relations and are embedded in a sociocultural background. (pp. 280-281)

In regard to socioemotional development, the preschool years are a time for the development of morality, understanding of others' emotions, and awareness of self (Santrock). Peers play an important role in a child's socioemotional growth. Although peer relationships can be positive or negative, they may be integral to normal development (Santrock,). Piaget and Vygotsky also asserted that play is a vital component to socioemotional and cognitive development. Vygotsky (1978) once reflected, "Action in the imaginative sphere, in an imaginary situation, the creation of volitional motives-all appear in play and make it the highest level of preschool development" (p. 102).

Further attention to a child's early learning opportunities is warranted based on the incalculable opportunities for physical, cognitive, and socioemotional growth and development during the early childhood years.

History of Early Childhood Education

Harry S. Truman once said, "Men make history, and not the other way around. In periods where there is no leadership, society stands still. Progress occurs when courageous, skillful leaders seize the opportunity to change things for the better" (Truman, n.d.). Therefore, a history is best described not only through a timeline of events but through a timeline of contributors. The history of education and early childhood education is filled with

influential theorists, researchers, and role-models and begins as early as 380 B.C. with Plato and his avid pupil, Aristotle.

The after-effects of the Peloponnesian War brought havoc to Ancient Greece. After Socrates was put to death, Plato left his native land to travel. Upon Plato's return to Athens, he established the Academy and wrote *Dialogues* (399 B.C.), *Laws* (360 B.C.), and *The Republic* (360 B.C.), among other great works. It was in *The Republic* that he charged Athenians with the duty of caring for their young. This was, perhaps, the first consideration given to educating children. His student, Aristotle, asserted that education was liberating, designated education to be a public matter, and wrote that all (free, male) children should receive the same education (Braun & Edwards, 1972).

Several hundreds of years later, in the 16th century, Martin Luther discussed vital components of the process of education. Not only did he argue the need for girls to receive an education, but he also focused on all aspects of development: intellectual, religious, physical, emotional, and social (Braun & Edwards, 1972).

John Comenius was one great educational name of the 17th century who embraced Luther's ideas and stood firm to advocate for a universal education system. Through his writings, he also taught mothers how to use a child's early years for the beginnings of education (Downs, 1978). John Locke's writings further advised parents "to study the child, to pay attention to his moods, his interests, his innate capacities, and to shape the plan of

education in terms of their understanding of him" (Braun & Edwards, 1972, p. 39).

Even though education and the care of children was gaining attention, early childhood education did not gain notable interest until the time of Pestalozzi. Johann Pestalozzi was known as one of the first influential contributors to early childhood education. In his Neuhof Experiment of 1774, he provided training and an education for poor and neglected children (De Guimps, 1890; Silber, 1973). Between the years 1774 and 1778, 37 children arrived in the Neuhof. According to Heafford (1967):

The children were given elementary instruction in reading, writing, and arithmetic, as well as religion. The boys were also engaged on simple agricultural jobs about the farm and did some weaving, while the girls were occupied with spinning, gardening, and cooking. (p. 10)

Although successful in his attempt to provide a "simple but regular life" (Heafford, 1967, p. 11), due to lack of financial support, he was forced to close the institution. His greatest lesson learned was that children needed security and genuine affection first and foremost before education could occur (Heafford).

Nearly 50 years later, in 1816, Robert Owen financially and philosophically supported educating young children through infant schools. The Infant School at New Lanark, Scotland, was influenced

by Owen, who valued patience and understanding as characteristics of infant school teachers. The children were not taught from books but from experiences with objects in their environment and conversations (Downs, 1978). "Owen believed that the early influences on children were crucial and he was concerned that unattended children were misled by the bad examples of their peers in the city streets or on the local playgrounds" (Vinovskis, 1993, p. 153).

Also foundational to early childhood history was the work of Friedrich Froebel, who studied under Pestalozzi and established the first kindergarten in 1837. The genesis of kindergarten greatly contributed to the focus on young children. As noted by Braun and Edwards (1972):

He began with young children simply because he saw that later progress was hampered if the six-year-olds coming into the classroom had already been so damaged by lack of attention, lack of training, and sometimes by abuse as well. (p. 65)

This kindergarten model was not only used to foster and nurture child development but also for training teachers (Downs, 1978).

Froebel's German kindergartens were described to Elizabeth Palmer Peabody in 1859. Peabody opened the first American kindergarten the following year in Boston, Massachusetts. She operated the kindergarten based on the advice of Froebel by integrating play and learning together; furthermore, when she found discontinuity between her own model kindergarten and Froebel's

ideals, she returned to Germany to study their kindergartens and to visit with Froebel's wife. Over the next many years, kindergartens spread to all corners of the United States (Snyder, 1972).

However, research and new thinking posed fresh questions and concerns regarding Froebel's importance on structure.

Separating herself from the structure of Froebelianism, Patty Smith Hill restructured the kindergartens in Louisville to be "the most forward-looking practices of the times in early childhood education" (Snyder, 1972, p. 242). Her opposition to the rigidity of common public school practices gained attention from theorists, politicians, and practitioners; consequently, many of today's developmentally appropriate practices stem from a foundation laid by Patty Smith Hill. She was also a key contributor to the Works Progress Administration Emergency Nursery Schools which were created in response to the stock market crash of 1929 (Hewes, 1995). After the Great Depression, these schools lost funding and little attention was paid to preschool education again until the creation of Head Start.

The Head Start movement was the first national attempt to address the gaps in social classes since the 1930s. As reflected by Vinovskis (1993):

In the first half of the twentieth century in the United States, five or six was a common age for beginning formal schooling in kindergartens. But in the mid-1960's a new institution for helping poor and disadvantaged children was

created, Head Start, which provided preschool training at ages three, four, or five and contributed to changing our attitudes toward young children and early childhood education. (p. 151)

Head Start began as a summer program for disadvantaged children between the ages of three and five. Over the next few years, the summer programs transformed into year-round programs for all participants. The participants served were from the poorest counties in the United States (Vinovskis, 1993).

Since that time, the most recent federal attempt at universal preschool was the Comprehensive Child Development Act of 1971 when Walter Mondale and John Brademas proposed a bill to Congress, which was vetoed by President Nixon (Beatty, 2004). Many states are now refocusing efforts and expenditures toward early childhood education and calling for universal preschools (Vinovskis, 1993).

Indicators of Quality Programs

The impact of a preschool experience for young children is strongly affected by the quality of the program (Jones, 1998). Several factors must be considered when discussing quality preschool programs. According to Jones, consideration must be given to the teachers, the environment, curriculum, assessment, meeting the basic needs of the children, and parent involvement.

Teacher Qualification

In regard to teachers in preschool programs, Jones (1998) communicated the importance of qualified teachers and assistants. Adults working with preschool children should be knowledgeable about child development, be trained in early childhood education, have opportunities for training and reflection, and receive guidance from supervisors with early childhood training (Jones).

Cartwright (1999) further listed several characteristics and/or traits of good early childhood teachers: (1) inner security, (2) self awareness, (3) integrity, (4) a theoretical ground, (5) general knowledge with an emphasis on environmental science, community, and young children's books, (6) warmth and respect for the child, (7) trust in the child, (8) unconditional caring, (9) intuition, (10) detachment, and (11) laughter. The teacher and classroom assistants must also be capable of making appropriate decisions regarding the environment, assessment, and methods used to implement the curriculum in developmentally appropriate ways. They must also know how to involve parents and caregivers and meet the needs of the "whole" child.

Environment

The environment is also key to the success of the preschool program. Isbell and Exelby (2001) communicated the necessity of an enriched environment when they noted, "Through the unique and concrete experiences that children have as they interact with their

environment, they learn how the world works. . . . therefore, children, teachers, and parents must work together and use their resources in the most effective way" (p. 11). Jalongo and Isenberg (2004) explained that there are several components of the environment including the physical environment, the human environment, and the curricular environment.

Important factors when creating the physical environment are the choice of materials and classroom design. Isbell and Exelby (2001) offered guidelines for choosing appropriate materials to be included in the classroom. Among many other considerations, the materials must be washable, high quality, affordable, attractive, and open-ended (Isbell & Exelby). Classroom design is also noteworthy. Jalongo and Isenberg (2004) listed features found in appropriate environments: "ambiance, privacy, size, density, and arrangement of space" (p. 159).

The human environment encompasses the relationships between and among teachers, students, and families. As defined by Bredekamp and Copple (1997), "The early childhood classroom is a community in which each child is valued. Children learn to respect and acknowledge differences in abilities and talents and to value each person for his or her strengths" (p. 16).

Finally, the curricular environment contains all elements of the program. Developmentally-appropriate practices when developing curriculum include: consideration of children's interests and child development, support of a variety of abilities, cultures, and

experiences, the use of technology, and an integration of many subjects (Bredekamp & Copple, 1997). Individualized instruction is also vital to the preschool curriculum. Bowman (1999) asserted that to meet the instructional needs of children, the teacher must take children's biological, sociological, and experiential differences into account.

Play is another integral component of the preschool curriculum. According to the outlined developmentally-appropriate practices, "Play is an important vehicle for children's social, emotional, and cognitive development, as well as a reflection of their development" (Bredekamp & Copple, 1997, p. 14). Wardle (1999) noted five different types of play and the benefits of each. Motor/physical play develops both fine and gross motor skills. Social play develops children's understanding of norms, rules, relationships, and interactions. Constructive play offers opportunity for experimentation; furthermore, it allows children to practice the spatial, logical, and mathematical skills involved in construction. Fantasy play fosters imaginative thinking and language development. And "games with rules" teaches children to abide by social rules (Wardle).

Assessment

The purpose of assessment is to "inform instructional decisions, result in benefits to the child and family, and relate to what the child is learning in school" (Jalongo & Isenberg, 2004,

p. 276). Assessment practices must be closely monitored in an early childhood setting. According to Bredekamp and Copple (1997), assessments are used in inappropriate ways that result in negative effects for young children. They offered eight guidelines to use when assessing children including attention to the content, methods, purpose, planning, and impact of assessments, among other recommendations. In support of those developmentally-appropriate practices, Culbertson and Jalongo (1999) added that, rather than use traditional forms of testing, teachers should enable children to demonstrate what they know through projects or discussion. Other alternatives to formal testing include measures by authentic assessment. Among these measures are the use of portfolios, checklists, rubrics, running records, and anecdotal records (Culbertson & Jalongo).

Meeting the Basic Needs of Children

Abraham Maslow was best known for his theory of motivation and learning. Deriving his theory from clinical experiences, Maslow (1954) noted:

This theory is, I think, in the functionalist tradition of James and Dewey, and is fused with the holism of Wertheimer, Goldstein, and Gestalt psychology, and with the dynamicism of Freud and Adler. This fusion or synthesis may be called a holistic-dynamic theory. (p. 80)

In his hierarchy of needs, Maslow theorized that before learning can take place, more basic needs must be met, such as physiological and safety needs. In order for children to develop at normal rates (physically, linguistically, cognitively, and socially), their basic needs must also be met. "Effective, research-backed ECE programs usually provide dental, medical, and diagnostic services or referrals, and food" (Jones, 1998, p. 23). The teacher should be aware of normal eating, sleeping, and hygienic behaviors of preschoolers and address any deficiencies (Allen & Marotz, 1994).

Family Involvement

Family involvement is the final factor contributing to a quality preschool. Bredekamp and Copple (1997) asserted that family involvement must move beyond PTA memberships and parent education seminars. In a national study by Vaden-Kiernan and McManus (2005), of the families surveyed,

The percentage of students in kindergarten through grade 12 whose parents reported that they "strongly agreed" that the student's school makes it easy for the family to be involved was higher for students in households above the poverty level (45 percent) than for students in households at or below the poverty level (35 percent). (p. 11)

Ramey and Ramey (1994) offered a variety of ways for parents to be effectively involved in their child's education, including:

1. Reading to their children.
2. Participating in involved discussions about experiences and the world.
3. Maintaining open lines of communication between home and school.
4. Volunteering in classrooms.
5. Community-based opportunities for learning such as local field trips.

Preschool teachers must also take steps to encourage parent involvement. Conducting home visits, training parents as assistants, and involving parents in decision making are a few techniques used to promote parent involvement in an educational setting (Jalongo & Isenberg, 2004; Jones, 1998).

Past Research on the Impact of Preschool Experiences

Several landmark studies have been conducted focusing on the impact of preschool experience on test scores and child development. Among these noteworthy studies are The Perry Preschool Project (Schweinhart et al., 2005), The Abecedarian Study (Ramey & Ramey, 2004), Tulsa's Pre-K Program (Gormley & Gayer, 2003), and an analysis of State-Funded Preschools (Gilliam & Zigler, 2000).

The High/Scope Perry Preschool Study

Perhaps the most impressive longitudinal study of all preschool child development programs was the High/Scope Perry Preschool Study which began in 1962 in Ypsilanti, Michigan. David Weikert "set up the program to deal with the district's rampant school failure and the resulting practice of widespread grade retention" (Schweinhart, 2002, p. 26).

In the High/Scope Perry Preschool Study, the researchers randomly selected 58 children from a group of 123 at-risk, low-income African-American children. They compared this treatment group to a control group of the remaining 65 children who did not receive intervention/treatment. The treatment group received two years of preschool taught in groups of 5-6 children by certified teachers who used the High/Scope educational model. These teachers also conducted home visits to each home every week (Schweinhart et al., 2005).

Data have been collected based on many different considerations, including education, economic performance, crime prevention, and health, family, and children (Schweinhart et al., 2005). These data were collected each year from the program's inception until the children were 11 and then at the participants' age of 14, 15, 19, 27, and 40 (Schweinhart et al.)

In terms of education, significant differences were found in favor of the treatment group in terms of highest level of school

completed, cognitive tasks, and attitudes toward school. Economically, more participants in the treatment group were employed at age 40, earned more money annually, owned homes, and owned a car. In regard to the judicial system, fewer participants in the treatment group had been arrested, committed violent, property, and drug crimes, and committed felonies (Schweinhart et al., 2005). Finally, in regard to health, family, and children, more treated participants reported that they have raised their own children and fewer have had births out of wedlock (Parks, 2000).

A cost-benefit analysis conducted by the authors demonstrated that for every dollar spent on the High/Scope Perry Preschool Study, \$17.07 was returned economically to society and \$12.90 was returned to the general public (Schweinhart et al., 2005).

The Abecedarian Study

The Abecedarian Study was launched in the early 1970s. The study was comprised of 111 participants in North Carolina, all of whom came from low-income homes of single, unemployed parents with low IQs and low levels of educational attainment (Ramey & Ramey, 2004). The researchers sought to understand the impact of high-quality early childhood education on high-risk children. After the implementation of an intense, full-day preschool program for an experimental group for five years, the study compared their development to children in a control group from comparable environments. The findings (followed into the children's

adulthood) demonstrated support for the preschool intervention: the IQs of children in the treatment group were, on average, 14 points higher than the children in the control group, and there were fewer retentions, fewer special education placements, and more students obtaining skilled jobs and enrolled in higher education (Ramey & Ramey, 2004).

This study was replicated nine times. The researchers consistently found that "significant benefits of the preschool educational treatment were documented in terms of children's higher performance on tests of intelligence, language, and social-emotional development at 3 years of age" (Ramey & Ramey, 2004, p. 481).

Tulsa's Pre-K Program

Since 1990, the state of Oklahoma has provided the opportunity for eligible school systems to participate in the pre-K program. In 1998, a more universal approach was taken to place preschools throughout the state. Within the next five years, 91% of Oklahoma's schools had opted to partake of funding to begin preschools (Gormley & Gayer, 2003).

Gormley and Gayer (2003) conducted their study on behalf of the Center for Research on Children in the U.S. (CROCUS) in Tulsa's Pre-K Program. Tulsa Public Schools (TPS) is the largest school system in Oklahoma. The researchers chose this system for three reasons: the size of the system, the diversity of its students,

and the already-existing practice of testing their preschoolers and kindergartners. Their study found "large and statistically significant improvements in cognitive/knowledge, motor skills, and language scores of children who qualified for the full free-lunch program" (Gormley & Gayer, p. 26) and similar benefits to minority children.

A Meta-Analysis of All Evaluations of State-Funded Programs

Gilliam and Zigler (2000) conducted and reported a meta-analysis of all evaluations of state-funded preschool programs. They outlined basic components of state-funded programs from 1977 to 1998:

1. Target or are accessible to children from low-income families.
2. Provide at least some form of classroom-based, educational service directly to preschool-age children.
3. Are mandated and administered at the state level or the District of Columbia (not state aid for low-income parents to purchase their own preschool services).
4. Are primarily state-funded (not state supplementation to programs funded or administered primarily at the federal or local level).
5. Do not serve exclusively children with disabilities (Gilliam & Zigler, 2000, p. 442).

Gilliam and Zigler (2000) found that 12 of the 13 states collected some type of data on the children receiving preschool

services; however, data collection methods varied. In regard to socioemotional development, Gilliam and Zigler found that in Kentucky (the only state surveying personal perception of participants) preschoolers were more confident in their cognitive ability than their peers who were eligible for the program but did not participate. Additionally, in Florida, and as late as fourth grade, children who participated in preschool were less likely to be disciplined than non-participating children. And, of the 13 states analyzed, all except Kentucky reported a significant impact on attendance rates (Gilliam & Zigler).

Summary of Review of Literature

The research reviewed in this chapter highlights the impact of preschool experience on at-risk children. Common among the High/Scope Perry Preschool Study, Abecedarian Study, and the Tulsa Pre-K Program are various positive benefits of preschool experience, especially for economically disadvantaged students (Gilliam & Zigler, 2000; Gormley & Gayer, 2003; Parks, 2000; Ramey & Ramey, 1994; Schweinhart et al., 2005;). Additional research is necessary to discover whether there are any associations between preschool experience and student achievement as measured by the TCAP.

This chapter has provided a review of pertinent information regarding economically disadvantaged children, a plan to address learning gaps, the importance of early learning, a brief history of

early childhood education, indicators of quality early childhood programs, and past research on the impact of preschool experience.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this study was to determine if an association existed between the presence and type of preschool experience and student achievement in third grade as reported by criterion referenced Tennessee Comprehensive Assessment Program (TCAP) scale scores.

Although many studies have been conducted validating the positive impact of preschool experience on various domains of development, further research was warranted on the association between types of preschool experience (none, state- or federally-funded preschool, Head Start, private) and achievement in reading/language arts, math, science, and social studies. This chapter includes information on the design, population, sampling methods, instrumentation, data collection, data analysis, and hypotheses.

Research Design

A causal-comparative design, also termed *ex post facto*, was employed for this study (Best & Kahn, 1998). Best and Kahn noted, "Because it is often impractical or unethical to arrange occurrences, an analysis of past events or of already existing conditions may be the only feasible way to study causation" (p. 129).

In this study, the association between the type of preschool experience and student achievement in the content areas of reading/language arts, math, science, and social studies was

explored. There were four levels of preschool school experience: no preschool experience; state- or federally-funded preschool experience; Head Start preschool experience, and private preschool experience. The four dependent variables in this study were: criterion referenced achievement scores for reading/language arts, math, science, and social studies, as measured by the TCAP.

Sample and Sampling Method

The subjects included in this study consisted of 88 third grade students in four schools in northeast Tennessee where more than 80% of each school's students were categorized as economically disadvantaged as certified by free- and reduced-lunch status. Purposeful sampling was selected as the sampling method for this study. Four schools in northeast Tennessee were chosen because of their high percentage of economically disadvantaged students. The 2004-2005 third grade cohort from each school was included in the study.

Instrumentation

The TCAP, created by CTB/McGraw-Hill, was used to measure the students' level of proficiency in the content areas of reading/ language arts, math, science, and social studies. The TCAP was transformed from both a criterion- and norm-referenced assessment to an entirely criterion-referenced assessment in the 2004-2005 school year.

Data Collection

Classroom teachers in each of the four schools administered the TCAP to all of their students during the designated weeks in April 2005. The test booklets were sent to Nashville where they were scanned, and the results were then sent to CTB/McGraw Hill for scoring.

Approval to initiate this study was obtained from the Institutional Review Board at East Tennessee State University prior to data collection. A letter was sent to each Director of Schools to explain the scope and sequence of the study. After each system's Director of Schools granted permission to begin the study, contact was made with the four building-level administrators in order to retrieve TCAP scale scores for the 2004-2005 third grade cohort in the areas of reading/language arts, math, science, and social studies. Each of the teachers of those students who comprised the 2004-2005 third grade cohort were also contacted and provided with a roster. They completed the roster with a list of student names, the presence of preschool, if any, and the type of preschool attended by each student (state- or federally-funded, Head Start, or private).

Data Analysis

Descriptive and inferential statistics were used to portray the sample under study. Individual student scale scores from the TCAP were used for purposes of statistical analyses. A one-way analysis of variance (ANOVA) was used to analyze each dependent variable in Research Questions 1 through 4. Each one-way ANOVA was

used to determine if there were significant differences among the means of the four levels of preschool school experience (no preschool experience, state- or federally-funded preschool experience, Head Start preschool experience, or private preschool experience).

Four two-way ANOVAs were used to analyze Research Questions 5 through 8. The two main effects in each two-way ANOVA were gender and level of preschool experience. The purpose of each two-way ANOVA was to evaluate the impact of gender, if any, on the relationship between preschool experiences and the given achievement test scores.

Cross-tabulated tables were used to address Research Question 9. Four 4-by-3 cross-tabulated tables were created to determine the percentage of students in each preschool category (no preschool, state- or federally-funded, Head Start, or private) that achieved advanced, proficient, or below proficient status as determined by Tennessee state guidelines (Tennessee Department of Education, 2003). Because there were violations of the assumptions of chi-square, null hypotheses were not tested. Instead, descriptive statistics were used to evaluate the association between preschool experiences and levels of proficiency for each of the four content areas of achievement tests.

The Statistical Program for the Social Sciences (SPSS, 2001) was used for all statistical analyses. An alpha level of .05 was used.

For Research Questions 1-8, 16 hypotheses were developed. The following are the hypotheses treated in this study:

One-way ANOVAs

Ho1₁: There is no difference in reading/language arts scale scores among students with varying preschool experiences.

Ho2₁: There is no difference in math scale scores among students with varying preschool experiences.

Ho3₁: There is no difference in science scale scores among students with varying preschool experiences.

Ho4₁: There is no difference in social studies scale scores among students with varying preschool experiences.

Two-way ANOVAs

Ho5₁: There is no difference between males' and females' reading/language arts scale scores.

Ho5₂: There is no difference in reading/language arts scale scores among students with varying preschool experiences.

Ho5₃: For reading/language arts proficiency scores, there is no significant interaction between gender and preschool experience.

Ho6₁: There is no difference between males' and females' math scale scores.

Ho6₂: There is no difference in math scale scores among students with varying preschool experiences.

Ho6₃: For math scale scores, there is no significant interaction between gender and preschool experience.

Ho7₁: There is no difference between males' and females' science scale scores.

- Ho7₂: There is no difference in science scale scores among students with varying preschool experiences.
- Ho7₃: For science proficiency scores, there is no significant interaction between gender and preschool experience.
- Ho8₁: There is no difference between males' and females' social studies scale scores.
- Ho8₂: There is no difference in social studies scale scores among students with varying preschool experiences.
- Ho8₃: For social studies scale scores, there is no significant interaction between gender and preschool experience.

Null hypotheses for Research Question 9 were not tested due to violations of the assumptions of chi-square.

Summary

Chapter 3 presented information regarding the study design, the sample and sampling method, instrumentation, data collection, and data analysis, including the null hypotheses. Results of the analysis of data are presented in Chapter 4.

CHAPTER 4

RESULTS

The findings of this study along with the research questions and hypotheses are addressed in this chapter. The purpose of this study was to determine if an association existed between preschool experience and student achievement in third grade as reported by criterion referenced Tennessee Comprehensive Assessment Program (TCAP) scale scores in four schools in northeast Tennessee with at least 80% of its students receiving free or reduced lunch. Nine research questions and 16 null hypotheses were tested.

Demographic Information

Eighty-eight students comprised the 2004-2005 third grade cohorts under study in the four selected schools. The total student population and economically disadvantaged percentage for each of the four schools is presented in Table 1.

Table 1

Profile of Schools Selected for Study

| School | Total Student Population | % Economically Disadvantaged |
|--------|--------------------------|------------------------------|
| 1 | 258 | 80.8 |
| 2 | 126 | 95.8 |
| 3 | 209 | 80.7 |
| 4 | 278 | 86.1 |

As shown in Table 1, each of the four schools included in the study reported a free- or reduced-lunch student population greater than 80% for the 2004-2005 school year.

The total number of students included in the study and information regarding gender for each of the four schools is presented in Table 2.

Table 2
Gender Profile of Schools Selected for Study

| School | Total Number of Participants | Males | Females |
|--------|------------------------------|-------|---------|
| 1 | 28 | 13 | 15 |
| 2 | 19 | 11 | 8 |
| 3 | 19 | 11 | 8 |
| 4 | 22 | 13 | 9 |
| Total | 88 | 48 | 40 |

Research Question 1

To what extent, if any, is there an association between preschool experience and reading/language arts proficiency as measured by TCAP scale scores in third grade? Null hypothesis one was tested with a one-way ANOVA.

H₀₁: There is no difference in reading/language arts scale scores among students with varying preschool experiences.

A one-way analysis of variance was conducted to evaluate the relationship between preschool experience and reading/language arts scale scores. The independent variable, preschool experience, included four levels: no preschool experience, state- or federally-funded preschool experience, Head Start experience, or private preschool experience. The dependent variable was the reading/language arts scale score. The ANOVA was not significant, $F(3, 84) = .98, p = .41$. The null hypothesis was retained. The strength of the relationship between preschool experience and reading/language arts scale scores, as assessed by η^2 , was small (.034). Although the results indicate that reading/language arts scale scores were not statistically significantly affected by preschool experience, a comparison of the observed means showed that the mean for children who attended private preschools was over 16 points higher than the mean for children who attended state- or federally-funded preschools, 10 points higher than children with no preschool experience, and 8 points higher than children who attended Head Start. The means and standard deviations for the four preschool groups are reported in Table 3.

Table 3

Means and Standard Deviations for Reading/Language Arts by Levels of Preschool Experience

| Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|---------------------------|----------|----------|-----------|
| No preschool | 44 | 487.41 | 19.38 |
| State or federally funded | 13 | 481.00 | 23.04 |
| Head Start | 22 | 489.41 | 26.62 |
| Private | 9 | 497.56 | 27.58 |
| Total | 88 | 488.00 | 22.75 |

Figure 1 shows a line graph of plotted reading/language arts scale score means for each level of preschool experience.

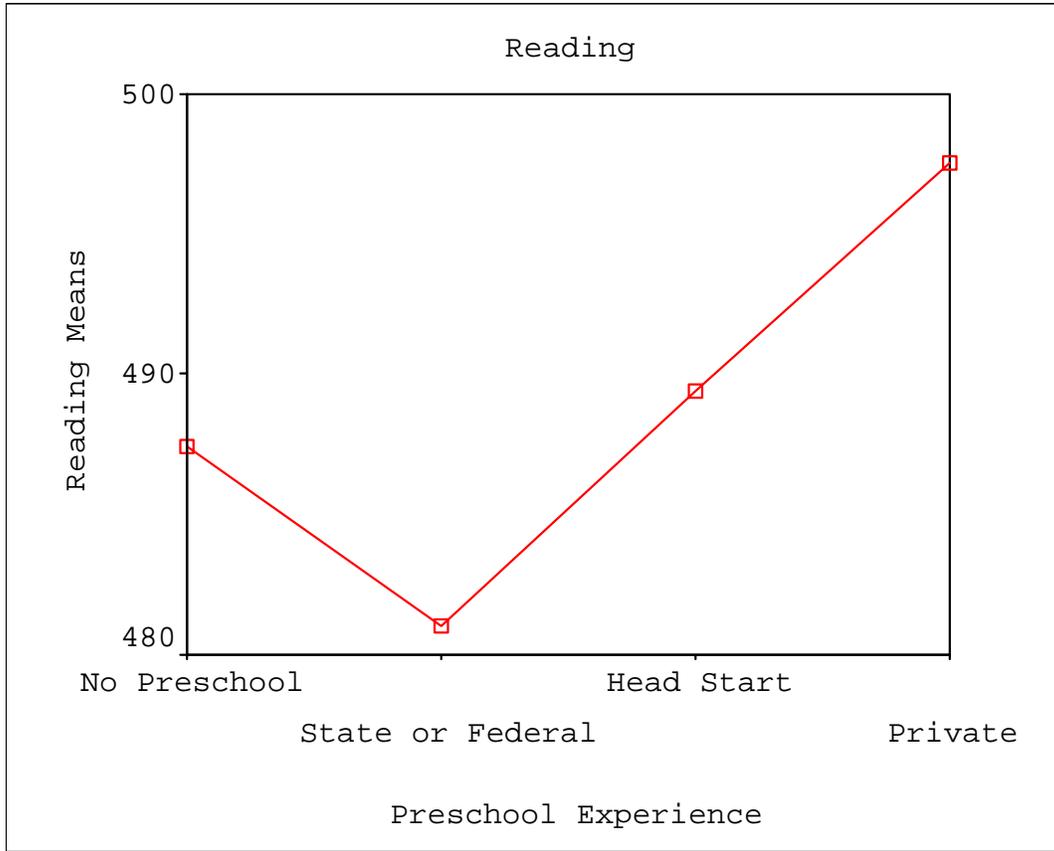


Figure 1. Line Graph of Reading/Language Arts Means for Levels of Preschool Experience

Research Question 2

To what extent, if any, is there an association between preschool experience and math proficiency as measured by TCAP scale scores in third grade? Null hypothesis two was tested with a one-way ANOVA.

Ho2: There is no difference in math scale scores among students with varying preschool experiences.

A one-way analysis of variance was conducted to evaluate the relationship between preschool experience and math scale scores. The independent variable was preschool experience and the dependent variable was the math scale score. The ANOVA was significant, $F(3, 84) = 2.81, p = .04$. The null hypothesis was rejected. The strength of the relationship between preschool experience and math scale scores, as assessed by η^2 , was medium (.091).

Because the overall F test was significant, post hoc multiple comparisons were conducted to evaluate pairwise differences among the means of the four groups. A Tukey procedure was selected for the multiple comparisons because equal variances were assumed [$F(3, 84) = 2.74, p = .06$]. There was a significant difference in the means between the group that attended private preschool and the group that attended a state- or federally-funded preschool ($p = .05$). However, while there was not a significant difference between the means of students who attended private preschools and the students who had no preschool experience ($p = .13$), the mean for students with private preschool experience was more than 20 points higher than the mean for students who had no preschool experience. There were not statistically significant differences between the other preschool experience comparisons. The 95% confidence intervals for the pairwise differences, as well as the means and standard deviations for the four preschool groups, are reported in Table 4.

Table 4

*Means and Standard Deviations for Math with 95% Confidence
Intervals of Pairwise Differences*

| Preschool | <i>n</i> | <i>M</i> | <i>SD</i> | No preschool | State/Fed | Head Start |
|---------------|----------|----------|-----------|--------------|------------|------------|
| No preschool | 44 | 476.1 | 26.3 | | | |
| State/Federal | 13 | 467.5 | 32.3 | -12 to 29 | | |
| Head Start | 22 | 484.1 | 14.9 | -25 to 9 | -40 to 7 | |
| Private | 9 | 496.2 | 27.5 | -44 to 4 | -57 to -.2 | -38 to 14 |

Figure 2 shows a line graph of plotted math scale score means for each level of preschool experience.

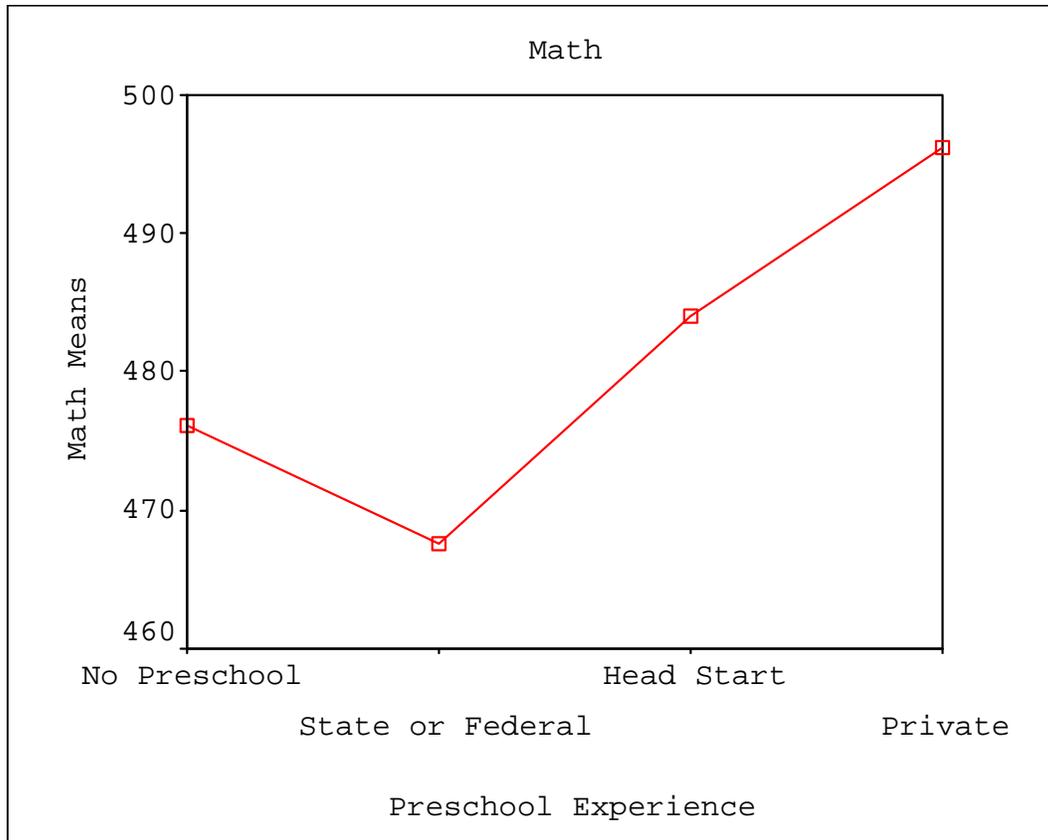


Figure 2. Line Graph of Math Means for Levels of Preschool Experience

Research Question 3

To what extent, if any, is there an association between preschool experience and science proficiency as measured by TCAP scale scores in third grade? Null hypothesis three was tested with a one-way ANOVA.

Ho3: *There is no difference in science scale scores among students with varying preschool experiences.*

A one-way analysis of variance was conducted to evaluate the relationship between preschool experience and science scale scores. The independent variable was preschool experience, and the dependent variable was the science scale score. The ANOVA was not significant, $F(3, 84) = .75, p = .53$. The null hypothesis was retained. The strength of the relationship between preschool experience and science scale scores, as assessed by η^2 , was small (.026). For science, there was very little difference among the means for students with varying preschool experiences. The means and standard deviations for the four preschool groups are reported in Table 5.

Table 5
Means and Standard Deviations for Science by Levels of Preschool Experience

| Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|---------------------------|----------|----------|-----------|
| No preschool | 44 | 204.59 | 12.88 |
| State or federally funded | 13 | 200.08 | 12.11 |
| Head Start | 22 | 206.86 | 15.02 |
| Private | 9 | 206.67 | 15.30 |

Figure 3 shows a line graph of plotted science scale score means for each level of preschool experience.

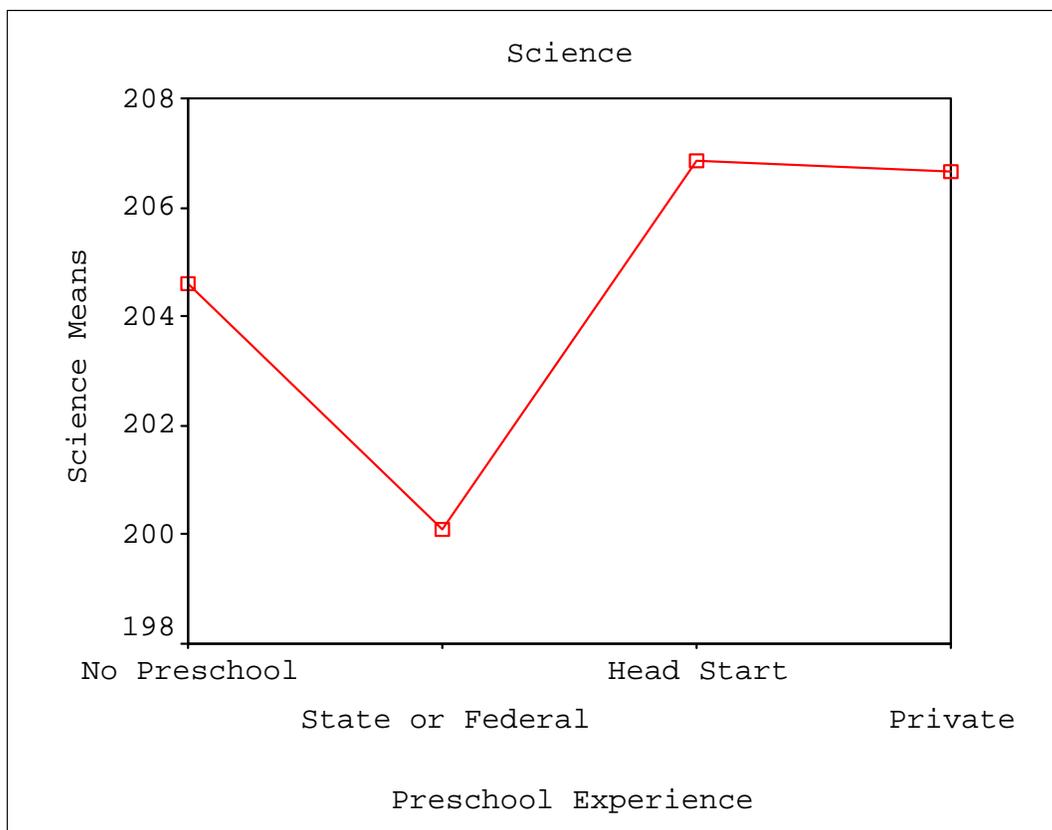


Figure 3. Line Graph of Science Means for Levels of Preschool Experience

Research Question 4

To what extent, if any, is there an association between preschool experience and social studies proficiency as measured by TCAP scale scores in third grade? Null hypothesis four was tested with a one-way ANOVA.

Ho4₁: *There is no difference in social studies scale scores among students with varying preschool experiences.*

A one-way analysis of variance was conducted to evaluate the relationship between preschool experience and social studies scale scores. The independent variable was preschool experience, and the dependent variable was social studies scale scores. The ANOVA was not significant, $F(3, 84) = 1.90, p = .14$. The null hypothesis was retained. The strength of the relationship between preschool experience and social studies scale scores, as assessed by η^2 , was medium (.063). However, while the ANOVA was not significant, the mean for students with private preschool experience was almost 17 points higher than the mean for students with state- or federally-funded preschool experience and over 12 points higher than the mean for students with no preschool experience. The means and standard deviations for the four preschool groups are reported in Table 6.

Table 6
Means and Standard Deviations for Social Studies by Levels of Preschool Experience

| Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|---------------------------|----------|----------|-----------|
| No preschool | 44 | 201.07 | 16.61 |
| State or federally funded | 13 | 196.85 | 15.22 |
| Head Start | 22 | 204.59 | 13.45 |
| Private | 9 | 213.44 | 28.21 |

Figure 4 shows a line graph of plotted social studies scale score means for each level of preschool experience.

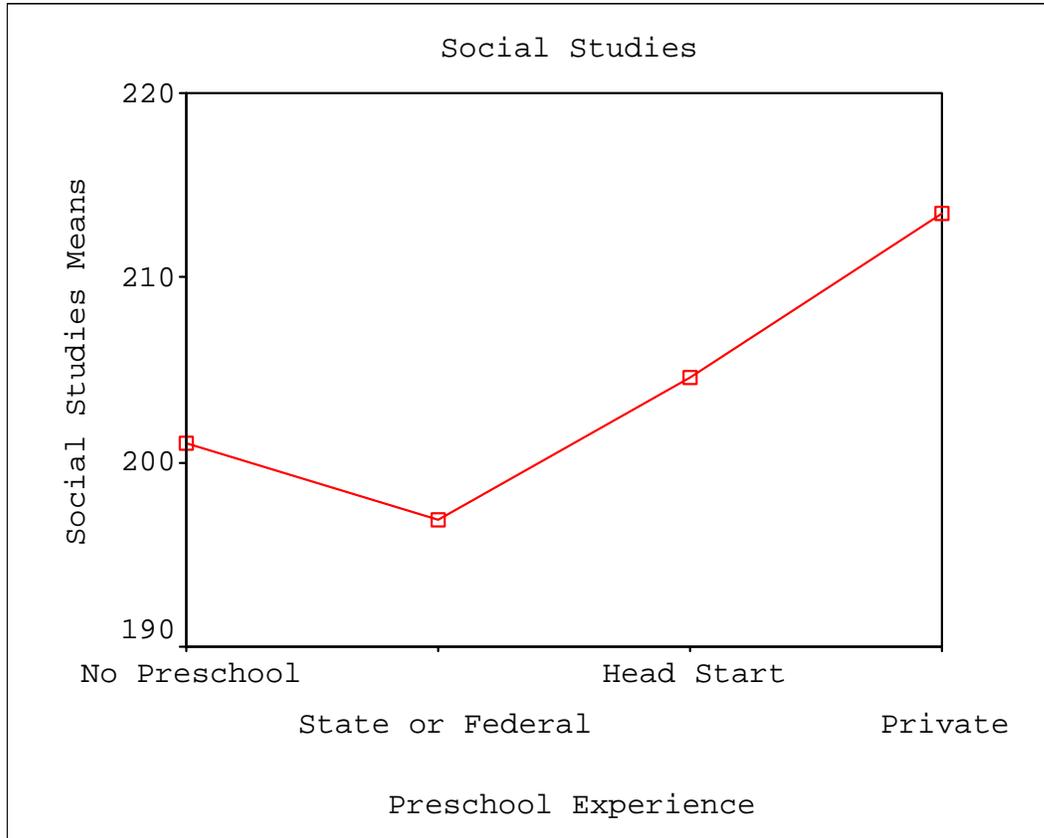


Figure 4. Line Graph of Social Studies Means for Levels of Preschool Experience.

The purpose of Research Questions five through eight was to ascertain the effect, if any, of gender on the relationship between preschool experience and the dependent variables. Specifically, I was interested in the significance of the gender by preschool experience interaction. Significant interaction means that the effect of a given main effect, either gender or preschool

experience, cannot be evaluated in isolation of the other main effect. For example, if there is significant gender by preschool experience interaction, it would mean that the effect of preschool experience on a given dependent variable varies by gender. As such, the interaction term is evaluated prior to the main effects of gender and preschool experience.

Research Question 5

To what extent, if any, do gender and preschool experience affect reading/language arts proficiency as measured by TCAP scale scores in third grade? Three null hypotheses were tested with a two-way ANOVA.

Ho5₁: *There is no difference between males' and females' reading/language arts scale scores.*

Ho5₂: *There is no difference in reading/language arts scale scores among students with varying preschool experiences.*

Ho5₃: *For reading/language arts proficiency scores, there is no significant interaction between gender and preschool experience.*

A two-way analysis of variance was conducted to evaluate the null hypotheses. The independent variables (main effects) were preschool experience and gender. The dependent variable was the reading/language arts scale score. The gender by preschool experience interaction term was not significant, $F(3, 80) = .12, p = .95$. The null hypothesis for interaction was retained. The effect size of the interaction between preschool experience and

gender on reading/language arts scale scores, as assessed by the partial η^2 , was very small (.004).

The main effect of gender was not significant, $F(1, 80) = .03$, $p = .87$. The null hypothesis was retained. The strength of the relationship between gender and reading scale scores, as assessed by η^2 , was very small (<.01).

The main effect of preschool experience was not significant, $F(3, 80) = .89$, $p = .45$. The null hypothesis was retained. The strength of the relationship between preschool experience and reading scale scores, as assessed by η^2 , was small (.032).

The means and standard deviations for reading/language arts by gender and levels of preschool experience are reported in Table 7

Table 7

Means and Standard Deviations for Reading/Language Arts by Gender and Levels of Preschool Experience

| Gender | Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|--------|----------------------|----------|----------|-----------|
| Female | No preschool | 22 | 489.95 | 21.42 |
| | State or federal | 5 | 481.80 | 23.61 |
| | Head Start | 8 | 488.38 | 14.83 |
| | Private | 5 | 497.20 | 17.24 |
| | Total Female | 40 | 489.53 | 19.74 |

Table 7 (continued)

| Gender | Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|----------------------|----------------------|----------|----------|-----------|
| Male | No preschool | 22 | 484.86 | 17.23 |
| | State or federal | 8 | 480.50 | 24.31 |
| | Head Start | 14 | 490.00 | 32.02 |
| | Private | 4 | 498.00 | 40.39 |
| | Total Male | 48 | 486.73 | 25.11 |
| Preschool experience | No preschool | 44 | 487.41 | 19.38 |
| | State or federal | 13 | 481.00 | 23.04 |
| | Head Start | 22 | 489.41 | 26.62 |
| | Private | 9 | 497.56 | 27.58 |
| | Total Sample | 88 | 488.00 | 22.75 |

Figure 5 shows a line graph of plotted reading/language arts scale score means by preschool experience and gender.

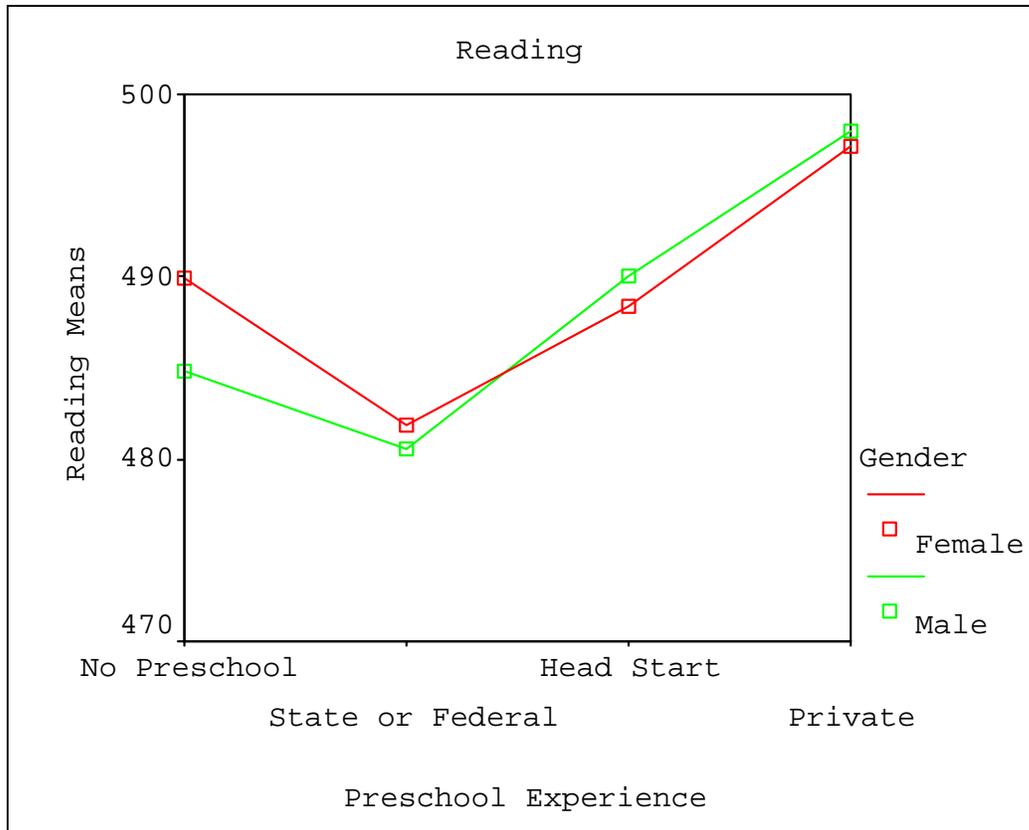


Figure 5. Line Graph of Reading/Language Arts Means by Preschool Experience and Gender

Research Question 6

To what extent, if any, do gender and preschool experience affect math proficiency as measured by TCAP scale scores in third grade? Three null hypotheses were tested with a two-way ANOVA.

Ho6₁: There is no difference between males' and females' math scale scores.

Ho6₂: *There is no difference in math scale scores among students with varying preschool experiences.*

Ho6₃: *For math scale scores, there is no significant interaction between gender and preschool experience.*

A two-way analysis of variance was conducted to evaluate the interaction between preschool experience and gender on math scale scores. The independent variables were preschool experience and gender. The dependent variable was the math scale score. The gender by preschool experience interaction term was not significant, $F(3, 80) = .07, p = .98$. The null hypothesis was retained. The strength of the relationship of the interaction between preschool experience and gender on math scale scores, as assessed by η^2 , was very small ($<.01$).

The main effect of gender was not significant, $F(1, 80) = 2.96, p = .09$. The null hypothesis was retained. The strength of the relationship between gender and math scale scores, as assessed η^2 , was small (.041). However, while there was no statistically significant difference between males and females, as shown in Figure 6, the mean for males was higher than the mean for females for each level of preschool experience. Overall, the math mean for males was over 11.5 points higher than the mean for females.

The main effect of preschool experience was significant, $F(3, 80) = 2.81, p = .05$. The null hypothesis was rejected. The strength of the relationship between preschool experience and math scale scores, as assessed η^2 , was medium (.10). The results of the Tukey post hoc tests for preschool experience were identical to the

Tukey findings for Research Question 2: There was a significant difference between students who had attended private preschools and those who attended state- or federally-funded preschools ($p = .05$). The math mean for students with private preschool experience was almost 29 points higher than the mean for students with state- or federally-funded preschool experience. While none of the other pairs of means was significant, the mean for students with private preschool experience was 20 points higher than the mean for students with no preschool experience, while the mean for students with Head Start experience was over 16 points higher than students with state- or federally-funded preschool experience.

The means and standard deviations for math by gender and levels of preschool experience are reported in Table 8.

Table 8
Means and Standard Deviations for Math by Gender and Levels of Preschool Experience

| Gender | Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|--------|----------------------|----------|----------|-----------|
| Female | No preschool | 22 | 469.64 | 24.01 |
| | State or federal | 5 | 461.40 | 46.75 |
| | Head Start | 8 | 474.63 | 9.55 |
| | Private | 5 | 493.40 | 12.88 |
| | Total Female | 40 | 472.58 | 25.40 |

Table 8 (continued)

| Gender | Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|----------------------|----------------------|----------|----------|-----------|
| Male | No preschool | 22 | 482.55 | 27.35 |
| | State or federal | 8 | 471.38 | 22.27 |
| | Head Start | 14 | 489.50 | 15.06 |
| | Private | 4 | 499.75 | 42.05 |
| | Total Male | 48 | 484.15 | 25.33 |
| Preschool experience | No preschool | 44 | 476.09 | 26.25 |
| | State or federal | 13 | 467.54 | 32.30 |
| | Head Start | 22 | 484.09 | 14.98 |
| | Private | 9 | 496.22 | 27.52 |
| | Total Sample | 88 | 478.89 | 25.88 |

Figure 6 shows a line graph of plotted math scale score means by preschool experience and gender.

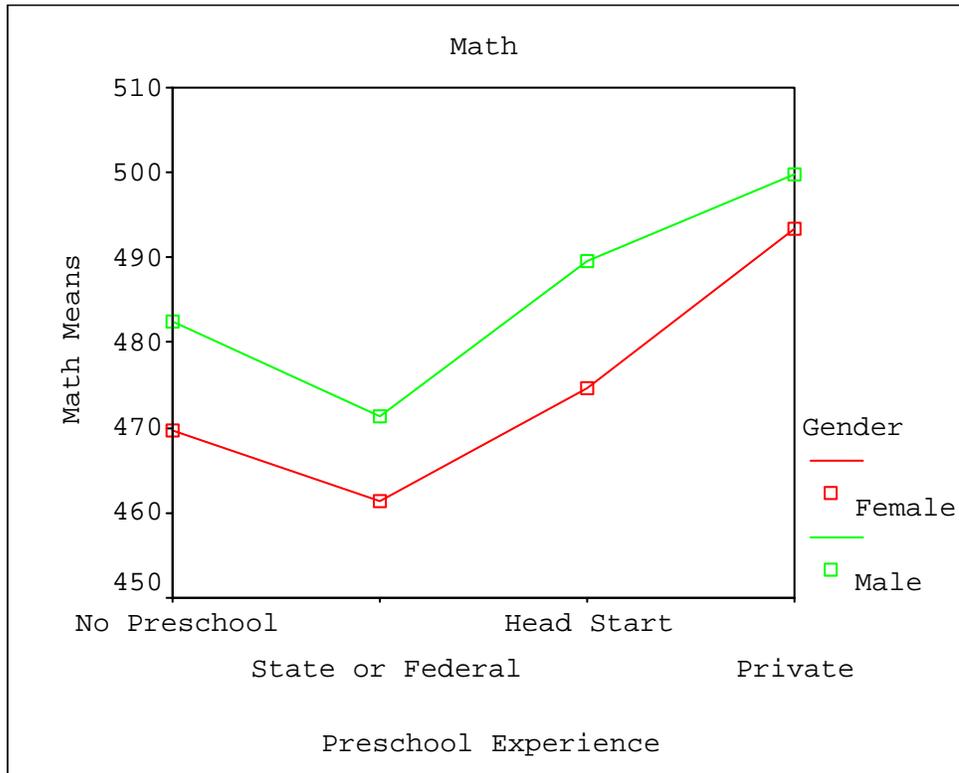


Figure 6. Line Graph of Math Means by Preschool Experience and Gender.

Research Question 7

To what extent, if any, do gender and preschool experience affect science proficiency as measured by TCAP scale scores in third grade? Three null hypotheses were tested with a two-way ANOVA.

Ho7₁: *There is no difference between males' and females' science scale scores.*

Ho7₂: *There is no difference in science scale scores among students with varying preschool experiences.*

Ho7₃: *For science proficiency scores, there is no significant interaction between gender and preschool experience.*

A two-way analysis of variance was conducted to evaluate the null hypotheses. The independent variables were preschool experience and gender. The dependent variable was the science scale score. The gender by preschool interaction term was not significant, $F(3, 80) = .48, p = .70$. The null hypothesis was retained. The effect size of the interaction between preschool experience and gender on science scale scores, as assessed by η^2 , was small (.02).

The main effect of gender was not significant, $F(1, 80) = 2.34, p = .13$. The null hypothesis was retained. The strength of the relationship between gender and science scale scores, as assessed by η^2 , was small (.03).

The main effect of preschool experience was not significant $F(3, 80) = .87, p = .46$. The null hypothesis was retained. The strength of the relationship between preschool experience and science scale scores, as assessed by η^2 , was small (.03).

The means and standard deviations for science by preschool experience and gender are reported in Table 9.

Table 9

*Means and Standard Deviations for Science by Gender and Levels of
Preschool Experience*

| Gender | Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|----------------------|----------------------|----------|----------|-----------|
| Female | No preschool | 22 | 202.27 | 12.50 |
| | State or federal | 5 | 193.00 | 12.51 |
| | Head Start | 8 | 202.25 | 11.71 |
| | Private | 5 | 207.60 | 7.70 |
| | Total Female | 40 | 201.78 | 12.05 |
| Male | No preschool | 22 | 206.91 | 13.13 |
| | State or federal | 8 | 204.50 | 10.20 |
| | Head Start | 14 | 209.50 | 16.44 |
| | Private | 4 | 205.50 | 23.27 |
| | Total Male | 48 | 207.15 | 14.31 |
| Preschool experience | No preschool | 44 | 204.59 | 12.88 |
| | State or federal | 13 | 200.08 | 12.11 |
| | Head Start | 22 | 206.86 | 15.02 |
| | Private | 9 | 206.67 | 15.30 |
| | Total Sample | 88 | 204.70 | 13.53 |

Figure 7 shows a line graph of plotted science scale score means by preschool experience and gender.

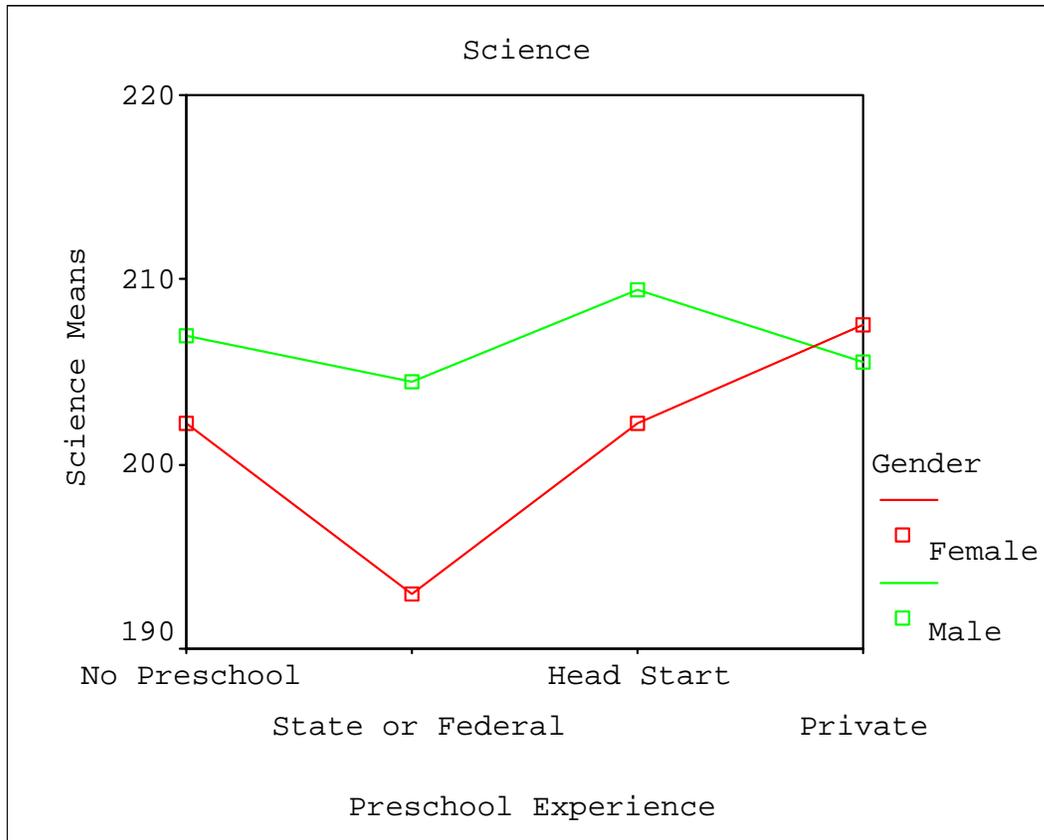


Figure 7. Line Graph of Science Means by Preschool Experience and Gender.

Research Question 8

To what extent, if any, do gender and preschool experience affect social studies proficiency as measured by TCAP scale scores in third grade? Three null hypotheses were tested with a two-way ANOVA.

Ho8₁: *There is no difference between males' and females' social studies scale scores.*

Ho8₂: *There is no difference in social studies scale scores among students with varying preschool experiences.*

Ho8₃: *For social studies scale scores, there is no significant interaction between gender and preschool experience.*

A two-way analysis of variance was used to test the null hypotheses. The independent variables were preschool experience and gender. The dependent variable was the social studies scale score. The gender by preschool experience interaction term was not significant, $F(3, 80) = .11, p = .95$. The null hypothesis was retained. The effect size of the interaction between preschool experience and gender on social studies scale scores, as assessed by partial η^2 , was very small ($<.01$).

The main effect of gender was not significant, $F(1, 80) = .55, p = .46$. The null hypothesis was retained. The strength of the relationship between gender and social studies scale scores, as assessed by partial η^2 , was small ($.01$).

The main effect of preschool experience was not significant, $F(3, 80) = 1.75, p = .16$. The null hypothesis was retained. The strength of the relationship between preschool experience and social studies scale scores, as assessed by partial η^2 , was medium ($.062$). As was found in Research Question 4, although not statistically significant, the social studies mean for students with private preschool experience was almost 17 points higher than the mean for students with state- or federally funded preschool

experience and over 12 points higher for students with no preschool experience.

The means and standard deviations for social studies by gender and levels of preschool experience are reported in Table 10.

Table 10

Means and Standard Deviations for Social Studies by Gender and Levels of Preschool Experience

| Gender | Preschool experience | <i>n</i> | <i>M</i> | <i>SD</i> |
|----------------------|----------------------|----------|----------|-----------|
| Female | No preschool | 22 | 199.27 | 14.60 |
| | State or federal | 5 | 196.00 | 22.15 |
| | Head Start | 8 | 199.88 | 12.39 |
| | Private | 5 | 213.00 | 17.78 |
| | Total Female | 40 | 200.70 | 15.77 |
| Male | No preschool | 22 | 202.86 | 18.57 |
| | State or federal | 8 | 197.38 | 10.78 |
| | Head Start | 14 | 207.29 | 13.72 |
| | Private | 4 | 214.00 | 41.23 |
| | Total Male | 48 | 204.17 | 18.76 |
| Preschool experience | No preschool | 44 | 201.07 | 16.61 |
| | State or federal | 13 | 196.85 | 15.23 |
| | Head Start | 22 | 204.59 | 13.45 |
| | Private | 9 | 213.44 | 28.21 |
| | Total Sample | 88 | 202.59 | 17.45 |

Figure 8 shows a line graph of plotted social studies scale score means for each level of preschool experience by gender.

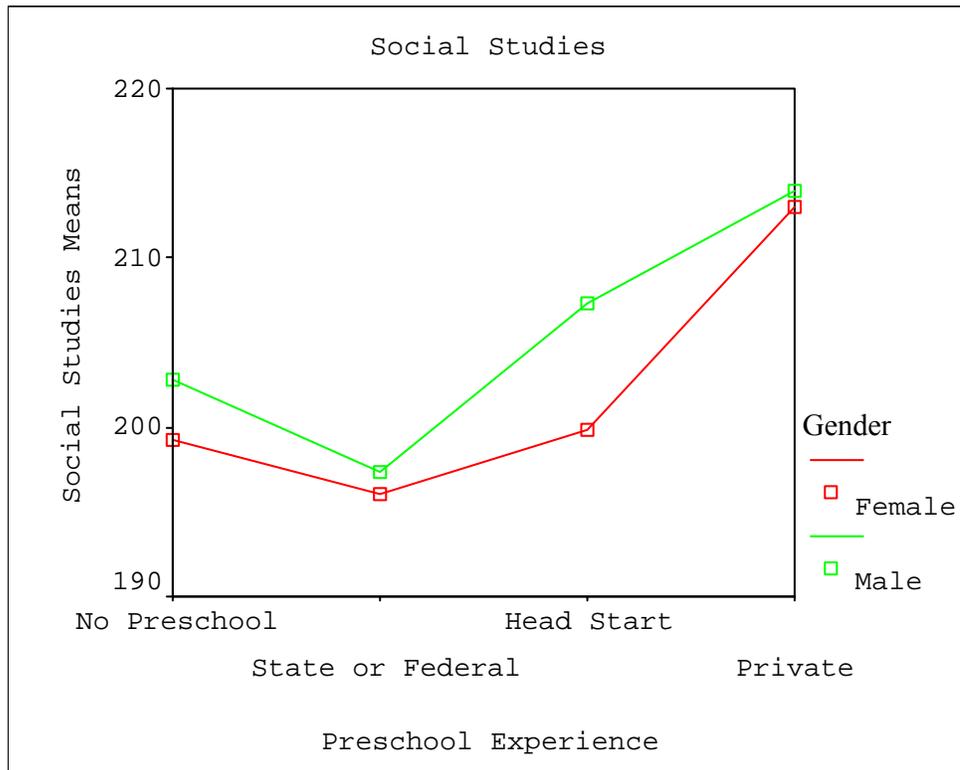


Figure 8. Line Graph of Social Studies Means by Preschool Experience and Gender.

Research Question 9

To what extent, if any, is there an association between preschool experiences and proficiency levels for reading/language arts, math, science, and social studies? To evaluate this research question, four 4-by-3 cross-tabulated tables were used to determine the percentage of students in each preschool category (no

preschool, state- or federally-funded, Head Start, or private) that achieved advanced, proficient, or below proficient status as determined by Tennessee state guidelines (Tennessee Department of Education, 2003). These scale score cut scores are depicted in Table 11.

Table 11
Tennessee 3rd Grade Scale Score Cut Scores

| Content Area | Proficient | Advanced |
|-----------------------|------------|----------|
| Reading/language arts | 455 | 496 |
| Math | 448 | 484 |
| Science | 188 | 213 |
| Social studies | 188 | 212 |

Null hypotheses were not tested because each cross-tabulated table showed violations of the assumptions of chi-square.

Table 12 shows the cross-tabulated table for preschool experiences by the three levels of reading/language arts proficiencies. The table shows that only 25% of students with no preschool experience and 23.1% of those with state- or federally-funded preschool had reading/language arts scores within the advanced proficiency range. However, 50% of students with Head Start preschool experience and 66.7% of the students with private preschool experience had an advanced proficiency.

Table 12

Cross-tabulated Table for Reading/Language Arts Proficiency Levels by Preschool Experience

| Reading | No preschool | | State or federal | | Head Start | | Private | |
|------------|--------------|-------|------------------|-------|------------|-------|----------|-------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Below | 3 | 6.8 | 1 | 7.7 | 2 | 9.1 | 1 | 11.1 |
| Proficient | 30 | 68.2 | 9 | 69.2 | 9 | 40.9 | 2 | 22.2 |
| Advanced | 11 | 25.0 | 3 | 23.1 | 11 | 50.0 | 6 | 66.7 |
| Total | 44 | 100.0 | 13 | 100.0 | 22 | 100.0 | 9 | 100.0 |

Table 13 shows the cross-tabulated table for preschool experiences by the three levels of math proficiencies. The table shows that 11.4% of students with no preschool experience and 23.1% of students with state- or federally-funded preschool experience scored within the below proficient range. However, no students with Head Start or private preschool experience scored within the below proficient range.

Table 13

Cross-tabulated Table for Math Proficiency Levels by Preschool Experience

| Math | No preschool | | State or federal | | Head Start | | Private | |
|------------|--------------|-------|------------------|-------|------------|-------|----------|-------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Below | 5 | 11.4 | 3 | 23.1 | 0 | 0.0 | 0 | 0.0 |
| Proficient | 22 | 50.0 | 4 | 30.8 | 8 | 36.4 | 2 | 22.2 |
| Advanced | 17 | 36.6 | 6 | 46.2 | 14 | 63.6 | 7 | 77.8 |
| Total | 44 | 100.0 | 13 | 100.0 | 22 | 100.0 | 9 | 100.0 |

As shown in Table 14, there was little difference in the percentages for advanced proficiency for science among students with no preschool experience (22.7%), students with Head Start experience (27.3%), and students with private preschool experience (33.3%). Only one student (7.7%) with state- or federally-funded preschool experience scored in the advanced proficiency level.

Table 14

Cross-tabulated Table for Science Proficiency Levels by Preschool Experience

| Science | No preschool | | State or federal | | Head Start | | Private | |
|------------|--------------|-------|------------------|-------|------------|-------|----------|-------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Below | 5 | 11.4 | 2 | 15.4 | 3 | 13.6 | 1 | 11.1 |
| Proficient | 29 | 65.9 | 10 | 76.9 | 13 | 59.1 | 5 | 55.6 |
| Advanced | 10 | 22.7 | 1 | 7.7 | 6 | 27.3 | 3 | 33.3 |
| Total | 44 | 100.0 | 13 | 100.0 | 22 | 100.0 | 9 | 100.0 |

Table 15 shows the cross-tabulated table for preschool experiences by the three levels of social studies proficiencies. The table shows that only 22.7% of students with no preschool experience, 15.4% of students with state- or federally-funded preschool experience, and 31.8% of students with Head Start preschool experience scored within the advanced range. However, 66.7% of students with private preschool experience had an advanced proficiency level.

Table 15

*Cross-tabulated Table for Social Studies Proficiency Levels by
Preschool Experience*

| Social Studies | No preschool | | State or federal | | Head Start | | Private | |
|----------------|--------------|-------|------------------|-------|------------|-------|----------|-------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Below | 9 | 20.5 | 4 | 30.8 | 4 | 18.2 | 1 | 11.1 |
| Proficient | 25 | 56.8 | 7 | 53.8 | 11 | 50.0 | 2 | 22.2 |
| Advanced | 10 | 22.7 | 2 | 15.4 | 7 | 31.8 | 6 | 66.7 |
| Total | 44 | 100.0 | 13 | 100.0 | 22 | 100.0 | 9 | 100.0 |

Conclusion

The results of data collected were presented in Chapter 4 with accompanying analyses. A one-way analysis of variance was conducted to determine if significant differences in TCAP scale scores for reading/language arts, math, science, and social studies existed between students with varying preschool experiences. The results were mixed. In the case of significance, post hoc tests were conducted.

A significant difference was found only in the content area of math. The difference favored students with private preschool experience as opposed to state- or federally-funded preschool experience. No significant differences were found in any other content area.

A two-way analysis of variance was conducted to evaluate the interaction between preschool experience and gender on reading/language arts, math, science, and social studies scale

scores. No significance was found to indicate an interaction between preschool experience and gender.

Cross-tabulated tables were also used to determine the percentage of students in each preschool category that achieved advanced, proficient, or below proficient status as determined by Tennessee state guidelines. The highest percentages of students achieving advanced status in each content area were those with private preschool experience.

Chapter 5 presents an analysis of the results of the study highlighted in this chapter, a summary of the study, and findings associated with each research question. Chapter 5 also includes a summary of conclusions drawn from the study as well as recommendations for future study.

CHAPTER 5

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Recent federal mandates for increased accountability have fostered a focus on academic achievement. Patterns of achievement indicate gaps between socioeconomic levels, which are often incurred in the early years. As noted by the Committee for Economic Development (2002), "Helping all children start school ready to learn is critical to their future success and to the well-being of society as a whole. Children who start school behind their peers are unlikely to catch up" (p. 1). Heckman (2000) believed the answer was found in early intervention.

The primary goal of this study was to determine if an association existed between the presence and type of preschool experience and achievement of economically disadvantaged students in third grade as reported by criterion referenced Tennessee Comprehensive Assessment Program (TCAP) scale scores. The data were collected in four schools in northeast Tennessee where more than 80% of each school's students were categorized as economically disadvantaged as certified by free- and reduced-lunch status. Eighty-eight students comprised the 2004-2005 third grade cohorts under study in the four selected schools.

This chapter provides conclusions drawn from the findings of the study's nine research questions as presented in Chapter 4 and the literature review presented in Chapter 2. This chapter also provides recommendations for further research.

Summary of the Findings

Research Question 1

To what extent, if any, is there an association between preschool experience and reading/language arts proficiency as measured by TCAP scale scores in third grade?

Hol₁: There is no difference in reading/language arts scale scores among students with varying preschool experiences.

A one-way analysis of variance was conducted to evaluate the relationship between preschool experience and reading/language arts scale scores. The ANOVA was not significant, and the null hypothesis was retained. However, the mean for children who attended private preschools was over 16 points higher than the mean for children who attended state- or federally-funded preschools, 10 points higher than children with no preschool experience, and eight points higher than children who attended Head Start.

This result refutes the findings of Campbell, Pungello, Miller-Johnson, Burchinal, and Ramey (2001), who reported on the effects of the Abecedarian study. They noted, "The preschool cognitive gains accounted for a substantial portion of the treatment differences in the development of reading and math skills" (p. 1).

Research Question #2

To what extent, if any, is there an association between preschool experience and math proficiency as measured by TCAP scale scores in third grade?

Ho2₁: There is no difference in math scale scores among students with varying preschool experiences.

A one-way analysis of variance was conducted to evaluate the relationship between preschool experience and math scale scores. The ANOVA was significant, and the null hypothesis was rejected. Post hoc multiple comparisons were then conducted to evaluate pairwise differences among the means of the four groups. There was a significant difference in the means between the group that attended private preschool and the group that attended a state- or federally-funded preschool. Additionally, the mean for students with private preschool experience was more than 20 points higher than the mean for students who had no preschool experience.

This finding is supported by the Abecedarian study where "the positive findings with respect to academic skills and increased years of post-secondary education support policies favoring early childhood programs for poor children" (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002, p. 1).

Research Question 3

To what extent, if any, is there an association between preschool experience and science proficiency as measured by TCAP scale scores in third grade?

Ho3₁: There is no difference in science scale scores among students with varying preschool experiences.

A one-way analysis of variance was conducted to evaluate the relationship between preschool experience and science scale scores. The ANOVA was not significant, and the null hypothesis was

retained. For science, there was very little difference among the means for students with varying preschool experiences.

Research Question 4

To what extent, if any, is there an association between preschool experience and social studies proficiency as measured by TCAP scale scores in third grade?

Ho4₁: There is no difference in social studies scale scores among students with varying preschool experiences.

A one-way analysis of variance was conducted to evaluate the relationship between preschool experience and social studies scale scores. The ANOVA was not significant, and the null hypothesis was retained. Although the ANOVA was not significant, the mean for students with private preschool experience was almost 17 points higher than the mean for students with state- or federally-funded preschool experience and over 12 points higher than the mean for students with no preschool experience. The large difference in mean scores is supported by previous research on the impact of preschool experience for economically disadvantaged children (Campbell et al., 2001; Campbell et al., 2002).

Research Question 5

To what extent, if any, do gender and preschool experience affect reading/language arts proficiency as measured by TCAP scale scores in third grade?

Ho5₁: There is no difference between males' and females' reading/language arts scale scores.

Ho5₂: There is no difference in reading/language arts scale scores among students with varying preschool experiences.

Ho5₃: For reading/language arts proficiency scores, there is no significant interaction between gender and preschool experience.

A two-way analysis of variance was conducted to evaluate the null hypotheses. The gender by preschool experience interaction term was not significant, and the null hypothesis for interaction was retained. The main effect of gender was not significant, and the null hypothesis was retained. The main effect of preschool experience was not significant, and the null hypothesis was retained.

Research Question 6

To what extent, if any, do gender and preschool experience affect math proficiency as measured by TCAP scale scores in third grade?

Ho6₁: There is no difference between males' and females' math scale scores.

Ho6₂: There is no difference in math scale scores among students with varying preschool experiences.

Ho6₃: For math scale scores, there is no significant interaction between gender and preschool experience.

A two-way analysis of variance was conducted to evaluate the interaction between preschool experience and gender on math scale scores. The gender by preschool experience interaction term was not significant, and the null hypothesis was retained. The main effect of gender was not significant, and the null hypothesis was retained. However, although not statistically significant, the math mean for males was over 11.5 points higher than the mean for

females. The main effect of preschool experience was significant, and the null hypothesis was rejected. The Tukey post hoc tests found a significant difference between students who had attended private preschools and those who attended state- or federally-funded preschools.

Research Question 7

To what extent, if any, do gender and preschool experience affect science proficiency as measured by TCAP scale scores in third grade?

Ho7₁: There is no difference between males' and females' science scale scores.

Ho7₂: There is no difference in science scale scores among students with varying preschool experiences.

Ho7₃: For science proficiency scores, there is no significant interaction between gender and preschool experience.

A two-way analysis of variance was conducted to evaluate the null hypotheses. The gender by preschool experience interaction term was not significant, and the null hypothesis for interaction was retained. The main effect of gender was not significant, and the null hypothesis was retained. The main effect of preschool experience was not significant, and the null hypothesis was retained.

Research Question 8

To what extent, if any, do gender and preschool experience affect social studies proficiency as measured by TCAP scale scores in third grade?

Ho8₁: There is no difference between males' and females' social studies scale scores.

Ho8₂: There is no difference in social studies scale scores among students with varying preschool experiences.

Ho8₃: For social studies scale scores, there is no significant interaction between gender and preschool experience.

A two-way analysis of variance was used to test the null hypotheses. The gender by preschool experience interaction term was not significant, and the null hypothesis for interaction was retained. The main effect of gender was not significant, and the null hypothesis was retained. The main effect of preschool experience was not significant, and the null hypothesis was retained.

Research Question 9

To what extent, if any, is there an association between preschool experiences and proficiency levels for reading/language arts, math, science, and social studies?

Null hypotheses for Research Question 9 were not tested due to violations of the assumptions of Chi-Square.

To evaluate this research question, four 4-by-3 cross-tabulated tables were used to determine the percentage of students in each preschool category that achieved advanced, proficient, or below proficient status as determined by Tennessee state guidelines (Tennessee Department of Education, 2003). In the content area of reading/language arts, 50% of students with Head Start preschool experience and 66.7% of the students with private preschool experience had an advanced proficiency. In the content area of

math, no students with Head Start or private preschool experience scored within the below proficient range. In the content area of science, there was little difference in the percentages for advanced proficiency for science among students. And in the content area of social studies, 66.7% of students with private preschool experience had an advanced proficiency level.

It is noteworthy to mention here that more students with no preschool experience scored below proficient than any other preschool category. These findings are consistent with Schweinhart (2002). Through the Perry Preschool Study, the researchers demonstrated "that this preschool program helped young children living in poverty become more ready for school, perform better on achievement tests, avoid special education for mental impairment, and graduate from high school" (Schweinhart, p. 20).

Conclusions

The data do not demonstrate a significant conclusion between preschool experience and achievement except in the area of math; however, a close review of mean scores for each content area and for each preschool category sheds light on the question: Does preschool experience make a difference for children living in poverty?

The data clearly depict private preschools as the experience of choice for young children; however, these data may be misleading. One must consider the socioeconomic factors for each type of preschool. Children enrolled in private preschools have families who can afford to pay the weekly or monthly rates as opposed to state- or federally-funded preschools and Head Start

preschools where children are accepted into the program based on the severity of the family's economic need. The children attending Head Start preschools or state- or federally-funded preschools are beginning their lives not only economically disadvantaged but also academically disadvantaged, which are closely related according to the Committee for Economic Development (2002).

No conclusions can be drawn about the interaction between gender and preschool experience in the different content areas because, in most cases, the means were similar. Math was the only subject where the male math mean was higher than the female math mean for each category of preschool experience.

The majority of results of this study did not correlate with previous findings (Campbell et al., 2002; Ramey & Ramey, 2004; Schweinhart et al., 2005). A series of recommendations are provided for the researcher interested in following up on the findings of this study.

Recommendations for Practice

As a result of this study, I would recommend the following to administrators in schools that receive a preschool program.

1. Become familiar with developmentally appropriate practices (Bredekamp & Copple, 1997).
2. Involve families and the community in meaningful ways (Ramey & Ramey, 1994).
3. Ensure a quality program is offered (Jones, 1998), paying careful consideration to the following:
 - a. Teacher qualifications
 - b. Classroom environment

c. Program offered

d. Meeting the basic needs of children

Recommendations for Future Study

Recommendations for future study include:

1. A more thorough investigation should be conducted concerning the quality of the early childhood programs, (including the environment, program, assessment, and teacher qualifications) perhaps using the Early Childhood Rating Scale to evaluate the effectiveness of each type of program.
2. This study should be replicated with a much larger sample size.
3. Further longitudinal investigations should be conducted into the connection between preschool experience and achievement scores with a much larger sample size. Differences in social development should also be analyzed.
4. Qualitative studies should be conducted focusing on the perceived impact of preschool experience from administrators and teachers in grades K-6.
5. Qualitative studies should be conducted focusing on the perceived impact of preschool experience from parents of children who attended preschool.

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APPENDICES

APPENDIX A

Letter to Directors

180 River Road
Bluff City, TN 37618
MM/DD/YYYY

Dear _____:
(Director of Schools)

As a student at East Tennessee State University, I am currently involved in the dissertation phase of the Educational Leadership and Policy Analysis doctoral program. My dissertation will explore the association between preschool experience and student achievement of economically disadvantaged students.

I would like your permission to access and utilize non-identifiable scores on the TCAP from the year 2004-2005 for the third grade classrooms selected for the study. Random numbers will be used to protect the identity of all participants.

In preparation for the study, I will contact Principal _____ at _____ Elementary School and arrange for the collection of all necessary data with a minimum of disruption.

I believe the results of my study will be helpful in providing valuable data regarding the possible impact of preschool experience for economically disadvantaged children. Upon completion, I will be happy to share the results of the study with you.

I have included a self-addressed, stamped envelope so that you may return this form to me. Thank you for your cooperation. If you have further questions, please do not hesitate to call me at ###-###-####.

Sincerely,

Robin W. McClellan

Enclosure

Permission is hereby granted to Robin W. McClellan to access and use 2004-2005 TCAP scores for third grade students at _____ Elementary School.

Signature

Date

APPENDIX B

Letter to Principals

180 River Road
Bluff City, TN 37618
MM/DD/YYYY

Dear _____:
(Director of Schools)

As a student at East Tennessee State University, I am currently involved in the dissertation phase of the Educational Leadership and Policy Analysis doctoral program. My dissertation will explore the association between preschool experience and student achievement of economically disadvantaged students.

I have received permission from your Director of Schools to utilize non-identifiable TCAP scores for the third grade cohort from the year 2004-2005. I am attaching a copy of the letter to Director of Schools with his/her signature indicating permission. Random numbers will be used to protect the identity of all participants.

I will be contacting you to arrange for the collection of third grade scale scores with a minimum of disruption. The other data needed is a roster from your fourth grade teachers listing student names and the corresponding presence and type of preschool experience. The necessary roster is attached.

I believe the results of my study will be helpful in providing valuable data regarding the possible impact of preschool experience for economically disadvantaged children. Upon completion, I will be happy to share the results of the study with you.

Thank you for your cooperation. If you have further questions, please do not hesitate to call me at ###-###-####.

Sincerely,

Robin W. McClellan

Attachments

APPENDIX C

Letter to Teachers

180 River Road
Bluff City, TN 37618
MM/DD/YYYY

Dear Fourth Grade Teacher:

As a student at East Tennessee State University, I am currently involved in the dissertation phase of the Educational Leadership and Policy Analysis doctoral program. My dissertation will explore the association between preschool experience and student achievement of economically disadvantaged students.

I have received permission from your Director of Schools to utilize non-identifiable TCAP scores for the third grade cohort from the year 2004-2005. I am attaching a copy of the letter to Director of Schools with his/her signature indicating permission. Random numbers will be used to protect the identity of all participants.

I will be contacting your principal to arrange for the collection of third grade scale scores. The other data needed is a roster from each teacher listing student names and the corresponding presence and type of preschool experience. Please use the attached roster to record the necessary information and return to your principal by MM/DD/YYYY.

I believe the results of my study will be helpful in providing valuable data regarding the possible impact of preschool experience for economically disadvantaged children. Upon completion, I will be happy to share the results of the study with you.

Thank you for your cooperation. If you have further questions, please do not hesitate to call me at ###-###-####.

Sincerely,

Robin W. McClellan

Attachment

VITA

ROBIN WADE MCCLELLAN

Personal Data: Date of Birth: February 4, 1972
 Place of Birth: Bristol, Tennessee
 Marital Status: Married

Education: Pennsylvania State University, University Park,
 Pennsylvania; Elementary Education, B.S., 1994
 East Tennessee State University, Johnson City,
 Tennessee; Early Childhood Education, M.Ed.,
 2001
 East Tennessee State University, Johnson City,
 Tennessee; Educational Leadership and Policy
 Analysis, Ed.D., 2005

Professional
Experience: Teacher, Central Heights Elementary School,
 Sullivan County Schools, 1996 - 1997
 Teacher, Blountville Elementary School, Sullivan
 County Schools, 1997 - 2005
 Adjunct Instructor, East Tennessee State
 University, 2002 - 2005
 Principal, Emmett Elementary School, Sullivan
 County Schools, 2005