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Investigating Efforts to Change Educator Attitudes and Teaching Strategies Through Professional Development Focused on the Use of Backward Design Curriculum and the Principles of Efficacy: Educator Beliefs and Attitudes

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Effect of Early Childhood Education Programs on School Readiness

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in partial fulfillment of the requirements for the degree of

Doctor of Education

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DECLARATION OF ORIGINALITY

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted if for any other college or university course or degree here or elsewhere.

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SCHOOL READINESS

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This dissertation has been approved as partial fulfillment of the
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Abstract

A specific assessment for testing readiness skills is lacking for children entering kindergarten. This study investigates the influence of early education programs on school readiness and differences between male and female school readiness screening scores upon students' entrance into kindergarten. The study uses 321 school readiness screening scores of students in grades kindergarten through 12th grade from a rural school district with the population of approximately 540 students located in Southwest Missouri.

A causal-comparative study was performed on the data compiled from student records. An unpaired t-test using a two-tailed P-value hypothesis test revealed there is a significant difference between the school readiness screening scores of the kindergarten students who participated in any type of early childhood education program and the kindergarten students who did not participate in any type of early childhood education program. The null hypothesis was rejected. Most research shows that high quality early childhood education promotes academic success for children. This portion of the study supported the research of previous studies regarding early childhood education.

An unpaired t-test using a two tailed P-value hypothesis test revealed there was a no significant difference between the school readiness screening scores of the kindergarten female and male students upon their entrance into kindergarten. The null hypothesis was accepted. Most research in the area of gender leads to a difference in male and female achievement. This portion of the study did not reveal the same findings.

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Key to Abbreviations

APR	Annual Performance Attendance
MAP	Missouri Assessment Program
AYP	Adequate Yearly Progress
GED	General Educational Development
PAT	Parents as Teachers
LDA	Learning Disabilities Association of America
MODESE	Missouri Department of Elementary and Secondary Education
NCLB	No Child Left Behind

Chapter I--Introduction

Effect of Early Childhood Programs on School Readiness

Background of the Problem

*"*Young children develop rapidly, frequently experiencing tremendous change and growth physically, cognitively, linguistically, and socially" (Learning Disabilities Association of America [LDA], 1999, p.1). "Preschoolers seem to race from one milestone to the next. Nevertheless, the rate of growth and development among young children varies greatly" (Kostelc & Koprowski, 2001 p. 12). The LDA reported, "Research studies indicate early intervention can make a significant difference in a child's development" (1999, p.1).

Recent research by Kostelc and Koprowski (2001) on brain development and its link to behavior validates the critical nature of early care and education reported:

> Scientists and Educators have come to realize that it is the combination of genetic and environmental influences—nature and nurture—that ultimately determines a baby's makeup. The environment plays a pivotal role in brain development. Optimal brain growth depends on good health, positive experiences with caregivers, and opportunities for appropriate stimulation. Adequate sleep is important for brain development, so consistent routines that provide enough sleep and quiet times are essential. The baby's early experience cause physical changes to the brain that will tremendously impact later life. Parents and caregivers, as

> designers of their child's world play the most important role in helping the baby's brain make these connections. Parents and primary caregivers provide the kinds of experiences that lay the groundwork for the child's abilities in learning, language, relationships, motor functions, and emotions. (p. 3)

In The National Center for Family & Community Synthesis Report, (Boethel, 2004) revealed that "child *care* and early childhood *education* are considered separate in purpose and approach. For healthy development needed for learning, young children need both nurturing relationships and cognitive stimulation in their child care or preschool environments as well as at home" (p. 16).

Many research studies investigate the early childhood years, before any type of formal education begins. Knowing what a child has learned from early experiences and assessing this knowledge has become an important aspect of early childhood programs. Shepard, Taylor, and Kagan's survey (as cited in Saluja, Scott-Little, & Clifford, 2000) reported information collected regarding assessment. This survey showed "fewer states reported using standardized assessment of children and assessment data to make placement decisions for children" (p. 14). According to Sharon Kagan (1999), "It is doubtful that the early childhood community can sidestep the issue of readiness assessment with the ever-increasing emphasis on improved school performance and program accountability" (as cited in Saluja et al., 2000, p. 14).

States are developing their own frameworks for school readiness, with guidance provided by the National Education Goals Panel, the National Association for the Education of Young Children (NAEYC), and other national efforts. The NAEYC (1995) noted

> The commitment to promoting universal school readiness requires addressing the inequities in early life experience so that all children have access to the opportunities that promote school success; recognizing and supporting individual differences among children…and establishing reasonable and appropriate expectations of children's capabilities upon school entry. (p. 1)

Walmsley, Walmsley, and Brown (1996) wrote about their insights into kindergarten:

> The approaches to kindergarten taken over the years spring from different conceptions of early childhood education, have different ideas about what should be accomplished, and conduct the daily routines of teaching in varied ways. A traditional kindergarten simply prepares children for reading and writing. In the traditional readiness program, children must master certain skills to successfully use their language: listening, speaking, reading, and writing. It's assumed the first two develop at home, but reading and writing are "school" skills. The developmentally appropriate approach has become popular since the NAEYC made it its official policy in the late 1980s. This approach treats kindergarten as an extension of children's preschool activities. It views literacy as a continuum that starts at birth and continues throughout schooling and beyond. (pp 1-2)

Katz's (1997) research on the early learning of children states that early learning indicates

- early experience has lasting effects
- early childhood is the critical period of neurological development
- all children enter early childhood programs with active minds

- early childhood is the critical period in social development.

"Because of these conclusions, school readiness has been identified as the highest priority of education reform" (as cited in Edwards, 1999 p. 3).

Statement of Problems

1. Is there a significant difference between school readiness screening scores of pre-kindergarten students who participated in any type of early childhood educational programs and the pre-kindergarten students who did not participate in any type of early childhood education program?
2. Is there a significant difference between school readiness screening scores of pre-kindergarten male and female students upon their entrance into kindergarten?

Rationale for Study

The researcher has been an educator for 30 years in a small rural school located in southwest Missouri. Students with academic difficulties were observed throughout the years with many questions remaining unanswered as to the cause or ways to improve academic success. Accountability of student achievement in the No Child Left Behind Act will magnify these types of academic difficulties faced by educators. Even though there is a great deal of research in this area, this school district had encountered a five year period when the Parents as Teachers (PAT) and preschool programs were utilized less than in previous years. The Board of Education expressed its concern for students who were left without the services of the early childhood education programs because their parents chose not to accept extra help for their children. The author took the opportunity to research the children of the school district to see if there was a significant

difference in school readiness screening scores of the pre-kindergarten students who participated in any type of early childhood education programs such as Parents as Teachers, Title I Preschool, and Early Childhood Special Education Preschool and the pre-kindergarten students who did not participate in any type of early childhood education program. Another element of the research was to discover if there was a significant difference between school readiness screening scores of pre-kindergarten male and female students upon their entrance into kindergarten.

Independent Variable

Early Education Programs.

The types of early education programs [if any] that the students participated in before their entrance into kindergarten.

Dependent Variable

School Readiness Screening Scores.

Scores from the screenings that were administered to pre-kindergarten students before their entrance into kindergarten.

Hypotheses

Null Hypothesis # 1. There is no significant difference between the school readiness screening scores of the pre-kindergarten students who participated in any type of early childhood education programs and the pre-kindergarten students who did not participate in any type of early childhood educational program.

Null Hypothesis #2. There is no significant difference between the school readiness screening scores of the pre-kindergarten male and female students upon their entrance into kindergarten.

Limitations of Study

The purpose of this causal-comparative study is to research school readiness scores of 321 students in kindergarten through 12th grade in this small rural school located in southwest Missouri. Limitations of the study include the screening tool that was given to the students before entry into kindergarten. The screening tool changed three times during the period of time the kindergarten through 12th-grade students were screened. The screening tools used were the Scholastic Kindergarten Readiness Test (KRT), the Developmental Indicators for Assessment of Learning (DIAL-3), and the Missouri Kindergarten Inventory of Developmental Skills (KIDS).

The screenings of students entering kindergarten were conducted by a number of teachers from the elementary school. In the early years of this study, parent volunteers helped with the school screenings. The subject school is the only elementary building in the school district. The subject district had a total student population of approximately 540 during the 2008-2009 school year. The school readiness screening scores were chosen if there was appropriate information in the student's permanent record to attain scores of the pre-kindergarten screenings. The student population came from the same geographic/socio-economic area and could possibly affect the variable on which the groups were compared.

In causal-comparative research, the independent variable is not under the experimenter's control. The random assignment of subjects to a classification cannot be done. The researcher must take the values of the independent variable as they come. The attempt is to establish that values of the independent variable have a significant effect on the dependent variable. The dependent variable in a study is the outcome variable. This research involves group comparisons. Causal-comparative studies are good at identifying relationships between variables, but they do not prove cause and effect. (Fraenkel, & Wallen, 2006, pp. 370-372)

Definition of Terms

Academic Redshirting. This term is applied to young children whose parents wait a year to enter their child into kindergarten to give extra time for socio-emotional, intellectual or physical growth and to improve their likelihood of success.

Developmental Indicators for the Assessment of Learning (DIAL-3). A type of assessment that provides scores for Motor Area, Concepts Area, Language Area, Self-Help Development, and Social Development. The DIAL-3 indicates behavioral observations as well as a Parent Questionnaire. The percentile ranks and standard scores are provided.

Head Start. A national program that promotes school readiness by enhancing the social and cognitive development of children through the provision of educational, health, nutritional, social, and other services to enrolled children and families.

Kindergarten Inventory of Developmental Skills (KIDS). A screening battery developed by a State Task Force on Early Childhood Screening. The areas that are assessed are Number Concepts, Language Concepts, Auditory Skills, Visual Skills, Paper

and Pencil Skills, and Gross Motor Skills. A parent questionnaire is included to obtain information regarding the child's development.

Kindergarten Readiness Test (KRT). A test that assists in determining a student's readiness for beginning Kindergarten. The fundamental purpose of the KRT is to determine the extent to which competencies have been developed. The subtests are Vocabulary, Identifying Letters, Visual Discrimination, Phonemic Awareness, Comprehension and Interpretation, and Mathematical Knowledge. The KRT levels of readiness can be used for diagnostic assistance. The levels of readiness are related to percentiles and stanines.

Learning Disabilities Association of America (LDA). The largest non-profit volunteer organization advocating for individuals with learning disabilities. LDA advocates for over three million students of school age with learning disabilities and for adults affected with learning disabilities.

No Child Left Behind Act (NCLB). An act of 2001 that became a directive for education reform when it was signed into law by President George Bush in January of 2002. It was created to improve reading and math scores at schools across the nation; the law re-authorized a number of federal programs targeted at education reform.

Parents As Teachers (PAT). A national program designed to provide the information, support, and encouragement that parents need to help their children develop optimally during crucial early years of life.

Title I Preschool. A federally funded program providing services to children with developmental needs, ages three to five (non-kindergarten) years of age. Services

are provided at no cost to eligible children. Eligibility is determined through a developmental screening process.

Summary

This study was conducted to investigate the effect of early education childhood programs on school readiness screening scores received by pre-kindergarten students upon their entrance into kindergarten. This study also investigates the differences of school readiness screening scores of the male and female students upon their entrance into kindergarten. The problems that are investigated:

- Is there a significant difference between school readiness screening scores of pre-kindergarten students who participated in any type of early childhood education programs and the pre-kindergarten students who did not participate in any type of early childhood education program?
- Is there a significant difference between school readiness screening scores of pre-kindergarten male and female students upon their entrance into kindergarten?

Chapter II—Review of Literature

Background of Study

"Missouri has a proud history in early childhood education. St. Louis is the home of the first public school kindergarten in the United States, which was founded in 1873 by Susan Blow, a disciple of Friedrich Froebel" (Missouri Department of Elementary and Secondary Education [MODESE], 2005, p. 5). "Susan Blow opened the first public kindergarten because she believed a kindergarten system would improve the dropout rate for children because they would be starting school at an earlier age" (Wikipedia Foundation, 2009, p. 2). "Historically, the role of kindergarten was focused on socialization; a majority of children today have experience in early care and group settings prior to entering kindergarten" (West, Denton, and Reaney, 2001, p. 1).

West et al. (2001) noted "to enrich the picture of children's first experience in formal education—the kindergarten year—we need to understand the knowledge and skills children possess as they enter kindergarten and we need to gain insight into how children's knowledge and skill develop" (p. 2). "Children bring with them a vast range of early childhood experiences, skills, and knowledge. Some live with a mother and father, others live with grandparents or a single parent. Some speak English; others speak a language other than English" (Dunne, 2005 p. 1). "As early as kindergarten entry, children demonstrate diversity in their approaches and behaviors toward learning" (West, Denton, Germino & Hausken, 2000, p. 3).

According to the U.S. Department of Education Resource Team on National Education Goal 1 (1991),

> Children's first learning experiences should lay the foundation for success in school and in adult life. Ideally, children who are ready to succeed in school are healthy, immunized against disease, well-nourished, and well-rested. Their early experiences have given them a start in learning to cooperate, exercise self-control, express their thoughts and feelings, and follow rules. They are trusting and have a feeling of self-worth. They explore the world around them actively and approach tasks with enthusiasm. They are motivated to learn. In preparing young children for school, parents, community members, and educators should join together to help all children move closer to these ideals. (p. 2)

According to Kostelc and Koprowski (2001), "The preschool years are a time of tremendous learning, as children use their senses and their emerging powers of deduction to learn about their world" (p. 31). "Children's readiness for school isn't merely a measure of whether they know their ABCs or how to read, it's an indication of how well their physical, social, and emotional needs have been met prior to reaching the school's front steps" (Voices for America's Children, 2005, p. 3). "Adults may watch their play and exploration and think that 'real learning' doesn't begin until the formal instruction of an elementary school classroom… children construct knowledge through hands-on learning that provides the foundation for successful academic learning" (Kostelc and Koprowski, 2001, p. 31).

"There are windows of opportunity during which the brain is developing for certain activities, such as language, speech, movement, or reading. Each of the brain's

systems (vision, hearing, language, emotions, and motor) has its own window of opportunity" (Kostelc & Koprowski, 2001, p. 21).

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

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

"Jean Piaget championed a way of thinking about children that provided the foundation for today's education-reform movements ... his influence on education is deeper and more pervasive" (Papert, 1999, p. 2). "Piaget didn't believe that development must be stimulated by children's interactions with the world around them and the people with whom they come in contact. Interactive stimulation rather than age or maturation alone contributes to development and readiness…" (Marshall, 2003, p. 2). "Piaget's

revered by generations of teachers inspired by the belief that children are not empty vessels to be filled with knowledge but active builders of knowledge—little scientists who are constantly creating and testing their own theories of the world"(Papert, 1999, p. 2).

There are several ideas concerning readiness and how children learn. L. S. Vygotsky (1978) described how "learning, development, and readiness for new learning often require guidance and instruction, not just the passage of time…learning and often teaching precede development. New knowledge and skills result from support or scaffolding by an adult or expert peer" (as cited in Marshall, 2003, p. 2). "Relationships between teachers and families are important and help build environments that nurture children's growth and development. Positive relationships formed through warm, sensitive, and responsive care help children feel valued and gain more from their learning experiences" (NAEYC, 2006, p. 1). "The point is not that children need to be ready for school, but that schools need to be ready to guide, support, and instruct each child, regardless of the skills or knowledge a child brings. Age is largely irrelevant" (as cited in Marshall, 2003, p. 2).

"The earliest years of a child's education are fundamentally formative, and throughout the world, governments and educators are investing their respective resources in the development and enhancement of learning opportunities for young children" (Walsh & Gardner, 2005, p. 2). "The kindergarten year marks a period of rapid change in the ways children think about themselves and the world around them" (Bredekamp & Copple, 1997). "This change is influenced by both developmental factors (e.g., age, maturation) and environmental factors (e.g., schooling, home educational activities, and

family resources). Children acquire knowledge and skills that will prove integral to their future success in school and in life" (West et al., 2001, p. v).

The need for positive relationships has been identified as another feature of an experiential learning environment. emphasized that

> …day to day engagement of children and adults in shared activities contributes to the rapid progress of children in becoming skilled participants in the intellectual and social lives of their society…like social interaction and social arrangements are an essential aspect of child development, without which it would be impossible to conceive of a child developing" (as cited in Walsh & Gardner, 2005, p. 5).

"Young children need knowledge and new experiences to develop and thrive. Schools offer a plethora of learning and development opportunities for children" (West et al., 2001, p. xii).

Theory

Early Childhood Programs.

Bailey (2001) pointed out findings that "investments in high-quality early childhood education can increase readiness for school and provide long-term social benefits, particularly for low-income and minority children and those whose parents have little education" (p. 3). "Parents as Teachers [PAT] was developed in the 1970s when Missouri educators noted that children were beginning kindergarten with varying levels of learning readiness. It is designed to enhance child development and school achievement through parent education accessible to families" (Parents as Teachers [PAT], n. d., p. 1).

Parents as Teachers began in 1981 in Missouri as a pilot project for the first-time parents of newborns. “PAT was funded from the Missouri Department of Elementary and Secondary Education and the Danforth Foundation. Parents as Teachers services were available to all residents through every school district beginning in 1985” (Pfannenstiel & Zigler, 2007, p. 5).

“Since 1984, Missouri is the only state that mandates parent education and family services for every school district for children from birth to kindergarten entry. The program enhances child development and school achievement through parent education accessible to all families” (MODESE, 2005, p. 5).

“Parents as Teachers families come in all configurations, from all socio-economic levels, and from rural, urban and suburban communities. The program is adaptable to fit community needs. It is a national model, but a local program. Family participation is voluntary” (PAT, n. d., p. 1). “The parents are the teachers, supported by professional parent educators who suggest ways parents can effectively teach and nurture their young children. Parents as Teachers vision is that all children will learn, grow and develop to realize their potential” (PAT n. d., p. 8). “Parents as Teachers mission is to provide the information, support, and encouragement parents need to help their children develop optimally during the crucial early years of life” (PAT, n. d., p. 1).

Thirteen outcome studies have been conducted regarding the PAT programs since 1984. Outcome data have been collected on more than 16,000 children and parents. Some important PAT goal outcomes were

- Parents as Teachers children are more advanced than comparison children in language, problem solving, and other cognitive abilities, and social development.
- PAT children score higher on kindergarten readiness tests and on standardized measures of reading, math, and language in the elementary grades.
- PAT children score higher on kindergarten readiness tests and on standardized measures of reading, math, and language in the elementary grades.
- PAT children scored significantly higher on standardized measures of reading and math at the end of first grade than did comparison children. (Parents as Teachers, 2002, pp. 6-8)

"The Parents as Teachers Born to Learn model provides visit screenings, group meetings, and connection to a resource network designed to maximize the impact that parents have as their children's first and most influential teachers" (PAT, 2002, p. 5). "The Parents as Teachers partner with Even Start programs to provide literacy and language development services. A great deal of historical evidence demonstrates the connections between low adult literacy, family poverty and the academic performance of children living in poverty" (Parents as Teachers, n.d., [online]).

In a PAT research summary, Pfannenstiel & Zigler (2007) reported from a 2006 study of Missouri children who participated in Parents as Teachers and other early childhood experiences. Researchers investigated the impact of pre-kindergarten services on Missouri children's readiness for school and performance on state assessments at the end of early elementary years, are the children who were investigated. The results were assessed for school readiness by their kindergarten teachers using a School Entry Profile. The key findings of this research were

- Participation in Parents as Teachers predicts children's school readiness and third grade achievement, regardless of income level.
- Parents in the Parents as Teachers program read more frequently to their young children and were more likely to enroll their children in preschool, both which were positively linked to school readiness and later school achievement.
- A large percentage (82%) of poor children who participated with high intensity in both Parents as Teachers and preschool entered kindergarten ready to learn, as compared to only 64% of poor children who had no involvement in either service. (p. 2)
- Children in poverty who participated with high intensity in Parents as Teachers and preschool, with a minimum of two years in Parents as Teachers and one year in preschool, were ready for kindergarten as were their non-poverty peers with no preschool experience or PAT participation. (pp. 4-5)

- A similar pattern emerged for more affluent children. Parents as Teachers combined with preschool showed promise for narrowing the much-discussed achievement gap between low income students and more affluent students. (p. 2)

The Missouri Department of Elementary and Secondary Education publication about Parents as Teachers (2005) stated "Missouri continues to lead the nation as the only state that mandates and financially supports a universal access parent education program for its young families. PAT has spread to the other 49 states … with more than 3000 program sites" (p. 33). "Parents as Teachers has a long history of evaluation research that reflects positive outcomes and long term impacts for families, young children, and communities. There is continuous evaluation and research about outcomes for the children and parents served by PAT" (PAT, n.d., p. 12).

With the PAT and other research, it is evident that children come into formal education with variability in their knowledge, skills, and behaviors. Perhaps these children lack the opportunities to express their abilities. Even though this variability is considered normal as children enter school, all schools must be ready to address these differences.

The NAEYC's (1995) position statement on school readiness stated, "Early intervention services provide families with an array of comprehensive support services to help them provide the rich environment so critical for early learning of the children. The federally funded Head Start program is an example of this type of program" (p. 3).

The position statement discussed successful, effective intervention plans with somewhat different themes that some states already had in place that were successful.. Effective intervention efforts have several key elements:

- They provide comprehensive services to ensure that a wide range of individual needs is met;
- they strengthen parents' roles in supporting their children's development and learning; and
- they provide a wide array of firsthand experiences and learning activities either directly to children or through parent participation. (NAEYC, 1995, p. 3)

The Federal No Child Left Behind Act emphasized literacy and math skills, while reauthorization bills for Head Start called for the development of education performance standards. Research has found that "investments in high-quality early childhood education can increase readiness for school and provide long-term social benefits, particularly for low income and minority children and those whose parents have little education" (Bailey, 2001, p. 3).

According to Olson (2005), "The National Research Council recommends that all states draft content standards for early years education programs. American children under age 5 are spending part of their day in care outside of the home. Most states now fund or are creating preschool programs" (p. 2).

One problem that surfaced was the achievement gap of minority students. Flaxman (2003) reported on two research studies conducted involving closing the achievement gap of minority and immigrant students. These studies were conducted by

Ferguson and Ogbu. Their research findings on how to better help minority students academically was as follows: Ferguson felt the students should be "encouraged to meet the demands of academic work by changing classroom practice," while Ogbu felt that students should be "helped to modify parts of their identity that reject school success, through caring individuals and institutional practices" (pp. 4-5).

When speaking about high quality early education, Olson (2005) discussed the positive qualities of high-quality early childhood education. He noted,

> It enhances school readiness and reduces racial and ethnic achievement gaps. Short-and long-term studies show strong evidence pointing to the benefits of high-quality early childhood education, and how to achieve them. (p. 2)

> At-Risk children who participate in high-quality, center based programs have better language and cognitive skills in the first few years of elementary school than do similar children who did not have such experiences. They tend to score higher on math and reading tests, and they are less likely to repeat a grade, drop out of school, need special education or remedial services, or get into trouble with the law in the future. They also tend to complete more years of education and are more likely to attend a four-year college. (p. 1)

"Highly effective preparation for formal schooling is vital to shrinking the sizable academic gaps that already exist for these students when they enter kindergarten" (Bailey, 2001, p. 3).

Heart Start, a national initiative of Zero to Three, would like attention and accommodation for school readiness. They want the nation's federal, state, and corporate leaders to ensure that five basic emotional needs shared by every child are met:

1. health
2. time for unhurried caring
3. responsive care-giving that results from educated, understanding parents
4. safe and supportive environments that ensure an adequate standard of living and adequate space in child care settings
5. special help for special families through the integration of local community services. (Beck, 1993, p. 2)

Bailey (2001) reported that three primary factors have caused new attention on preschool education:

- First, there are concerns about the poor to mediocre quality of many childcare programs. Research showing that quality is important for all children has led some to argue that the only way to insure quality at a national level is to provide a comprehensive program of services for all young children.
- Second, in numerous surveys teachers report that a substantial proportion of children experience significant problems in transition to kindergarten.
- And, finally, the failure of many children to learn to read, the achievement gap between white children and children of color, and continued evidence of school failure for many children from low-income families have resulted in a call for increased attention to early education as one way to promote later school success for all children. (p. 3)

"Parents who do not send their children to preschool or child care can enhance their children's cognitive development" (as cited in Beck, 1993, p. 5).

The NAEYC (1995) believes, "It is the responsibility of schools to meet the needs of children as they enter school and to provide whatever services are needed in the least restrictive environment to help each children reach their fullest potential" (p. 1). According to Katz (1992), "children are more likely to cope successfully with their first school experiences if they have had positive prior group experiences away from their homes and familiar adults" (as cited in Beck, 1993, p. 4).

Katz (1992) noted, "All adults who work with small children can strengthen each child's thinking and learning ability by conversing and discussing the world, and giving children plenty of opportunities and time to work with their peers outside the home before starting school" (as cited in Beck, 1993, p. 6).

Weston (1989) stated, "Parents are a child's first teachers, and families are their first, and most enduring school" (p. 2). Morrow (1995) supported this idea by stating, "Parents or caregivers are the teachers that children have for the longest time. They are potentially the most important people in the education of their children. Research supports strong links between the home environment and children's acquisition of school-based literacy" (pp. 6-7).

What is Readiness?

Readiness means different things to different groups of people. There is not a consensus on what criteria should be used to determine school readiness for children. "Children are not innately ready or not ready for school. Their skills and development are strongly influenced by their families and through their interactions with other people and environments before coming to school" (West et al., 2000, p. 62).

According to Gnezda and Bolig (1988) "Readiness should cover all aspects of a child's development and the critical periods of growth from birth through the early school years. Readiness for school is built on children's curiosity and their intellectual, social, emotional, language, and physical development" (Saluja et al., 2000, p. 11). "Many children are in non-parental care arrangements the year before kindergarten. Child care centers and family child care homes are important early environments that affect children" (West et al., 2000, p. 62). Some children are further along than others in skills that have been acquired in their early years. "Readiness is not limited to a fixed set of skills that are presumed necessary for entry into kindergarten or first grade" (Gnezda & Bolig, 1988, p. 10).

In Meisels and Graue's work, it was noted that "readiness connects development to the requirements of a particular context—in relation to the start of formal schooling, it depicts the degree to which a child is capable of benefiting from the goals, expectations, and activities of a kindergarten program" (Graue, Kroeger, & Brown, 2003, p. 2).

"It is often assumed that tests exist to reliably determine which children are 'ready' to enter school. Because of the nature of child development and how children learn, makes it extremely difficult to develop reliable and valid measures of young children's abilities" (Meisels, 1987, p. 68). "Many of the criteria now used to assess readiness are based on inappropriate expectations of children's abilities and fail to recognize normal variation in the rate and nature of individual development and learning." (NAEYC, 1995, p. 1).

Meisels (1987) expressed, "Preschool children, by nature, are not good test-takers" (p. 69).

Maxwell (2001) said, “We can improve the fit of the readiness puzzle by enhancing both the condition of children as they enter school and the capacity of schools to educate the full range of children enrolled can improve the fit” (p. 7).

The task force, Ready for School Goal Team said that the condition of children must be considered across five domains:

1. Health and physical development
2. Social and emotional development
3. Approaches toward learning
4. Language development and communication
5. Cognition and general knowledge

The team said that the capacity of schools must be considered across four cornerstones:

1. Knowledge of growth and development of typically and atypically developing children
2. Knowledge of the strengths, interests and needs of each child
3. Knowledge of the social and cultural contexts in which each child and family lives
4. Ability to translate developmental knowledge into developmentally appropriates practice (Maxwell, 2001, p. 7)

As the National Education Goals Panel (1991) presented their position statement for the National Association of the Education of Young Children, it noted that “there is still much debate on what it means to be *ready* for school. Parents, teachers, school administrators, policy makers, and politicians are all concerned about young children and

whether or not they enter school *ready to learn*" (Kagan, Moore, & Bredekamp, 1995, p. 1).

The National Education Goals Panel position statement recognized that children's early learning and development is "multidimensional, complex and influenced by individual, cultural, and contextual variation." Therefore, any discussions of school readiness must consider at least three critical factors:

1. the diversity of children's early life experiences as well as inequity in experiences;
2. the wide variation in young children's development and learning; and
3. the degree to which school expectations of children entering kindergarten are reasonable, appropriate, and supportive of individual differences. (Kagan et al., 1995, p. 1)

In the position statement issued by the National Association for the Education of Young Children (1995), the National Association of Early Childhood Specialists reported:

> Learning does not occur in a rigid sequence of skill acquisition and because wide variability is normal, it is inappropriate to determine school entry on the basis of acquiring a limited set of skills and abilities. Schools may reasonably expect that children entering kindergarten will be active, curious, and eager to learn. They will know some things about themselves, and will be interested in making friends and sharing experiences with them. Today, not only do many kindergartens and primary grades focus on skill acquisitions in the absence of meaningful context, but the expectations that are placed on children are often not age-appropriate.

> Whether the result of parental pressures or the push to improve student performance on standardized tests, curriculum expectations of older children have been pushed down to earlier grades. Children entering kindergarten are now typically expected to be ready for what previously constituted the first grade curriculum. As a result, more children are struggling and failing. Even those children who have received every advantage prior to school entry find the inappropriate demands difficult to meet, often experiencing great stress and having their confidence in their own capacities as learners undermined. (NAEYC, 1995, p. 2)

The Ready Schools Resource Group of the Goals Panel (Shore, 1998) has outlined "Ten Keys to Ready Schools." They suggest principles to help every child grow in competence and meet high expectations:

1. Ready schools smooth the transition between home and school.
2. Ready schools strive for continuity between early care and education programs and elementary schools.
3. Ready schools help children learn and make sense of their complex and exciting world.
4. Ready schools are committed to the success of every child.
5. Ready schools are committed to the success of every teacher and every adult who interacts with children during the school day.
6. Ready schools introduce or expand approaches that have been shown to raise achievement.

7. Ready schools are learning organizations that alter practices and programs if they do not benefit children.
8. Ready schools serve children in communities.
9. Ready schools take responsibility for results.
10. Ready schools have strong leadership. (p. 5)

The NAEYC (1995) believes that the commitment to promoting universal school readiness requires

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

Readiness for kindergarten involves both the child and the instructional situation. According to Nurss (1987), readiness for kindergarten depends on "a child's development of social perceptual, motor, and language skills expected by the teacher and on the curriculum's degree of structure, the behavior required by the instructional program, and expectations of achievement by the end of the program" (p. 3).

Pursuing Assessments of Readiness.

As student performance and increased demand for accountability of education system continues to be on the forefront of political campaigns, the question of a child's abilities to be ready for school remains a topic for discussion. "Assessing preschool-age children is challenging. At this age, children's development is rapid and uneven, and their

development is greatly impacted by environmental factors such as the care they have received and the learning environments they have experience" (Shepard, Kagan, & Wurtz,1998, p. 7).

Whether it is for measuring school readiness or for other reasons—the question of the assessment of students is always a major concern when discussing accountability of the schools. "States have been left to develop their own frameworks, with guidance provided by the Nation Education Goals Panel, NAEYC, and other national efforts" (Maxwell, 2001, pp. 6-11). Saluja et al., (2000) expressed, "Understanding the condition of children as they enter school can provide clues to help parents and teachers understand children's performance later in their school career" (p. 12). "Serious misuses of testing with young children occur when assessments intended for one purpose are used inappropriately for other purposes" (Shepard, et al., 1998, p. 7).

In 2004, the National Institute for Early Education Research (NIEER) published an article regarding preschool assessment. It stated that

> Childhood assessment is a vital and growing component of high-quality early childhood programs…it is an important tool in understanding and supporting young children's development…it must employ methods that are feasible, sustainable and reasonable with regards to demands on budgets, educators and children…it is essential to document and evaluate program effectiveness. Equally important, it meet the challenging demands of validity (accuracy and effectiveness) for young children. It is a balance between efficiency and validity that demands the constant attention of policymakers – and an approach grounded

> in a sound understanding of appropriate methodology. (Epstein, Schweinhart, DeBruin-Parecki, & Robin, 2004, p. 1)

"Historically, the early childhood community has been reluctant to define school readiness and pursue assessment of young children on a wide-scale basis. There are good reasons for this position. Assessing young children is theoretically, psychometrically, and logistically difficult" (Saluja et al., p. 13). "The demand for standard methods to document children's readiness has become increasingly strong despite the difficulties in assessing young children" (Shepard et al., 1998, p. 7).

> There have been many policies made by organizations to guide the processes for the ways children will be assessed. The problem seems to be the danger of misuse of the data gathered from this testing ... "Data on the condition of children as they arrive at school are important in interpreting later accountability measures. This data shows how well early childhood services perform in raising the developmental level of young children prior to entry into school" (Saluja et al., 2000, p. 13).

"In the mid-1980s, rather than using readiness assessment for placement decisions, many states were developing readiness assessment systems to profile the condition of children as they entered school and developed classroom curriculum activities to better meet the needs of children" (Saluja et al., 2000 p. 6).

"Gnezda and Bolig (1988) conducted a national survey to gather information on pre-kindergarten and kindergarten testing. They reported that state-level efforts to assess children's readiness can be described as a pendulum swinging from standardized measures in the mid 1980s" (as cited in Saluja, et al., 2000, p. 5).

In the early 1990s, states began to move away from readiness testing.

> Shepard, Taylor, and Kagan (1996) conducted surveys to determine states' early childhood assessment policies and practices. Their study found that "most states had made efforts to move away from readiness testing by developing policies against the use of readiness testing…many states reported efforts to clarify the difference between readiness testing and screening, and how screening results should be used" (as cited in Saluja, et al., 2000, p. 6).

According to Epstein et al. (2004), the general uses for assessment can be provided in four types of information for and about their parent, teachers, and programs. Child assessment can

- identify children who may be in need of specialized services.
- plan instruction for individuals and groups of children.
- identify program improvement and staff development needs.
- evaluate how well a program is meeting goals for children.

The quality of an assessment depends in part upon decisions made before any measure is administered to a child. (p. 4)

"Assessment of children's condition at school entrance may play an important role in accountability measurement, because this information can provide baseline data against which future data on children can be compared" (Saluja et al., 2000, p. 13). "School readiness assessment typically refers to assessment of young children around school entry—right before kindergarten, at kindergarten entry or very early in the kindergarten year. The tools described as school readiness assessments vary in their purposes and design" (Maxwell & Clifford, 2004, p. 2).

"Screening programs for children entering school are widespread. Screening is used to predict which pupils are likely to have problems in regular classrooms. The screenings may be used to identify students who may be eligible for a particular program" (Hills, 1987, p. 2). Meisels and Tivnan, (1984) indicated that "screening is intended for all the children, the measures should be inexpensive, brief, simple to administer, and easy to interpret. Screening tools require lower predictive power than diagnostic measures" (p. 26). Hills (1987) indicated that "the terms screening and assessment are not interchangeable. Screening is a preliminary process for identifying children who may be at risk of future difficulty in school and those who may have special needs in learning" (p. 2). But Meisels went on to express that "screening alone is not sufficient for decisions about a child's placement or kind of instruction. Further assessment is necessary for those decisions" (p. 26).

"Developmental and pre-academic skills tests are based on outmoded theories of aptitude and learning that originated in the 1930s. The excessive use of these tests and negative consequences of being judged unready focused a spotlight on the tests' substantive inadequacies" (Shepard, 1994, p. 4). Maxwell (2001) discussed that schools play a very important role in the pursuit of readiness and how each school may have a different view of being ready for school. Maxwell and Clifford (2004) discussed, "Schools are an important piece of the readiness puzzle because…of different expectations about readiness. The same child with the same strengths and needs can be considered ready in one school and not ready in another school, regardless of their skills" (p. 1).

Shepard (1994) proposes, "Assessments should reflect and model progress toward important learning goals. Conceptions of what is important to learn should take into account both physical and social/emotional development, and cognitive domain" (p. 6). There are different ways to look at testing or assessing children as they enter kindergarten. In a report on assessment issues, the methods of giving readiness tests were discussed. The tests could be given in a group or individually. Even though individual testing could cost more, Rock and Stenner (2005) offered these thoughts for the reasons they think individualized testing is better. "Administrators…hold the attention and cooperation of a beginning kindergartner in a one-on-one setting more than in a group. Small children often enjoy the individual attention they get from the test administrator, which helps make the scores more accurate" (p. 16).

Some studies use time as a factor to study the achievement levels of the students. Rock and Stenner (2005) give some suggestions as to how to conduct a longitudinal study that has multiple retesting over a long period of time, perhaps over several years.

> In a longitudinal study, one scheduled to have multiple retesting over several years, a sizable share of the follow-ups might require one-on-one retesting because the children scatter as time passes. Starting with a group administration and then switching to one-on-one follow-ups could cause variance in the data that would be difficult to quantify. Individualized testing gives children the time they need to finish the assessment and thus gathers relatively complete information on each child. It also allows the test to be adapted to some degree to the abilities of each child. (Rock & Stenner, 2005, p. 16)

As Rock and Stenner (2005) have noted, "A useful test must be reliable, which means that it will produce essentially the same results on different occasions. Reliability can be measured in three ways: retesting, equivalent form, and internal consistency" (p. 17). Epstein et al. (2004) claimed

> We must guarantee that assessment reflects our highest educational goals for young children and neither restricts nor distorts the substance of their early learning. The following criteria for a comprehensive and balanced assessment system that meets the need for accountability while respecting the well-being and development of young children is as follows:
>
> - Require that measures included in an assessment be selected by qualified professionals to ensure that they are reliable, valid and appropriate for the children being assessed.
> - Develop systems of analyses so that test scores are interpreted as part of a broader assessment that may include observations, portfolios, or ratings from teachers and/or parents.
> - Base policy decisions on an evaluation of data that reflects all aspects of children's development—cognitive, emotional, social, and physical.
> - Involve teachers and parents in the assessment process so that children's behaviors and abilities can be understood in various contexts and so cooperative relationships among families and school staff can be fostered.
> - Provide training for early childhood teachers and administrators to understand and interpret standardized tests and other measures of learning

> and development. Emphasize precautions specific to the assessment of young children. (p. 10)

As the demand for standard methods to document the readiness of children and assess children's strengths, the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) updated and reissued the position statement in 2000. Taken together, these position statements indicate the goals of readiness assessment:

- Benefit children and the adults who work with children
- Be used for the purposes for which it is designed
- Be valid and reliable
- Be age appropriate, using naturalistic observations to collect information as children interact in "real-life" situations
- Be holistic, collecting information on all developmental domains (physical, social, emotional, and cognitive)
- Be linguistically and culturally appropriate
- Collect information through a variety of processes and multiple sources (collection of children's work, observations of children, interviews with children, parent reports, etc.)
- Be used to guide instruction and not to determine children's placement in school. (NAECS/SDE, 2000, p.6)

Concerns associated with testing are that the school may rely on a singular measure to recommend school entry or placement, use them for purposes for which they were not designed, or use them to determine curricular objectives. It is important that an

assessment be used for the purpose it was designed. When a school has defined "school readiness" and determined the purpose of the assessments, it can then select which measures to use. (Eddy, 2004, p. 2)

The National Association for the Education of Young Children states the purpose of assessment should be one or more of the following:

- provide a baseline of what information the child knows and needs to learn
- assist in planning instruction and use of teaching strategies
- evaluate program goals and effectiveness of a program
- identify children with special needs (Eddy, 2004, p. 3)

According to Rock and Stenner (2005), "The best readiness tests are adaptive, which means that instead of asking every child identical questions, they give children harder questions if they do well on the early questions and easier questions if they do poorly early on" (pp. 16-17).

Delayed Entry into Kindergarten.

"The starting line for the race to kindergarten has changed … no longer is it a foregone conclusion that your five year old will start kindergarten in the fall … parents are deciding to 'redshirt' their children and give them an extra year" (Westmoreland, 2008, p. 1). "School entry is usually based upon birth date. When chronological age is the criterion, the 12 month age range and individual differences in development and experience almost always result in a heterogeneous group" (Hills, 1987, p. 2). "Age is one characteristic that children generally have in common when they start kindergarten. However, when children are 5 years old, they vary greatly with regard to their physical, social, emotional, and cognitive development" (Saluja et al., 2000, p. 5).

When readiness is an issue for an individual child, two interventions are frequently suggested that are premised on allowing time for development.

> The first, academic redshirting, involves delaying entry to kindergarten so that a child will have more time to grow and develop. The second, kindergarten retention, is used for children who are already in the kindergarten context who are not making adequate progress. A second year in kindergarten provides more time for maturation and acquisition of skills. (Graue, Kroeger , & Brown, 2003, p. 2)

"There is no clear-cut evidence that delaying kindergarten ... will provide some magical academic advantage. There is so little entrance age evidence, and because some evidence is conflicting, there is not a strong academic basis for delaying kindergarten entrance…" (Crosser, 1998, p. 3). Meisels (1992) pointed out, "Small-scale studies of limited geographic areas suggest that delayed kindergarten entrance involves anywhere from 9% to 64% of the eligible kindergarten population" (as cited in Crosser, 1998, p. 3).

"The beliefs of families, preschool, and kindergarten teachers, school administrators, and pediatricians concerning the prerequisites for kindergarten influence decisions about school entry "(Marshall, 2003 p. 3). As children enter school, they bring with them a vast array of experiences from their socio-economic culture that may not be accepted at school. "Nuclear and extended family relationships and cultural contexts also affect social behavior. Many children thus may need help in bridging their differences and in finding ways to learn from and enjoy the company of one another" (McClellan & Katz, 2001, p. 3).

The effects of delaying kindergarten students should be considered when looking at the children's school career in the future. According to Eddy (2004) "Parents are

encouraged to keep in mind that when a child is a year older when he begins kindergarten, he will also be a year older when he graduates" (p. 4).

Both race and economic status affect the quality of education available to students. Issues of equity are of particular concern in the primary grades. Shore (1998) reported,

> Research shows elementary schools in low-income communities differ in respects from schools in more affluent communities. There are many factors including staff characteristics, available resources, scheduling, the availability of before- and after-school programs, parent involvement, and school climate—may be affected….of all the children in our nation's schools, poor children—no matter their race or ethnicity –are least likely to profit from traditional schooling. These children are the most likely to be placed in low academic tracks and the most likely to be held back in the same grade for more than one year. (p. 14)

Some parents choose to red shirt their children before their entry into kindergarten. As Crosser (1998) noted, "Redshirting may be a response to demands for a high level of school readiness. Proponents of redshirting often point out that there is no definitive evidence to show that redshirting harms children in the long term" (p. 2). "There is a great deal of speculation that many individuals who were redshirted as kindergartners may have special needs that were misdiagnosed as immaturity and that should have been treated by some form of direct intervention other than delayed entry" (Malone, West, Flanagan, and Park, 2006, p. 5). According to Marshall (2003), whether "the decision to redshirt children is made by their parents alone, or with teacher input, the reasons given are similar to those given for retaining children" (p. 5). "Redshirting has so

far failed to provide a clear picture of its short- and long-term effects" (Malone et al., 2006, p. 5). "Either the child needs more time to mature, or the extra year would give a lower performing student a chance to catch up to meet the expectations of kindergarten" (Marshall, 2003, p. 5). Curricular concerns may … result from redshirting children. As the kindergarten group grows older through withholding some children from entrance to school, the focus of instruction typically shifts upward in a response to the needs of the older students" (as cited in March, 2005, p. 10). "A potentially significant and negative effect of this upgraded curriculum might jeopardize the success levels of age-appropriate students because they do not have the cognitive and social maturity to meet these new and accelerated instructional and behavioral demands" (as cited in March, 2005, p. 3). "This may place the youngest children in a curriculum… at the lowest end of achievement. The impact of having class peers achieving at a higher rate of success may have implications for social and emotional issues" (as cited in March, 2005, pp. 8-10).

> The National Center for Education Statistics (NCES) reports
>
> academic redshirting occurs at the rate of about 9% per year among kindergarten-age children. According to NCES, boys are more likely to be redshirted than girls, and children born in the latter half of the year are more likely to be redshirted than those born earlier. The NCES report also shows that white, non-Hispanic children are more than twice as likely as black, non-Hispanic children to have entered kindergarten later than their birthdays allowed (as cited in Katz, 2000a, p. 2).

"The effects of redshirting are similar to effects of retention. There is a temporary advantage to the redshirted child, but these differences are of little practical significance and usually disappear by grade three" (Marshall, 2003, p. 5).

Data collected for the large-scale National Household Education Survey, NCES (1997), indicated that

> 9% of the first- and second-graders had been held back from kindergarten. Surveyed parents reported that children who had delayed kindergarten entrance one year were most likely to have been male (64%), white (73%) and born between July and December (70%). Compared to children born in the first quarter of the year, children born in the summer months were twice as likely to have delayed kindergarten entrance one year after they were first eligible. (as cited in Crosser, 1998, p. 2)

The position statement on kindergarten trends developed by the National Association Early Childhood Specialists in the State Department of Education (2000) states, "Not only is there a preponderance of evidence that there is no academic benefit from retention in its many forms, but there also appear to be threats to the social-emotional development of the child subjected to such practices" (as cited in Marshall, 2003, p. 2).

"Schools must be able to offer continuous progress for children through the primary grades, recognizing that children's developmental timetables do not conform to the yearly calendar" (NAEYC, 1995, p. 3). Most states determine regulations regarding kindergarten entrance age, "schools place the entry requirement for kindergarten entrance at about five years. The emphasis on age prerequisites obscures the fact that maturation is one of many factors that have impact upon academic development" (March, 2005, p. 3).

NAEYC, (1995), states that

> The investment and commitment needed to ensure that every child enters school ready to succeed and that schools are effective in educating every child will not be small. We must provide every child with the firm foundation so critical to learning in school and we must ensure that schools are prepared to meet the needs of individual children as they arrive at the school door. (p. 3)

"Variation occurs within groups of children regardless of age. Background experiences and life at home and in the community impact upon school achievement. Children who are of identical chronological age may show remarkable differences in academic success" (March, 2005, p. 3).

"Gender is assumed to have both a genetic component and reflects influences of environment and culture. There is evidence of differences in parent and teacher expectations of boys and girls. Gender may also predispose children to interest in particular subjects" (Zaslow, Calkins, Halle, Zaff, & Margie, 2000, p. 20).

Researchers often investigate differences in preschool children's readiness regarding gender and age. Dunne (2005) reported that "…the NCES took a close look at gender and age differences. They found that girls and boys aren't that different when they begin kindergarten … studies of older students found a gender gap in later grades" (p. 3). Temperamental characteristics such as shyness can influence approach to social situations in the classroom. Cultural patterns predispose children to being familiar with, and comfortable with, certain modes of interaction into classroom. Dunne (2005) reported that "researchers found a significant difference between the oldest and youngest kindergartners, with older students generally performing one standard deviation above the mean in all developmental domains assessed" (p. 3).

Zaslow et al., (2000), states that

> There are cultural differences in the degree to which children are expected to listen to, and receive guidance from, adults as opposed to interacting and questioning. There are differences in the degree to which children are comfortable with working independently and with differences in the preferred modality or approach to learning tasks such as manipulating materials, visual representations and verbal discussion (p. 20).

In the research of the "gift of time," small groups of children with delayed kindergarten entry were studied. The following findings were reported:

> It might be helpful to highlight within the developmental approaches of building on what we know about child development and articulating the responsive act of teaching in concrete ways…it may just be that the gift of time is too generic to support the development of individual or groups of children…the gift of time does not address specific needs or promote agency in teachers. (Graue et al. 2003, p. 9)

According to March (2005) "The researchers advocate more responsive approaches and action for specific children. If children are not ready for the programming, it speaks more about our inability to be inclusive and respond to their needs than to their particular skills and development" (p. 2). "When children with weak academic skills predictably struggle in school, children who cannot sit still, are disruptive in class, or otherwise show poor self-regulation are at greater risk … of other problems later in life" (Olson, 2005, p. 4).

Poverty and School Readiness.

Zaslow et al. (2000) reported that the "large number of young children in poverty is cause for concern because it has been found that poverty during the first five years of life is more detrimental than poverty experienced at any other point during childhood or adolescence" (p. 35). Denton and West (2002) reported that "differences in children's overall achievement linked to their family's poverty status, race/ethnicity, and school type persist from kindergarten through the spring of first grade" (as cited in Boethel, 2004, p. 65).

"Poverty before age five is associated with few total years of schooling, so it would appear a trajectory for school failure and dropout… poverty can influence developmental outcomes…a home environment unsuitable for early learning and development, physical dangers for children" (Zaslow et al., 2000, p. 35). Bowman, Donovan, and Burns (2001) concluded,

> Young children who are living in circumstances that place them at greater risk of school failure—including poverty, low level of maternal education, maternal depression, and other factors that can limit their access to opportunities and resources that enhance learning and development—are much more likely to succeed in school if they attend well-planned, high-quality early childhood programs. (as cited in Boethel, 2004, p. 34)

High risk families are likely to require more intensive services than the typical parenting intervention programs. Raver, (2003) noted "a small percentage of young children in poverty struggle with serious emotional and behavioral disturbance. A range

of programs are designed to lower the risk of young children's development of serious problems in families struggling with multiple chronic stressors" (p. 3).

> Parents in poverty are more often punitive and coercive, and often deal with their children in a way that lacks support, involvement and consistency…Poor families often have no choice but to live in undesirable neighborhoods and their children receive low-quality child care which can have detrimental effects on child development. While a lot of attention has been focused on the negative effects of poor neighborhoods on child outcomes during early childhood, it turns out that much of the impact of poor neighborhoods may be mediated through the home environment. (as cited in Boethel, 2004, p. 41)

"Parents who provide warm, supportive home environments for their children, who use appropriate parenting behaviors and who provide stimulating, age-appropriate learning experiences for their children may be able to off-set the potentially negative influences of living in an impoverished neighborhood" (Zaslow et al., 2000, p. 58).

Social Competence and School Readiness.

"Social development begins at birth and progresses rapidly during the preschool years. It is clear that early childhood programs should include regular opportunities for spontaneous child-initiated social play" (McClellan & Katz, 2001, p. 1). "Social and emotional development are distinguished from each other in that social development reflects the child's social interactions" (Zaslow et al., 2000, p. 19). "Children whose entry into school has been delayed do not seem to gain an advantage socially … more drawbacks than advantages are evident" (Marshall, 2003, p. 7).

Zaslow et. al.(2000) states that

> Learning in school occurs through interactions with teachers and peers. Positive adaptation to school requires of children such social behaviors as the ability to take turns, to work cooperatively in a group, to show empathy toward others and assertiveness (e.g., asking questions, assumption of leadership roles) without aggressiveness. Positive self-concept and the ability to interpret one's own feelings and those of others contribute to positive interactions and engagement in learning. (p. 19)

When looking at the needs of children and their relationships with others, it is often evident that their early experiences as children mold their future. According to McClellan and Katz (2001)

> A child's long-term social and emotional adaptation, academic and cognitive development, and citizenship are enhanced by frequent opportunities to strengthen social competence during childhood. Unless children achieve minimal social competence by about the age of 6 years, they have a high probability of being at risk into adulthood. Because social development begins at birth and progresses rapidly during the preschool years, it is clear that early childhood programs should include regular opportunities for spontaneous child-initiated social play. (McClellan & Katz, 2001, p. 1)

Allen and Marotz (2003) noted that researchers suggest that children under the age of 6 are developmentally less capable of

1. thinking about an event in its entirety

2. selecting from a menu of possible behaviors in response to any new, interesting, or anxiety-inducing event
3. comprehending an event separate from their own feelings
4. modifying their physical reactions in response to change in stimuli (as cited in Jewett & Peterson, 2003, p. 1).

Hartup (1992) noted," Peer relationships contribute to social and cognitive development and how we function as adults. The single best childhood predictor of adult adaptation isn't grades or classroom behavior, but rather, the adequacy with which the child gets along with other children" (as cited in McClellan & Katz, 2001, p. 1). "Children who are generally disliked, who are aggressive and disruptive, who are unable to sustain close relationships with other children, and who cannot establish a place for themselves in the peer culture are seriously at risk" (as cited in McClellan & Katz, 2001, p. 1).

Transition to School.

Early childhood educators and parents have varying expectations about the transition to school. "Nature of family support for children starting school, teacher expectations, families, and parent involvement as well as children's expectations of school all have a significant impact on transition experiences" (Dockett & Perry, 1999, p. 1). "Most children entering kindergarten today have much wider experience outside the home than children of the past. New research about children's learning confirms some historical beliefs about effective educational practices" (Egertson, 1987, p. 1). "Children's earliest school performance, including kindergarten performance, generally sets a pattern for their future success or lack of it" (Boethel, 2004, p.vii).

Bailey (1999) summarized the importance of transition into school in the following way,

> Kindergarten is a context in which children make important conclusions about school as a place where they want to be and about themselves as learners vis-à-vis schools. If no other objectives are accomplished, it is essential that the transition to school occur in such a way that children and families have a positive view of the school and that children have a feeling of perceived competence as learners. (as cited in Dockett & Perry, 2001, p. 2)

Summary

Literature suggests that the early years are the most important years of a child's life. Nature and nurture play a large role in a child's first learning experiences. Nature and nurture also help in forming developmental skills needed in future years. High quality early childhood education can increase readiness for school and narrow the achievement gap between low income students and other income students. The definition of school readiness has not been narrowed down to form a consensus of what it should mean in the world of education. Most individuals involved in this debate agree that school readiness should begin at birth and continue through a child's early years of development until kindergarten entry.

As we look into school readiness research, there are a few elements that continually appear. Most of the children who repeat kindergarten are from disadvantaged backgrounds. These children probably live in poverty and do not receive any type of early childhood education. Children who start kindergarten later than their peer group are held back for academic advantages that may come later in their school career. Other

children who start kindergarten later than their peer group are labeled as possibly delayed and need another year to catch up before their entrance into kindergarten. Most of the children have been under a caregiver's watch rather than the parent(s) during their early years.

The acts of academic red shirting and retention of kindergarten students is a controversial issue, whether it is done by parents or school officials. Most research shows that these methods do not increase academic achievement for an extended time. It isn't known if the extra time will give the delayed students advantages in the future or to improve their likelihood for a successful future.

Chapter III--Method

Introduction

This causal-comparative study analyzed the school readiness screening scores of pre-kindergarten students who participated in any type of early childhood education programs and the pre-kindergarten students who did not participate in any type of early childhood education program. It analyzed the school readiness screening scores of pre-kindergarten male and female students upon their entrance into kindergarten.

The purpose of this study was to identify the difference in the school readiness scores of students who experienced some type of early childhood programs as opposed to students who did not participate in an early childhood program and the difference in school readiness screening scores between female and male students involved in this study. This chapter will describe the subjects, sampling procedure, research setting, research design/ procedure, and statistical treatment of data. Although the majority of previous studies and research agree that early childhood programs affect school readiness, questions remain regarding the lack of participation in the programs that were offered students in this study and how this affected students in the small rural school.

> Researchers from a variety of fields using a variety of testing approaches have consistently found a gap between the readiness of white children and the readiness of Black and Hispanic children entering school. The concept of readiness has no obvious unit of measurement. Lacking such a tool, researchers have used a range of tests to measure different dimensions of the skills and behaviors—word comprehension, reading, math, the ability to sit still—that make a child ready to

> enter school. If a test is accurate, a child's score can be used to predict his future success or achievement. A student who is measured as more ready, should have greater success in meeting the demands or challenges of school. (Rock & Stenner, 2005, p. 1)

Subjects

The subjects for this study were students who attended a small rural school district located in southern Missouri. The school population was approximately 540 at the time the research was conducted. This school was accredited through the Missouri Department of Elementary and Secondary Education. The researcher received permission to examine each student's permanent record in grades kindergarten through 12th-grade from the school's Board of Education. The criteria used to choose the school readiness scores were

- the student's permanent record must contain school readiness scores as a part of the screening administered upon entry into kindergarten
- the student must be an active student attending school in this school district.

Sampling Procedure

The subjects for this study were students who are actively attending the school district. The records were researched during the 2008-2009 school year. The researcher received permission to examine each of the student's permanent records in grades kindergarten through 12th-grade. All student permanent record data were examined individually to determine if each student's permanent record met the criteria for the study. A permanent record was chosen for this study if it contained school readiness

screening test scores and the student was actively attending the school district. School readiness screening test score information was collected from 321 students. These students had taken readiness tests as part of the screening process before their entry into kindergarten. The readiness scores were taken from the following school years--1995-1996, 1996-1997, 1997-1998, 1998-1999, 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005, 2005-2006, 2006-2007, 2007-2008, and 2008-2009.

Research Design

Researchers conduct causal-comparative studies seeking to explore relationships among variables with an attempt to explain phenomena of interest. The manipulation of variables by the researcher is not permitted but attempt to explore causation. A causal-comparative research design was chosen for this study because the investigator attempted to determine the differences that already existed between groups of students.

This causal-comparative study uses comparison testing procedures to investigate the possibility of a significant difference between school readiness screening scores of students who attended some type of early childhood education programs and the school readiness scores of students who did not participate in any type of early childhood education program. This causal-comparative study will use comparison testing procedures to investigate the school readiness screening scores of male students and female students upon their entrance into kindergarten.

The scores received from the school readiness screening scores were used to determine the level of school readiness of each student. Every student in grades kindergarten through 12th-grade was used in this study if there was data from assessments

that could be used in this research. Students were chosen based on their participation in the school readiness screening prior to their entrance into kindergarten.

The kindergarten students took the Developmental Indicators for the Assessment of Learning (DIAL-3) before their entry into kindergarten to determine their level of kindergarten readiness. The DIAL-3 provides scores for Motor Area, Concepts Area, Language Area, Self-Help Development and Social Development. The DIAL-3 indicates behavioral observations as well as a parent questionnaire. The percentile ranks and standard scores are provided.

The first, second, and third grade students took the Scholastic Kindergarten Readiness Test (KRT) before their entry into kindergarten. This test assists in determining a student's readiness for beginning kindergarten. The fundamental purpose of the KRT is to determine the extent to which competencies have been developed. The subtests are Vocabulary, Identifying Letters, Visual Discrimination, Phonemic Awareness, Comprehension and Interpretation, and Mathematical Knowledge. The KRT levels of readiness can be used for diagnostic assistance. The levels of readiness are related to percentiles and stanines.

The fourth, fifth and sixth grade students took the Developmental Indicators for the Assessment of Learning (DIAL-3) before their entry into kindergarten to determine their level of kindergarten readiness. The DIAL-3 provides scores for Motor Area, Concepts Area, Language Area, Self-Help Development and Social Development. The DIAL-3 indicates behavioral observations as well as a parent questionnaire. The percentile ranks and standard scores are provided.

The 7th-grade, 8th-grade, 9th-grade, 10th-grade, 11th-grade, and 12th-grade students took the Missouri Kindergarten Inventory of Developmental Skills (KIDS) assessment before their entry into kindergarten. The KIDS test is a screening battery developed by a State Task Force on Early Childhood Screening. The areas that are assessed are Number Concepts, Language Concepts, Auditory Skills, Visual Skills, Paper and Pencil Skills, and Gross Motor Skills. A parent questionnaire is included to obtain information regarding the child's development as part of the screening process.

Independent Variable

Early Education Programs. The types (if any) of early educational programs that the students participated in before their entrance into kindergarten.

Dependent Variable

School Readiness Screening Scores. Scores from screening the pre-kindergarten students received before their entrance into kindergarten.

Hypotheses

Null Hypothesis # 1.

There is no significant difference between the school readiness screening scores of the pre-kindergarten students who participated in any type of early childhood education programs and the pre-kindergarten students who did not participate in any type of early childhood education program.

Null Hypothesis #2.

There is no significant difference between the school readiness screening scores of the pre-kindergarten male and female students upon their entrance into kindergarten.

Research Setting

The population of this small rural school district in southern Missouri has remained at approximately 540 students in grades kindergarten through 12th-grade for the past 13 years. The district hasn't had a sizeable increase or decrease in the student population in recent years. The district has one elementary school which houses grades pre-kindergarten through sixth grade and one high school building which contains grades seventh through twelfth grades.

The January Membership Demographic Data reported by the Missouri Department of Elementary and Secondary Education (MODESE) in 2008 showed the student population was 540.

The student breakdown (in percentages) by Race and Ethnicity categories in 2004-2008 were

- Asian 0.60% to 0.20%, (note a decrease)
- Black 4.10% to 0.50%, (note a decrease)
- Hispanic 0.90% to 0.70%, (note a decrease)
- Indian 1.30% to 1.30%, and
- White 93.10% to 97.20%.

During that same school year, the Free/Reduced Lunch percentages were

- 61.10% in 2004,
- 61.30% in 2005, 59.50% in 2006,
- 61.50% in 2007, and
- 54.50% in 2008.

Thus, based on the statistics from the population of free and reduced sub-group of students, the school qualified as a School-Wide Title I School which served all of the students in the elementary building. (See Table 1)

Table 1

Demographics: Study Site of High School Data

Year	2004	2005	2006	2007	2008
Total Enrollment	534	544	566	551	540
Asian	3	3	3	1	1
Number/Percent	0.60	0.60	0.50	0.20	0.20
Black	2	3	4	3	3
Number/Percent	0.40	0.60	0.70	0.50	0.60
Hispanic	5	7	9	8	4
Number/Percent	0.90	1.30	1.60	1.50	0.70
Indian	7	9	10	6	7
Number/Percent	1.30	1.70	1.80	1.10	1.30
White	497	522	540	533	525
Number/Percent	93.10	96.00	95.40	96.70	97.20
Free/Reduced	319	323	335	339	293
Number/Percent	61.10	61.30	59.50	61.50	54.50

Note: The source of the data was the Missouri Department of Elementary and Secondary Education core data that was submitted by Missouri Public Schools as of October 24, 2008. The January Membership Data was used as the denominator when calculating the percent.

The district has a Title I Pre-School program which serves the students with indicated needs first. The district also has a Parents as Teachers program, a voluntary program for parents before their children enter school. During the 2008-2009 school year, there were 56 students targeted for extra help as At-Risk students in grades kindergarten through sixth grade. There were 26 students targeted for extra help as At-Risk students in grades 7-12. The school district initiated an At-Risk program at the beginning of the 2008-2009 school year due to the continued concern about the drop-out rates and low graduation rates indicated in the APR. The school district is in the second year of School Improvement because of low subgroup scores on the state testing—Missouri Assessment Program (MAP).

In order to meet the identified problem areas of the Adequate Yearly Progress (AYP), the school district purchased a software program to help those students who were at risk of failing in the regular classroom.

Permission was given by the district to use data from the students' permanent records who were currently in grades kindergarten through 12th-grade. The Board of Education and Administrators expressed concern with the PAT program in the years 2000-2005. They were interested in the outcome of the study and encouraged the research concerning the early childhood programs that serve the district before students enter kindergarten.

Statistical Treatment of Data

This causal-comparative study uses a t-test for finding the difference in the means of the school readiness screening scores of the students who attended any type of early childhood education programs and the students who did not attend any type of early

childhood education program. The t-test will also be used to find the difference in the means of the school readiness screening scores between the male and female students.

The groups of students who will be compared are those students who participated in some type of early childhood education program before entering kindergarten and those students who did not participate in any type of early childhood education program before entering kindergarten. The other groups of school readiness scores compared were between the male and female students. All of the kindergarten assessments occur in the spring before entry into kindergarten. This causal-comparative approach began with a difference in the groups. The researcher will look for possible causes for, or consequences of, this difference.

Summary

This causal-comparative study analyzed the school readiness screening scores of pre-kindergarten students who participated in any type of early childhood education programs and the pre-kindergarten students who did not participate in any type of early childhood education program and the school readiness screening scores of pre-kindergarten male and female students upon their entrance into kindergarten. In this chapter, the method of investigation of the study has been discussed. The statistical data of the school is important to the study. The study was limited by the demographic characteristics of the population. The school has a high rate of students who qualify for the free and reduced breakfast/lunch program. Typically, researchers of early education programs narrow their studies to areas where there is a highly concentrated population of poverty level families. This study is unique because it focuses on the rural school setting. The race and ethnicity categories as well as attendance rates seemed to change very little

in the subgroups of the school population during the years studied at this small rural school district. The results of the causal-comparative study with hypothesis testing will continue with the analysis of data and the statistical treatment discussion in Chapter IV.

Chapter IV—Results

Introduction

This causal-comparative study analyzed the school readiness screening scores of pre-kindergarten students who participated in any type of early childhood education programs and the pre-kindergarten students who did not participate in any type of early childhood education program and the school readiness screening scores of pre-kindergarten male and female students upon their entrance into kindergarten. The purpose of this study was to identify the difference in the school readiness scores of students who experienced some type of early childhood programs and the difference in school readiness screening scores of the male and female students upon their entrance into kindergarten.

The independent variable was the types (if any) of early education programs in which the students participated before their entrance into kindergarten. The dependent variable was the school readiness screening scores gathered from the screening of each pre-kindergarten student before their entrance into kindergarten.

Participants.

The school readiness screening scores were collected from a small rural school located in southern Missouri. The student scores were analyzed to look for a significant difference in school readiness screening scores of the pre-kindergarten students who participated in any type of early childhood education programs such as Parents as Teachers, Title I Preschool, and Early Childhood Special Education Preschool and the pre-kindergarten students who did not participate in any type of early childhood

education program. Another element of the research was to discover if there was a significant difference between school readiness screening scores of pre-kindergarten male and female students upon their entrance into kindergarten.

Each student's permanent record was reviewed to find all of the students who had data that could be used for this study in kindergarten through twelfth grade from in the range of years, 1995-1996 to 2008-2009. Each school readiness screening score was recorded. The criteria used to choose the school readiness scores were

- the student's permanent record must contain school readiness scores as a part of the screening administered upon entry into kindergarten
- the student must be an active student attending school in this school district

Each student's percentile score was entered in order to calculate the mean scores (see Figure 1). For each statistical test, the individual student score was categorized into a spreadsheet. The two groups being compared are

- students who participated in some type of early childhood education program
- students who did not participate in an early childhood education program.

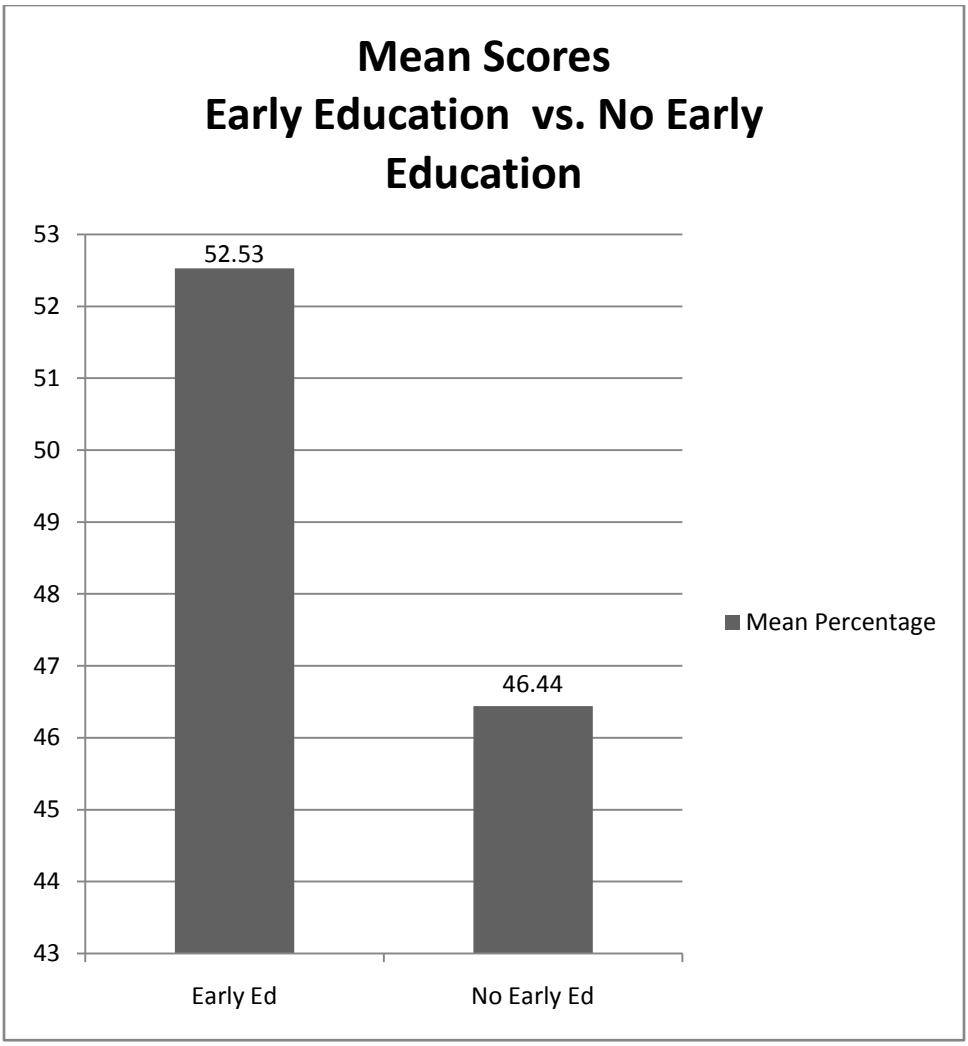

Figure 1. Mean Scores of Early Education vs. No Education Programs

Results and Analysis of Data

Early Childhood Programs Comparison.

The school readiness screening score percentiles were averaged (kindergarten through 12th -grade) to create a mean score for each variable in the comparison of early childhood programs and the school readiness screening scores of students who did not attend some type of early childhood program. Using GraphPad InStat, version 3.06, (Motulsky, 2003) the mean scores were entered to calculate a two-tailed P-value test.

Table 2 shows the statistical information that was used in the calculations to compare the students' scores.

Table 2
Early Education Programs versus No Early Education Programs Statistics

	Early Education Program(s)	No Early Education Program(s)
Mean	52.53	46.44
Standard deviation	23.63	22.50
Sample size	232	89
Standard error of mean	1.55	2.39
Lower 95% Confidence interval	49.49	41.69
Upper 95% Confidence interval	55.57	51.19
Minimum	0.0	0.0
Median 50^{th} percentile	53	49
Maximum	99	99
Normality test Kosmogorov and Smirnov (KS)	0.04	0.07
Normality test P value	>0.10	>0.10
Passed normality Test	Yes	Yes

The P-value is the fraction of all possible results obtained under the null hypothesis where the difference is as large as or larger than observed. The P-value is used

to weigh the strength of the evidence. The P-value answers the question: If the populations really did have the same mean, what is the probability of observing such a large difference (larger) between sample means in an experiment of this size? The P-value is a number between 0 and 1 that reflects the strength of the data that are being used to evaluate the null hypothesis. A significant P-value threshold was set at 0.05 significance level. A result is considered to be statistically significant if the populations were identical.

If a result is statistically significant, there are two possible explanations:

- The populations are identical, so there really is no difference. By chance, the result obtained was larger values in one group and smaller values in the other. Finding a statistically significant result when the populations are identical is considered making a Type 1 error. If the P-value is defined statistically significant as $P > 0.05$, then the type 1 error will be made in 5% of experiments where there really is no difference.
- The populations really are different, so the conclusion is correct. (Motulsky, 2003)

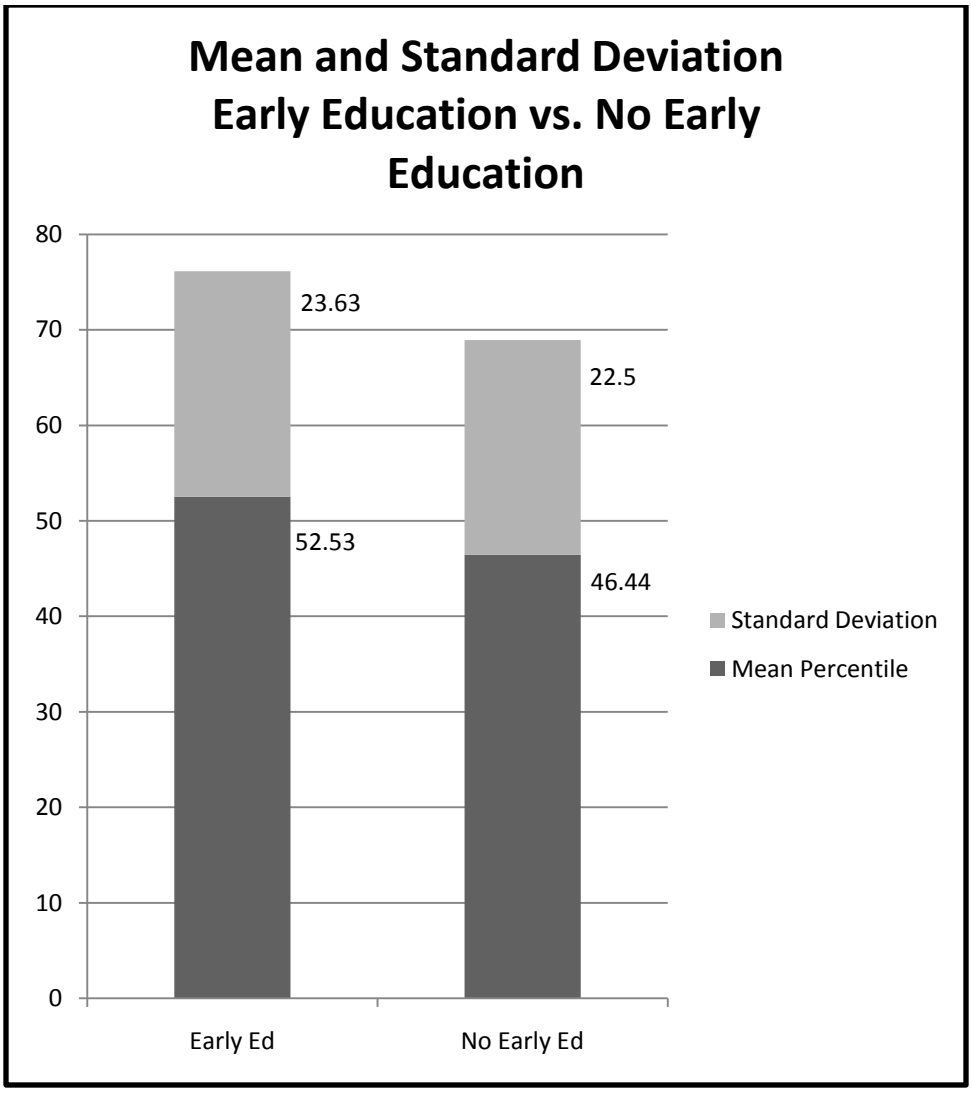

Figure 2. Mean Percentile and Standard Deviation of Early Education vs. No Early Education Programs.

In Figure 2, the standard deviation was calculated to measure the amount of variability there was from the mean. The mean percentile for the students with some type of early education was 52.53 and the standard deviation was 23.63. The mean percentile for the students with no early education was 46.44 and the standard deviation was 22.5. The students with no early education programs had a lower mean percentile and standard deviation when compared to the students that had some type of early education program.

An assumption test was conducted to determine if the standard deviations (SDs) were equal. The t-test assumes that the groups come from populations with equal SDs. The SD quantifies scatter or how much the values vary from one another. The SD does not change predictably as more data is acquired. The SD quantifies the scatter of the data, and increasing the size of the sample does not increase the scatter. The SD might go up or it might go down. It can't be predicted. On the average, the SD will stay the same as sample size gets larger. (Motulsky, 2003)

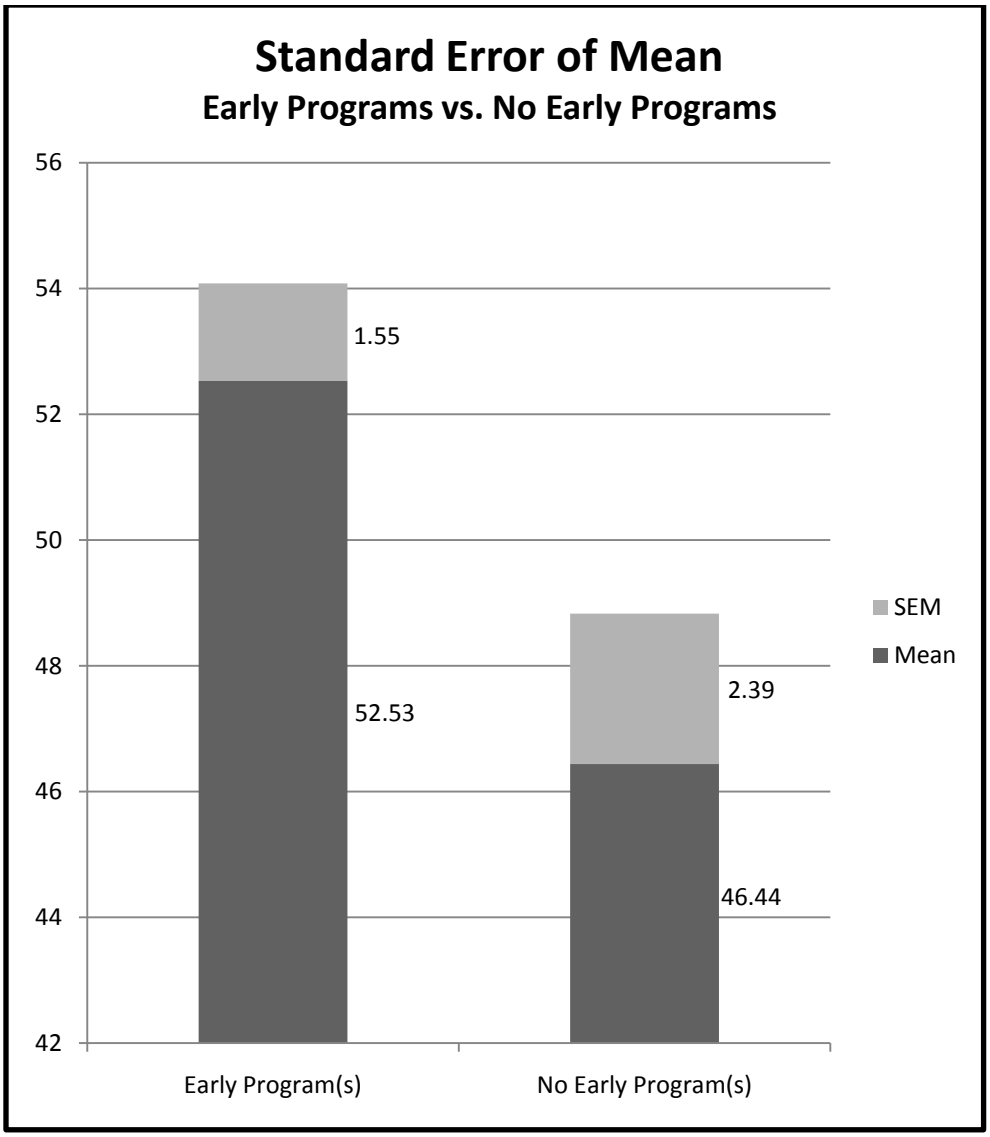

Figure 3. Standard Error of Mean of Early Education programs vs. No Early Education

In Figure 3, the standard error of the mean is the standard deviation of the sample means for samples taken from the same population. (Bluman, 2007) The t-test assumes that the data are sampled from populations that follow Gaussian distributions. (Motulsky, 2003)

The standard error of mean of the students who participated in early childhood programs is 1.55. The standard error of mean of the students with no early childhood programs is 2.39.

Early Education vs. No Early Education

Unpaired t-test. The assumption test answered the question, "Are the standard deviations equal?" The t-test assumed that the means come from populations with equal SDs thus the following calculations test that assumption.

F = 1.103

P-value = 0.6025

This test suggests that the difference between the two SDs is not significant. This assumption was tested using the method Kolmogorov and Smirnov, both groups of data passed the normality test. (Motulsky, 2003) There is no significant difference between the SDs of early childhood programs and no early childhood programs.

An unpaired t-test was administered using the statistical data to discover if a significant difference existed between the mean of students who participated in some type of early childhood education programs and students who did not participate in an early childhood education program. The unpaired t-test was calculated to answer the following question, "Do the means of the students who attended some type of early education program and the means of the students who did not attend some type of early education program differ significantly?" The two-tailed P-value is 0.0370, which is considered significant when

t = 2.095, with

319 degrees of freedom, and

a mean difference of -0.6092.

The 95% confidence interval of the difference: -11.813 to -0.3700.

Null Hypothesis # 1.

The null hypothesis for Early Childhood Education was, "There is no significant difference between the school readiness screening scores of the pre-kindergarten students who participated in any type of early childhood education programs and the pre-kindergarten students who did not participate in any type of early childhood education program." Using the two-tailed P-value hypothesis to test the results, with a significant P-value threshold set at 0.05 significance level, thus the null hypothesis #1 must be rejected.

Results and Analysis of Data

Gender Score Comparison.

In a research study on gender differences in learning style preferences, "research revealed a gender difference in preferred methods of information delivery and suggested that the female student population is more diverse than the male population, encompassing a broader range of sensory modality preferences." "The researchers concluded that "instructors need to be cognizant of these differences and broaden their range of presentation styles accordingly." (Wehrwein, Lujan, and DiCarlo, 2007, p. 341)

Research studies from the University of Southern California (Hodgins, [online]) reported their findings on the differences in male and female minds:

> Female brains mature earlier than males … almost twelve– eighteen months earlier. Because of this, females, can acquire their complex verbal skills as much as a year earlier than males. This research reports, quite often, a female will learn

> to read faster and achieve a larger vocabulary than her male peers, and she may speak with better grammar. This difference seems to continue throughout development; in general, female brains develop quicker than male brains. Another structural difference is the bundles of nerves that connect emotion and cognition. In females, this bundle is up to 20% larger than in males, giving females better decision making and sensory processing skills. Because of this difference in size, females have better verbal communication; males tend to rely heavily on nonverbal communication; and are less likely to verbalize feelings. (p. 6)

The researcher of this causal comparative study examined and recorded the information according to if the student was red shirted or retained along with their school readiness percentile scores. The researcher wanted to see if there were a large percentage of students who had been delayed for either reason during their kindergarten entry year.

The gender screening score percentiles were averaged (kindergarten through twelfth grade) to create a mean score for each variable in the comparison of female and male school readiness screening scores of students. Using GraphPad InStat, version 3.06 (Motulsky, 2003), the mean score was entered to calculate a two-tailed P-value.

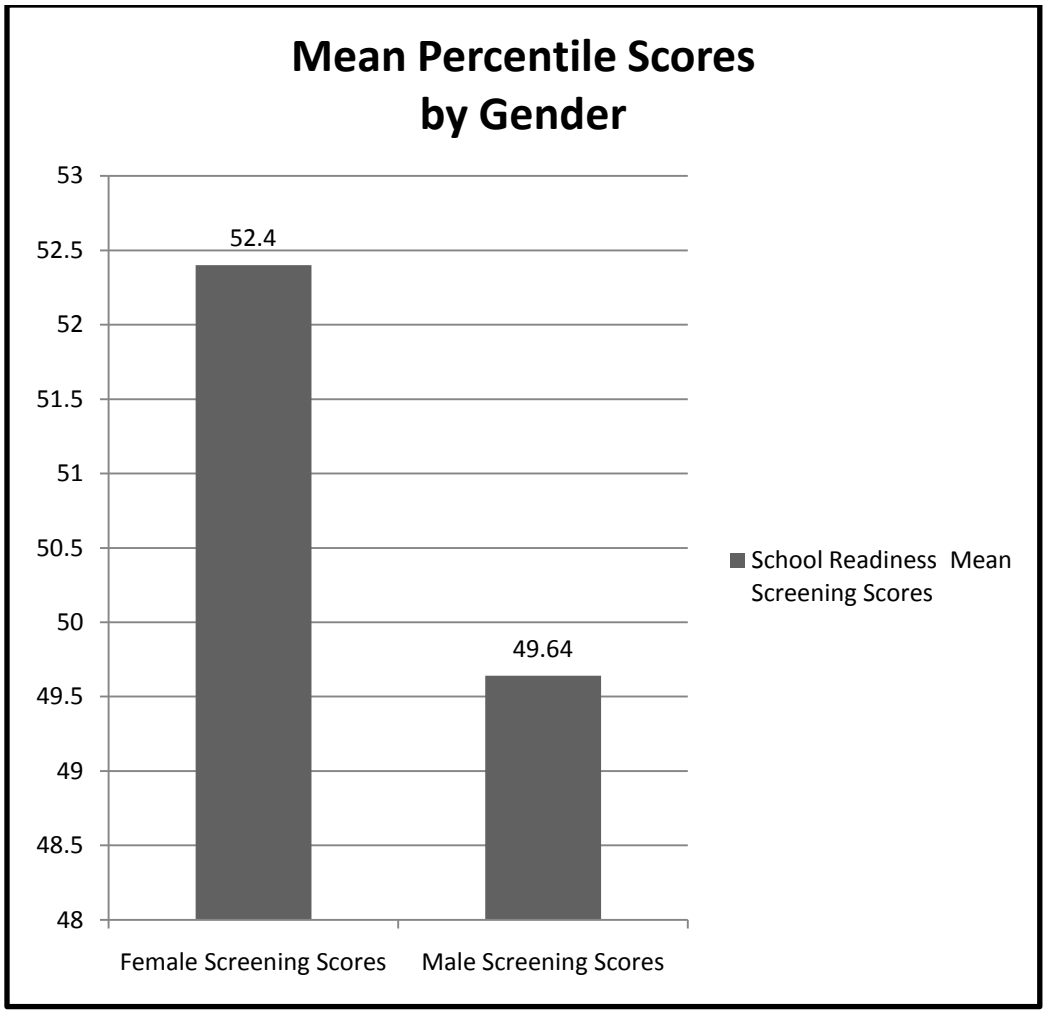

Figure 4. Mean Scores by Gender

In Figure 4, the mean scores of the male and female students upon their entry into kindergarten.

Table 3
Female and Male School Readiness Screening Scores

	Female Scores	Male Scores
Mean	52.40	49.64
Standard deviation	23.74	22.94
Sample size	149	172
Standard Error of mean	1.95	1.75
Lower 95% Confidence interval	48.589	46.208
Upper 95% Confidence interval	56.21	53.065
Minimum	0.0	0.0
Median 50th percentile	54	49.5
Maximum	99	99
Normality test Kosmogorov and Smirnov (KS)	0.046	0.049
Normality test P value	>0.10	>0.10
Passed normality Test	Yes	Yes

In Table 3, the statistical information was used in the calculations to compare the students' scores. The mean percentile scores were calculated into one mean score for females and one mean score for males. The female mean percentile of school readiness

screening scores was higher than the mean percentile of school readiness screening scores of the male students upon entrance into kindergarten.

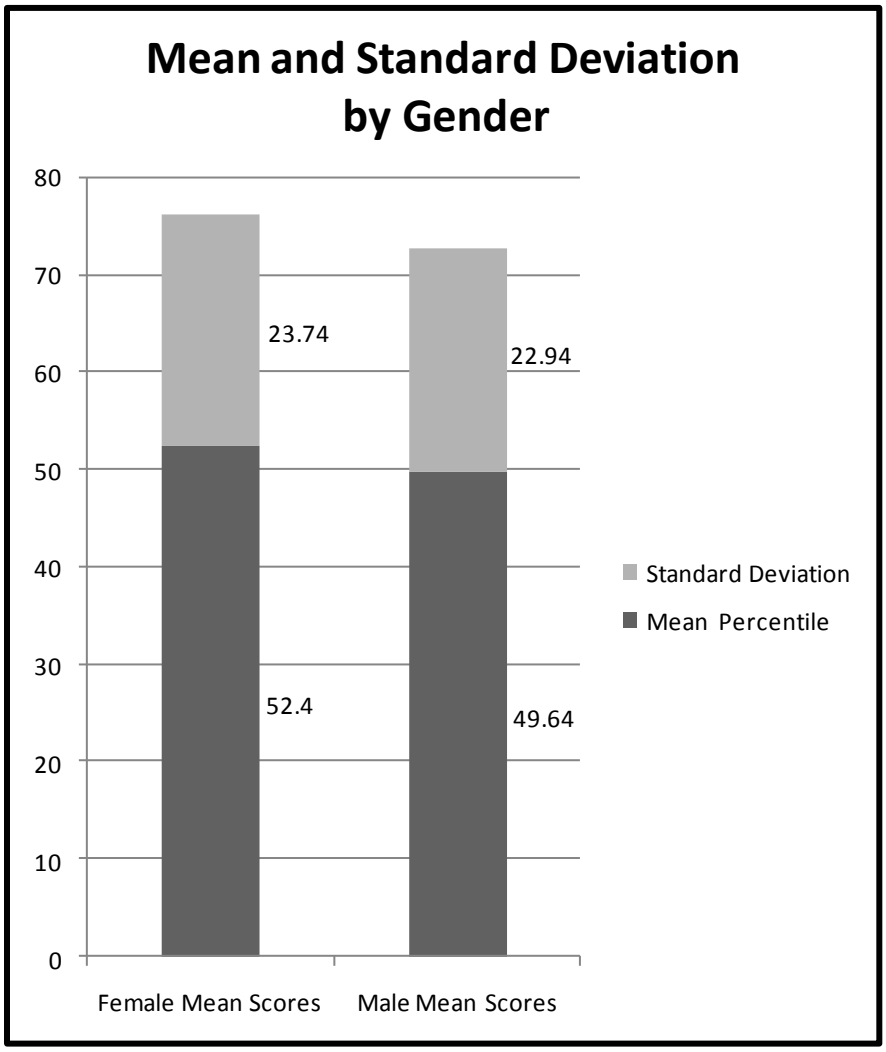

Figure 5. Mean and Standard Deviation by Gender

The standard deviation (Figure 5) was calculated to measure the amount of variability there was from the mean.

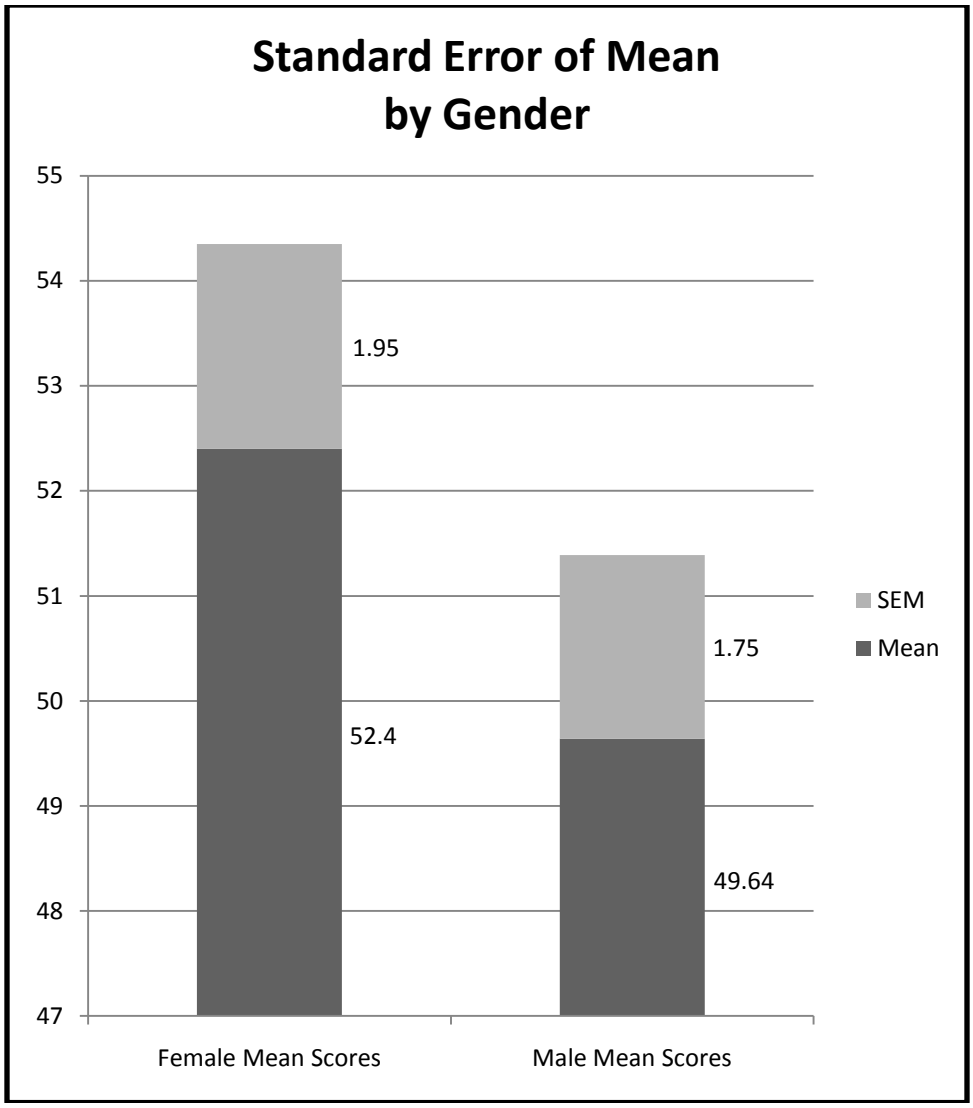

Figure 6. Standard Error of Mean by Gender

In Figure 6, the standard error of the mean is the standard deviation of the sample means for samples taken from the same population. (Bluman, 2007) The t-test assumes that the data are sampled from populations that follow Gaussian distributions or the data cluster around a mean or average. (Motulsky, 2003).

Gender

Unpaired t-test. An assumption test answered the following question, "Are the standard deviations equal?" The t-test assumes that the means come from populations with equal SDs. The following calculations test that assumption.

F = 1.071

P-value is 0.6631

This test suggests that the difference between the two SDs is not significant. This assumption was tested using the method Kolmogorov and Smirnov, both groups of data passed the normality test thus indication that the means come from populations with equal SDs.

An unpaired t-test was administered using the statistical data to discover if a significant difference existed between the school readiness mean scores of pre-kindergarten male and female students upon their entrance into kindergarten. The two-tailed P-value is 0.2902, which is considered not significant where

t = 1.060 with

319 degrees of freedom, thus

the mean difference = -2.765.

The 95% confidence interval of the difference yields a result of -7.898 to 2.369 (Motulsky, 2003).

Null Hypothesis #2.

The null hypothesis for gender was, "There is no significant difference between the school readiness screening scores of the pre-kindergarten male and female students upon

their entrance into kindergarten.” Given a P-value significance threshold set at 0.05, using the two-tailed P-value, to test results thus the null hypothesis must be accepted.

Results and Analysis of Data

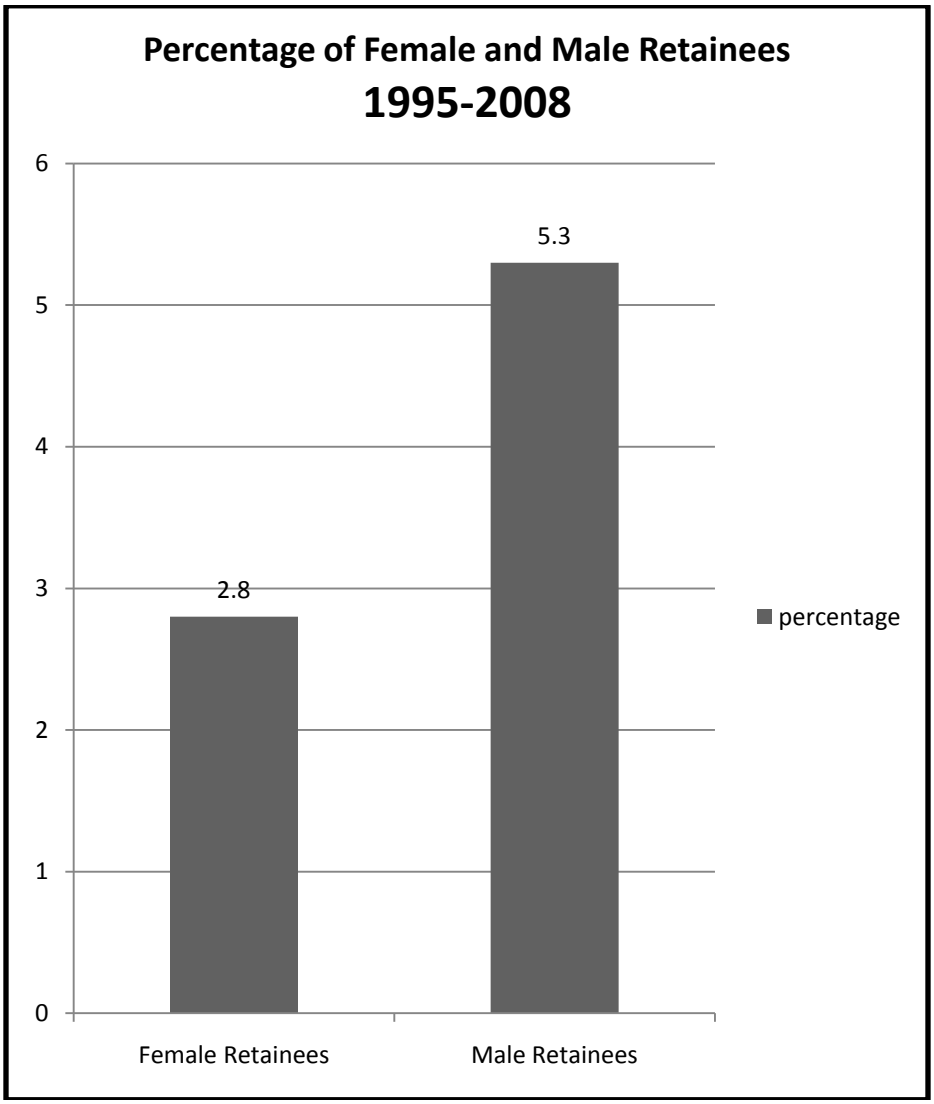

Figure 7. Percentage of Female and Male Retainees (1995-2008)

In Figure 7, there were 9 females (*2.8% of the population)* and 17 males (*5.3% of the population)* who were retained during the fourteen years of study, from 1995-2008. The total number of female and male students who were retained out of 321 during that same period was 26 (8.1% *of the population*).

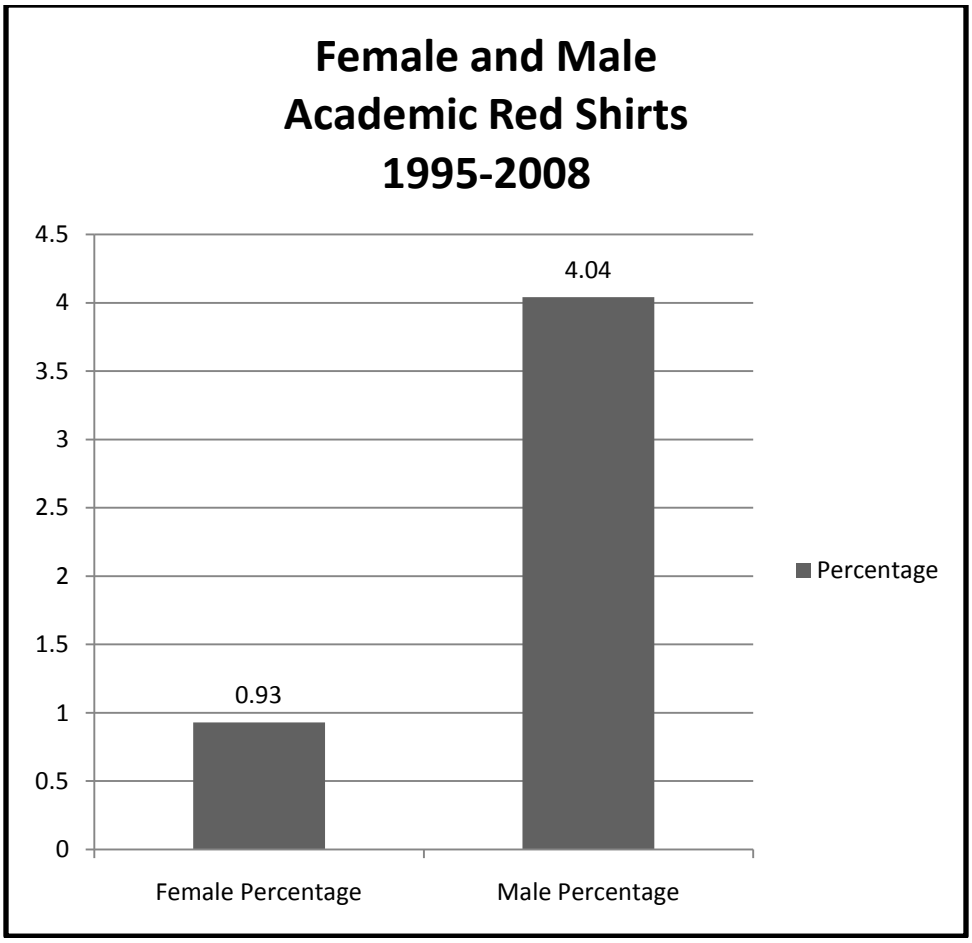

Figure 8. Female and Male Academic Red Shirts (1995-2008)

In Figure 8, there were 3 females (*.93% of the population)* and 13 males (*4.04% of the population)* who were academically redshirted during the years of study from 1995-2008. The total number of female and male students out of 321 students who were academically redshirted from 1995-2008 was 16 students (*4.97% of the population).*

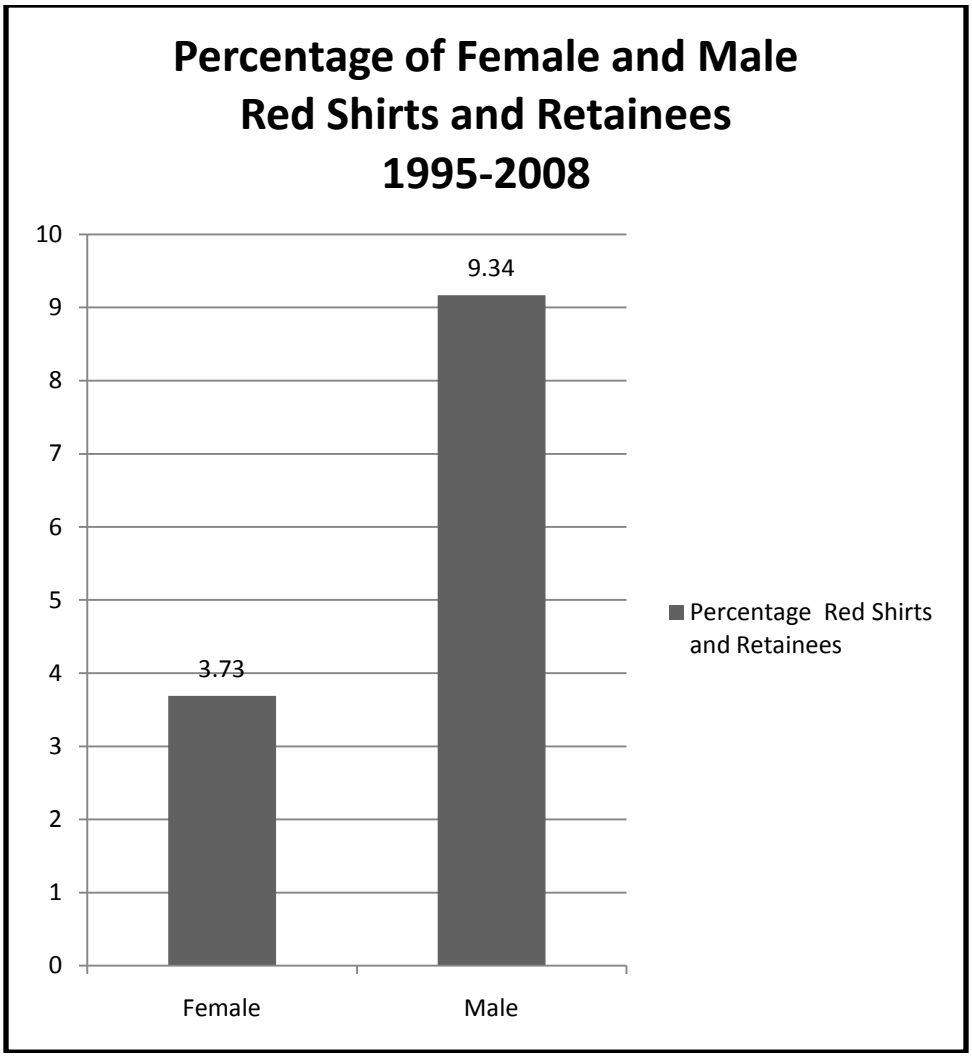

Figure 9. Percentage of Female and Male Red Shirts and Retainees

In Figure 9, there were 12 females (3.73*% of the population)* and 30 males (9.34% *of the population*) who were academically redshirted or retained their kindergarten year. The total number of female and male students out of 321 students who were academically redshirted and retained were 42 (13.07% *of the population*) during the years of study from 1995-2008.

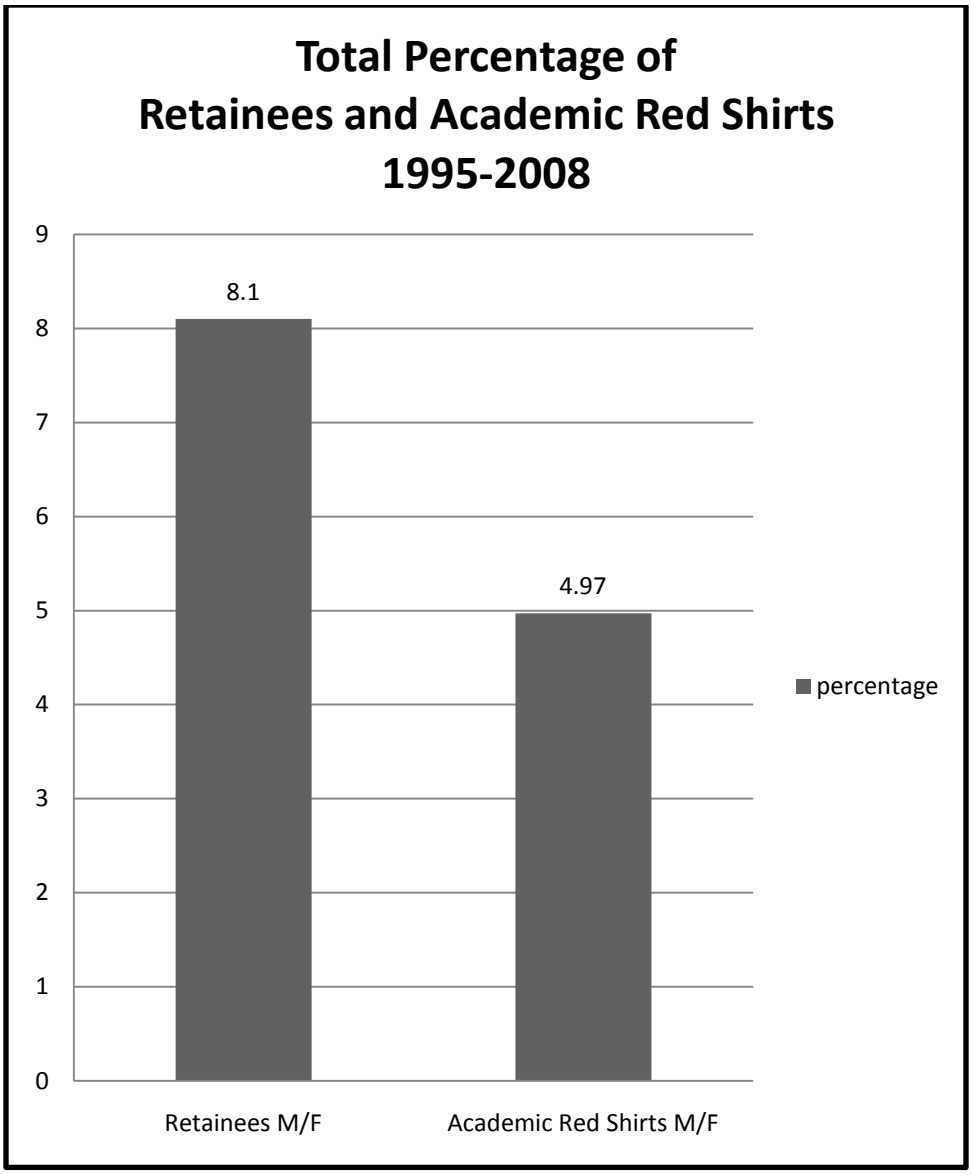

Figure 10. Total Percentage of Retainees and Academic Red Shirts

In Figure 10, the male and female percentages were combined to receive a total number of percentages of retainees and academic red shirts during the years of the study.

Deductive Conclusions

Results of this study indicate there is a significant difference in the mean scores of students who have some type of early childhood education program and the students who do not have some type of early childhood education program. This supports historical research of children experiencing some type of education program before they enter kindergarten. The null hypothesis for this part of the study must be accepted.

Results of this study indicate there is no significant difference in the mean scores of the male and female students upon their entrance into kindergarten. This does not support historical research of the difference in male and female students. These differences could be attributed to the children being from very similar socio-economic environments. Most families are very similar in their backgrounds—there are very few children who have different environments from the majority of all of the students.

Summary

A causal-comparative study was performed on the data compiled from student records. An unpaired t-test using a two-tailed P-value hypothesis test revealed there is a significant difference between the school readiness screening scores of the kindergarten students who participated in any type of early childhood education program and the kindergarten students who did not participate in any type of early childhood education program. The null hypothesis was rejected. Most research shows that early childhood education promotes academic success for children. This portion of the study supported the research of previous studies regarding early childhood education.

An unpaired t-test using a two tailed P-value hypothesis test revealed there was no significant difference between the school readiness screening scores of the kindergarten

female and male students upon their entrance into kindergarten. The null hypothesis was accepted. Most research in the area of gender leads to a difference in male and female achievement. This portion of the study did not reveal the same findings.

Chapter V—Discussion

Introduction

This causal-comparative research project focused on school readiness. It examined the effect that early childhood programs (such as Pre-School, Parents as Teachers, Head Start, etc.) had on school readiness screening scores upon the student's entrance into kindergarten. It also examined the comparison of female and male school readiness screening scores upon their entrance into kindergarten. The problems that are investigated included whether there is a significant difference between school readiness screening scores of pre-kindergarten students and their participation in any type of early childhood education programs. The study also investigated whether there is a significant difference between school readiness screening scores of male and female students upon their entrance into kindergarten. Chapter V will discuss the implication for effective schools, recommendations, and the summary of this study.

Implication for Effective Schools

As government mandates continue, research will continue to examine issues regarding school readiness practices, gender equity, and delayed school entrance, retention of At-Risk students, and red-shirting of kindergarten students. There will be ongoing intervention programs in the public schools to assist with increased student achievement. Socioeconomic status, home environment and positive learning experiences will continue to influence the school readiness of children. Working together to inform parents of readiness expectations and readiness preparation by schools will close the gap that currently exists regarding school readiness.

The research that was conducted in this study suggests that there is a significant difference in the scores of students who were enrolled in early childhood education programs and the students who were not enrolled in any type of early childhood education programs. The research also suggests that this is no significant difference in the scores of pre-kindergarten female and male students upon their entrance into kindergarten. Each region experiences a variety of issues when looking at programs within the individual schools. There are many variables that come into play when addressing the issues of early childhood programs and kindergarten readiness.

A pilot study was directed by Kelly Maxwell and Donna Bryant at the University of North Carolina at Chapel Hill in the Fall of 2000 using the new NC School Readiness Assessment. The pilot gathered information from a statewide sample of more than 1000 children from 200 schools. Information was collected on the five domains of children's development and on key components of schools readiness for children.

The study found that children from lower-income families in North Carolina entered school with much lower skills in all five major areas of development and learning. Maxwell stated that one of the major findings from lower-income families and higher-income families. That gap is illustrated by these findings:

- 76% of children from lower-income families were rated by their parents as having very good or excellent health, vs. 91% of children from higher-income families
- 82% of the children from lower-income families were rated by their parents as often or very often seeming eager to learn, vs. 94% of children from higher-income families

- 28% of children from lower-income families had very low scores on a measure of social skills, vs. 10% of children from higher-income families
- 38% of children from lower income families had very low scores on a language measure, vs. 6% of children from higher-income families
- 37% of children from lower-income families had very low scores on measures of early math skills, vs. 9% of children from higher-income families (Buysse & Winton, 2001, pp. 10-11).

"The quantity and rate of learning in the first few years of life are nothing short of spectacular. What children learn, how they learn, and how much they learn depend on many factors. Among the most important factors are the child's physical well-being, and his emotional and cognitive relationships with those who care for him" (Katz , 1991, pp. 1-2).

Recommendations

This study was conducted in a small rural school located in Southwest Missouri. The poverty level of many residents of the area is very high. The free and reduced lunch rate for the school ranged from 54.50% to 61.50% during the past four years. The willingness of the parents in these low income environments to accept assistance with the Parents As Teachers or Preschool programs that are offered but not mandatory is a concern for the researcher. There is a reluctance of many of these families facing economic hardships to accept assistance from outside agencies.

There are many different areas that seem to affect the degree of school readiness. Research of this study could continue with the investigation into the criteria that is used to determine the definition of readiness, the requirements that are in place for

kindergarten entry, the effects of delaying kindergarten entry, and the transition programs for kindergarteners. The results may be applicable only to this school district represented in the data. Because this study was representative of a specific school, further research may be needed such as

- what type of students are chosen for alternative education settings for instruction
- does age biases influence the selection of students in alternative instruction settings for instruction
- is there a disproportionate number of special needs students entering school that are older than their kindergarten cohort group
- does chronological age affect academic achievement?

Educators must identify the meaning of school readiness and emphasize the importance of recognizing traits that have influences on preschool children's development and school success.

Summary

The following null hypothesis was researched during this causal-comparative study of school readiness:

Null Hypothesis # 1.

There is no significant difference between the school readiness screening scores of the pre-kindergarten students who participated in any type of early childhood education programs and the pre-kindergarten students who did not participate in any type of early childhood education program.

Null Hypothesis #1 Summary.

Using and unpaired t-test, a two-tailed P-value hypothesis testing was performed; a significant P-value threshold was set at a 0.05 significance level. This testing resulted in the P value of 0.0370, which is considered significant. Testing revealed that there was a significant difference between the mean scores of students who participate in any type of early childhood education program and the students who did not participate in any type of early childhood education program.

Based on the results of the two-tailed P-value testing—the null hypothesis must be rejected. This finding supports evidence that some type of early education program helps prepare children for their school years.

The second null hypothesis that was researched during this causal-comparative study was:

Null Hypothesis #2.

There is no significant difference between the school readiness screening scores of the pre-kindergarten male and female students upon their entrance into kindergarten.

Null Hypothesis #2 Summary.

Using an unpaired t-test, a two-tailed P-value hypothesis testing was performed; a significant P-value threshold was set at a 0.05 significance level. This testing resulted in the P value of 0.2902, which is considered not significant. Testing revealed that there was a not a significant difference between the mean scores of pre-kindergarten male and female students upon their entrance into kindergarten. Therefore the null hypothesis must be accepted.

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