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The Impact of Early Childhood Programs On Student Achievement

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Running head: EARLY CHILDHOOD PROGRAMS

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A dissertation submitted to the Education Faculty of Lindenwood University

in partial fulfillment of the requirements for the degree of

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School of Education

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 it for any other college or degree here or elsewhere.

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ON STUDENT ACHIEVEMENT

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This dissertation has been approved as partial fulfillment of the requirements for the degree of
Doctor of Education
at Lindenwood University by the School of Education.

Dr. Terry Reid, Dissertation Chair	June 30, 2009 Date
Dr. Sherry DeVore, Committee Member	June 30, 2009 Date
Dr. Kevin Kopp, Committee Member	6-30-09 Date

DEDICATION

This dissertation is dedicated to three people who shared with me the risks and sacrifices required to complete it. The first of these was my husband, Brian Sutherland, who provided both inspiration and love throughout the entire doctorate program. His words of encouragement and push for tenacity rings in my ears. Without his support and love, I could have never made it. The second and third are my daughters, Lexie and Lindy Sutherland, who gave me the love and inspiration that I needed to keep going when the project appeared to be impossible. This undertaking was more for my daughters than myself. The love and support that my husband and daughters have given to me has been an eternal compass that kept me focused on my true north and the journey completed.

Of course, God is the one who I want to thank the most. I believe that we were never meant to pursue a dream all by ourselves, and I trust that this accomplishment is one step closer to matching the desires of my heart that God has given me. I have faith that our greatest fulfillment comes when the thing that we are doing matches the deepest desires of our hearts, which have been placed there by God.

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I owe thanks to many people whose assistance was indispensable in completing this project. I wish to thank my committee members who were more than generous with their expertise and precious time. Thank you to Dr. Terry Reid, Dr. Sherry DeVore, Dr. Kevin Kopp, Mr. Kevin Lowery, and Mrs. Kim Hawk for agreeing to serve on my committee and lending your support. I owe a special thanks to my friend, Mrs. Michelle Collins who was a steadfast partner in this challenging endeavor, and to my friend and co-worker, Nathan Burns, for helping me with data. I would also like to acknowledge and thank my school district for allowing me to conduct my research and providing any assistance requested. I would like to thank all of the administration, faculty, staff, and students in my district who gave me their support and love. Support and encouragement from my "school family" at work played a tremendous role in the completion of this venture.

Abstract

The common goal of wanting children to succeed in school is shared by educators, families, and communities. While meeting educational benchmarks, such as achieving at grade level to staying in school, can be linked to school readiness, so can early childhood programs. Early childhood programs such as Parents as Teachers and Pre-k programs, are important interventions to help improve student achievement and success in school. In this study, student samples were drawn from existing data in one rural school district in Missouri. The testing data were from students who began school from the fall of 2004 to the fall of 2007. Data were retrieved from grades K-3 of each student. All students were included; however, those who did not have reported information concerning Parents as Teachers or Pre-k program involvement were not included in this study. A correlation was completed using the secondary data. For the expanded purposes of the study, selected kindergarten teachers from districts comparable in size in the southwest Missouri area were administered a survey concerning their perception of early childhood programs and the impact these programs might have on student achievement. While further study is recommended to develop a better understanding of the impact that early childhood programs have on student achievement, this study provides schools, educators, and families with information that is invaluable. The study enforces the thought that it is not only the responsibility of policy makers but also educational leaders and individual families to hold each other accountable for promoting active involvement in early childhood programs such as Parents as Teachers and Pre-k before children arrive for kindergarten or first grade.

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KEY TO ABBREVIATIONS

ANOVA	Analysis of Variance
AYP	Annual Yearly Progress
DIAL-3	Developmental Indicators for the Assessment of Learning-Third Edition
MAP	Missouri Assessment Program
NCLB	No Child Left Behind
PAT	Parents as Teachers
Pre-k	Pre-kindergarten or preschool
SAT	Stanford Achievement Test
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences

CHAPTER ONE: INTRODUCTION TO THE STUDY

The common goal of wanting children to succeed in school is shared by educators, families, and communities all across the nation. While educational benchmarks, such as being on grade level to staying in school, can be linked to school readiness, so can early childhood programs. The presence of high quality early childhood education is growing in our nation. Educators are finding it very important to get to know children and their families much sooner than the first day they enroll for kindergarten. Early childhood education can be viewed as a vital investment for our children's future. Opportunities that are missed from birth to the time a child enters school can hinder and create obstacles in developmental growth and achievement that can last throughout a school career. Strong early learning lends itself to better-educated individuals who will need less remediation throughout the educational system (National Association of Elementary School Principals [NAESP] & Collaborative Communications Group [CCG], 2005). Giving children the right educational start can greatly enhance their opportunities to succeed. It is more than just a desirable outcome, but a fundamental essential, that all children have the opportunity to achieve intellectual, social, and emotional growth along with academic proficiency (NAESP & CCG, 2005).

In a study conducted in 2006, researchers from the Parents as Teachers (PAT) National Center investigated 7,710 Missouri children who had participated in the PAT program and other early childhood programs and experiences (Pfannenstiel & Zigler, 2007). Investigators researched the impact of early childhood services on children's

readiness for school and their performance on state assessments at the end of the early elementary years. Several key findings were relevant to the impact that early childhood programs can have on student achievement (Pfannenstiel & Zigler).

Young students enter schools today with varying degrees of academic and developmental readiness. Many times the determining factor of student success or readiness for school is the decisions that parents make early in their child's life concerning positive experiences that maximizes school readiness. High-quality positive experiences early in a child's life can only expand the chances of academic success and a prosperous life.

Conceptual Framework of the Study

It is easy to advocate turning education efforts into an evidence-based field; however, it is even harder to achieve. These efforts have been partly inspired by the No Child Left Behind (NCLB) Act's unrelenting appeal for the use of scientifically based research or data. The ultimate question is "How can we harness data on behalf of the students we serve as early as possible?" For educators, much more powerful forces than just legislative mandates are motivators, and there is a sincere need to want to know that actions and efforts will help students succeed (NAESP & CCG, 2005). Early childhood programs, such as PAT and Pre-k, are important interventions to help improve student achievement. The payoff of these types of early childhood programs might reduce the need for retention or remediation and help close achievement gaps (NAESP & CCG).

The conceptual underpinnings which guided this study were derived from the essential thoughts and topics expressed in the guide co-created by the NAESP and CCG (2005): Leading Early Childhood Learning Communities which urged elementary school

principals to consider where and when learning starts and to help support and structure high-quality learning before children reach school in kindergarten. The guide focused on designing and reshaping early childhood programs for both schools and communities and offered a new vision and template for strategic planning that must take place in order for children to get the best education possible (NAESP & CCG, 2005, p. 4). The divide that exists between K-12 education and children's programs from birth to school entry, such as formal preschool education, was addressed in this guide. There were six standards that were identified for leaders of early childhood learning communities:

- Embrace high-quality early childhood programs, principles and practices as the foundation for education throughout the school community
- Engage families and community organizations to support children at home, in the community, and in pre-K and kindergarten programs
- Provide appropriate learning environments for young children
- Ensure high-quality curriculum and instructional practices that foster young children's learning and development in all areas
- Use multiple assessments to strengthen student learning and improve the quality of programs
- Advocate for universal opportunity for children to attend high-quality early childhood education programs (NAESP & CCG, p. 4)

The report results from a 2006 study of Missouri children, who participated in PAT and other childhood experiences, titled The Parents as Teachers Program: Its Impact on School Readiness and Later School Achievement, generated several key findings (Pfannenstiel & Zigler, 2007). A primary key finding stated that parents in the PAT

program read more frequently to their young children and were more likely to enroll their children in preschool, both of which were positively linked to school readiness and later school achievement (Pfannenstiel & Zigler). The study also reported that PAT combined with preschool shows promise for narrowing the achievement gap between low-income students and more affluent students. Data showed that 82 percent of poor children who participated with high intensity in both PAT and preschool entered kindergarten ready to learn, as compared to only 64 percent of poor children who had no involvement in either service (Pfannenstiel & Zigler). When considering only the third grade level, 88 percent of poor children who participated with high intensity in both PAT and preschool reached the benchmark level of performance on the Missouri Assessment Program (MAP) in the area of communication arts, as compared to 77 percent of poor children who had no involvement in either service (Pfannenstiel & Zigler).

Through examining the impact that early childhood programs may have on student achievement, insight may be gained in the importance of preventative education and the importance of taking preventative measures as a leader of a school or organization. High-quality early childhood education is not just ideal for children but rather an essential investment that schools, families, and communities should embrace (Pfannenstiel & Zigler, 2007). Strong early intervention closes achievement gaps and eliminates barriers to achievement. (Pfannenstiel & Zigler).

Statement of the Problem

Not all families take advantage of early childhood programs in their communities and schools, such as PAT and Pre-k; therefore, students are less prepared for the beginning of their academic career. Sometimes students begin their academic career one

step behind their peers who may have participated in early childhood programs. It is the responsibility of not only policymakers but also educational leaders and individual families to hold each other accountable for promoting active involvement in early childhood programs such as PAT and Pre-k before children arrive for kindergarten or first grade.

Programs that can maximize school readiness and help increase the likelihood that children will do better in school should be of the utmost importance to families, schools, and communities (Rhode Island KIDS COUNT, 2005). When considering that the first five years of life are critical to a child's lifelong development, it also important to take into account that a child's earliest environments and experiences can then set the stage for future development and success in school. Families that offer their children economic security and healthy relationships are more likely to do well in school (Rhode Island KIDS COUNT). Young children thrive when families and parents are able to surround them with support, love, and opportunities to learn (Rhode Island KIDS COUNT). Schools can improve the opportunities of readiness for children before they enter schools by making connections with parents and helping to ensure that early childhood opportunities are available. Children will enter kindergarten one step behind unless families, parents, schools, and communities provide the environments and experiences that support the physical, social, emotional, language literacy, and cognitive development of infants, toddlers, and preschool children (Rhode Island KIDS COUNT).

Purpose of the Study

The purpose of this study was to explore the nature of the relationship between early childhood programs, such as PAT and Pre-k, and student achievement and the perception that teachers have concerning the impact that early childhood programs have on student success. Finding a way to increase the likelihood that children will do well in elementary school, by maximizing various early childhood experiences, may be a way to increase school readiness and chances of success throughout a child's school career.

The significance of this study for stakeholders such as students, parents, teachers, administrators, boards, and other researchers should rest on the belief that all children must begin school with an equal chance at achievement so that no child is left behind. Instead of expecting students to be ready to learn when entering kindergarten, students should be supported early with learning programs prior to arriving to elementary school (NAESP & CCG, 2005). Parents need to be informed about how early childhood education is essential in building a foundation for later learning. It is also important for teachers and administrators to get to know students and students' needs before entering kindergarten, and a school culture that values early education should be created. Finally, school boards need to provide the resources necessary to expand the continuum of learning to the vital and productive early years (NAESP & CCG).

Active involvement is extremely important considering the critical nature of learning in the early years of a child's life. Young children need to be equipped with the skills they need to start school ready to learn. Therefore, the purpose of the study is to explore the nature of the relationship between early childhood programs, such as PAT and Pre-k, and student achievement.

Research Questions

Research questions allow for a more detailed examination when considering the broad topic of the impact of early childhood programs. The following research questions were examined to discover the nature of the relationship between early childhood programs and student achievement.

1. What is the relationship between students (boys, girls), who have participated in PAT and Pre-k programs (prior to entering kindergarten) and those who did not participate in PAT and Pre-k programs, and their language/reading scores from K-3 standardized testing?
2. What are the perceptions of kindergarten teachers concerning the impact that early childhood programs, such as PAT and Pre-k programs, have on a student's academic success?

Limitations

The limitations of this study include the variables and significant outside factors found within the work such as the availability of early childhood programs, parent involvement, socio-economic status, and language barriers. These variables are impossible to measure within the constraints of this study. Other limitations include students who have taken the Dial-3 and/or Stanford test but have been in another district the majority of their education, students from other districts who have not taken the Dial-3 and/or Stanford but took another assessment test, and incomplete information from parents concerning early childhood program experiences. The study is also limited by the sample size and the perception of the teachers who were surveyed.

The district in which the study took place is a limitation as well. The reader should take into consideration that the information gained from this study represents a specific district and area in the state of Missouri. There may be some demographic influence, which is inherent to the southwest Missouri area and not necessarily a universal representation of the entire United States.

Some biases may also exist due to the standardized test being used. There are inevitably flaws in any standardized test that researchers must consider. No test is good enough to serve as the sole or primary basis for important educational decisions. Paper-and-pencil tests give teachers and parents only part of the picture of a child's strengths and weaknesses. The best insight into the skills, abilities, and knowledge of a child will come from test results, observations, and student changes and growth (Project Appleseed, 2008).

Even though these limitations are significant, it should not exclude the value that a study of this nature gives to early childhood programs such as PAT and Pre-k. The information in this study is not an all-inclusive answer to predicting student achievement. However, it is a step in the right direction for increasing and improving school readiness skills and overall student success.

Definition of Key Terms

At-risk. Any child who lacks sufficient support may fail to develop adequate academic and social skills. Prenatal conditions, quality of health, family characteristics, peer influences, community climate, and social status may be affected by support networks and significantly influence a child's readiness to learn (Rossi & Montgomery, 1994).

DIAL-3. Developmental Indicators for the Assessment of Learning-Third Edition is a screening tool used with preschool and kindergarten students. It is a developmental screening test designed to identify young children in need of further assessment. The test revolves around age appropriate tasks. The stimuli are presented one at a time using a dial, manipulatives, and other child-friendly material. The DIAL-3 provides scores for motor concepts, language, and overall composite and behavioral observation information (Mardell-Czudnowski & Goldenberg, 1998).

Early intervention. Early intervention focuses on school age or younger children. The three primary reasons for intervening early are to enhance the child's development, to provide assistance and support to a family, and to maximize the child's and family's benefit to society (Smith, 1988).

No Child Left Behind (NCLB). Legislation originating in 2001 requiring individual states to provide a framework for school districts to measure success and progress in student achivement (U.S. Department of Education, 2008).

Parents As Teachers (PAT) program. Parents as Teachers is an overarching program philosophy of providing parents with child development knowledge and parenting support. The vision of the program is that all children will learn, grow and develop to realize their full potential. The mission of the program is to provide the information, support, and encouragement parents need to help their children develop optimally during the crucial early years of life. The program has specific goals including increasing parent knowledge of early childhood development, improving parenting practices, providing early detection of developmental delays/health issues, preventing

child abuse/neglect, and increasing children's school readiness and school success. (Parents as Teachers, 2005).

Pre-k program. A class or program preceding kindergarten for children usually from three to four years old (Merriam-Webster, 2009) is sometimes referred to as preschool.

School readiness. National, state, and local efforts focus on school readiness ensuring that children are ready for successful school experiences. The National Association for the Education of Young Children believes that school readiness requires access to certain opportunities such as access to resources that families can use to give children the nurturing relationships and experiences that promote school readiness (NAEYC, 2004).

Stakeholders. Individuals who have a shared interest in a particular activity, program, or decision are considered to be stakeholders (NAEYC & NAECS/SDE, 2003).

Standardized testing. Usually created by commercial test publishers, standardized tests are designed to give a common measure of students' performance. Because large numbers of students throughout the country take the same test, they give educators a common yardstick or standard of measure. Educators use these standardized tests to tell how well school programs are succeeding or to give themselves a picture of the skills and abilities of today's students (Kidsource, 2008).

Stanford test series. The Stanford Test Series, which is sometimes referred to as the SAT 9 or SAT 10 (the numbers represent the series being used), is one of the leading standardized achievement tests used by school districts around the United States for assessing students from kindergarten through high school. The test is used to measure

academic knowledge of students. The test includes three types of questions including multiple choice, short answer, and extended response. The test series dates back to 1926 and is now in its tenth incarnation or series. The Stanford series test is more comprehensive in scope than some of the newer assessments (Nationmaster, 2009).

Student achievement. Standards-based reform relies heavily upon testing and assessment or the measurement of student achievement. Thus, student achievement can be defined in terms of how well children perform on standardized tests (Rothman, 1995).

Summary

Embracing early childhood programs and helping educators and families engage in supporting children before they enter kindergarten fosters young children's learning and development. The purpose of this study was to explore the nature of the relationship between early childhood programs, such as PAT and Pre-k, and student achievement. The study may assist to increase awareness of the importance of early childhood programs and the impact that these programs have on the academic success of students. The next chapter explored research conducted that explored the nature of the relationship between early childhood programs and student achievement.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

Introduction

This chapter presents a review of literature that explores the nature of the relationship between early childhood programs and student achievement. The review was organized to discuss the impact that the PAT program and Pre-k programs have on the development, learning, and academic success of students. The following analysis of related literature provides information needed to inform the reader of the relationship between early childhood programs and student achievement.

Early Childhood Development and Learning

It is very ironic that most of the general public judges school success at the end of a student's school career, such as high school graduation, and have paid very little attention to what has occurred from birth to age five (Ferrandino & Tirozzi, 2001). A child's development can be measured through physical, social, and cognitive development milestones. The first few years of childhood are critically important. They are the foundation of future health, growth, and development (Ferrandino & Tirozzi). During this period, children learn more quickly than at any other time. There is evidence to support the premise that the first five years of life is the key to a child's long-term development (Ferrandino & Tirozzi).

How children develop and learn dictates the developmentally appropriate practice that should be used with the learner. Early childhood educators need to understand the changes that can happen developmentally with children from birth through age 8

(NAEYC, 2006). Understanding these changes can support teaching, learning and development during these years. The knowledge that exists about early childhood practice is great; however, the National Association for the Education of Young Children (NAEYC) endorses a set of principles to inform early childhood practice. These principles were generated from a broad-based review of literature on early childhood education (NAEYC, p.1-8):

1. Domains of children's development -- physical, social, emotional, and cognitive -- are closely related. Development in one domain influences and is influenced by development in other domains.
2. Development occurs in a relatively orderly sequence, with later abilities, skills, and knowledge building on those already acquired.
3. Development proceeds at varying rates from child to child as well as unevenly within different areas of each child's functioning.
4. Early experiences have both cumulative and delayed effects on individual children's development; optimal periods exist for certain types of development and learning.
5. Development proceeds in predictable directions toward greater complexity, organization, and internalization.
6. Development and learning occur in and are influenced by multiple social and cultural contexts.
7. Children are active learners, drawing on direct physical and social experience as well as culturally transmitted knowledge to construct their own understandings of the world around them.

8. Development and learning result from interaction of biological maturation and the environment, which includes both the physical and social worlds in which children live.
9. Play is an important vehicle for children's social, emotional, and cognitive development, as well as a reflection of their development.
10. Development advances when children have opportunities to practice newly acquired skills as well as when they experience a challenge just beyond the level of their present mastery.
11. Children demonstrate different modes of knowing and learning and different ways of representing what they know.
12. Children develop and learn best in the context of a community where they are safe and valued, their physical needs are met, and they feel psychologically secure.

The Society for Research in Child Development released a report that focused on how important a young child's healthy emotional development is for later school success (Associated, 2002). The report gave mention to other studies that showed that the emotional and social skills of children were linked to school achievement (Associated). The children who had difficulty following directions, paying attention, getting along with others, and controlling emotions of anger and distress are less likely to do well in school (Associated). The children who were aggressive and rejected by classmates in the first few years of schooling were at a greater risk for poor academic achievement, greater likelihood of grade retention, greater likelihood of dropping out of school, and greater risk of delinquency and committing juvenile offenses in adolescence. The report suggested that federal, state, and local policy makers should concentrate on supporting

and investing in early school readiness interventions and programs to meet the emotional and social needs of our young children (Associated).

There are several different theories about learning and child development that have impacted thoughts about school readiness. The three theories that seem to have had the most impact on readiness practices in kindergarten include the maturationist, environmentalist, and constructivist theories on development (North, 2007). The maturationist theory came into light with the work of Arnold Gessell. The theory of maturationist believes that "development is a biological process that occurs automatically in predictable, sequential stages over time" (North, p.1). This theory lends itself to assuming that knowledge will naturally and automatically take place in healthy children as they continue to grow older. If a child were developmentally unready for school, the maturationist might suggest that the child may need transitional kindergarten, retention or additional time before entering school. This belief lends itself to interpreting that a child needs more time to acquire the knowledge or skills to perform at a specific level (North, 2007).

Theorist such as John Watson, B. F. Skinner, and Albert Bandura endorsed the environmentalist theory. Environmentalist believe that "the child's environment shapes learning and behavior; in fact, human behavior, development, and learning are thought of as reactions to the environment" (North, 2007, p. 2). This theory lends itself to assuming that children develop and acquire knowledge as they react to their surroundings. Therefore, kindergarten readiness is just a time when children are ready to respond to the school or classroom environment. It is necessary for children to be in an environment where they can participate in teacher-initiated learning activities. Environmentalists

believe that young children learn better from rote activities involving letters and numbers.

Theorists such as Jean Piaget, Maria Montessori, and Lev Vygotsky helped to advance the constructivist theory of readiness and development of children. Each of these theorists believed that "learning and development occur when young children interacted with the environment and people around them" (North, 2007, p. 2). Constructivists believed that "children are ready for school when they can initiate many of the interactions they have with the environment and people around them" (North). Schools and educators that support the constructivist theory have put a lot of stock in the physical environment and curriculum of the early childhood classroom. Learning centers in classes have been stocked with developmentally appropriate items for children to manipulate and play with during learning time. If a child has problems in the learning process, the constructivist approach is not to label the child or retain him/her, but instead, to give the child individualized attention and also create a classroom curriculum to help that individual child with his or her difficulties (North).

Valid questions must be asked when considering the different theories about learning, child development, and school readiness. Have all developmental theories proven to be valid? How have development theories impacted our work as educators? To answer these questions, it was important to know that not all developmental theories are viewed today as equally valid (Swim, 2007). Understanding child development and taking into consideration all the theories has been a vital ingredient for implementing developmentally appropriate practices. The need for this knowledge base is necessary to make appropriate educational decisions for young children (Swim). Some believe that an

eclectic approach of utilizing the aspects of several different theories is appropriate and can help make effective educational decisions. Taking an eclectic approach is believed to be the most practical method for using the theories to guide decisions and practices (Swim).

There is a huge range of developmental accomplishments and concerns with which children enter kindergarten. This range of development helps us to understand the demand that is placed on schools to meet the needs of each child (Zill, Collins, West & Hausken, 1995). Data was collected from a study conducted by the Department of Education in 1993 that indicated that there is a need for innovative approaches to providing services in the early education of children from low socioeconomic backgrounds (Zill et al.). When considering child development predictors, the study also mentioned additional factors, like low maternal education, minority language status, and family structure, which contribute to the variation in needs of children entering our diverse society. These variations, in turn, challenge our communities, schools, and teachers to meet the immense educational and developmental needs of all children (Zill et al.).

Early Childhood Experiences

Students enter school at varying degrees of readiness. Sometimes the determining factors of student success, or readiness for school, are the decisions parents make early in their child's life. Young children in the United States participate in a wide range of auspices, from private organizations and public schools to federal government education initiatives (Barnett & Hustedt, 2003). Some experiences children have before entering school are being placed in a Parents as Teachers program, a Pre-k program, the Head

Start program, a day care setting in-home care by someone other than a parent, and/or home care with mom and/or dad. Each of these situations provides a unique contribution to a child's developmental and academic growth (Barnett & Hustedt).

The Parents as Teachers is an overarching program philosophy of providing parents with child development knowledge and parenting support. The vision of the program is that all children will learn, grow, and develop to realize their full potential. The mission of the program is to provide the information, support, and encouragement parents need to help their children develop optimally during the crucial early years of life (Parents as Teachers, 2005). The program has specific goals including increasing parent knowledge of early childhood development, improving parenting practices, providing early detection of developmental delays/health issues, preventing child abuse/neglect, and increasing children's school readiness and school success (Parents as Teachers). The programs core values center around the beliefs that the early years of a child's life are critical for optimal development and provide the foundation for success in school and life, parents are their children's first and most influential teachers, all children and their families deserve the same opportunities to succeed, and understanding and appreciation of the history and traditions of diverse cultures is essential in serving families (Parents as Teachers).

Many believe that enrolling children in a high-quality Pre-k program will yield benefits for not only children, but also the school and communities. Research shows that high-quality Pre-k programs can improve language and math abilities of children of all backgrounds (Barnett, Lamy, & Jung, 2005). The study, The Effects of State Pre-kindergarten Programs on Young Children's School Readiness in Five States, conducted

by The National Institute for Early Education Research at Rutgers University (2005), produced strong evidence that quality public preschool programs produce broad gains in children's learning and development. Research from this study went on to show that investments in Pre-k are not only good for children but also good for the state, the city and the country (Barnett et al., 2005). The effects of preschool programs on entering kindergarten academic skills such as vocabulary and early literacy skills were tested in all five states, but South Carolina was not tested in the area of math. The research data encompassed 5,071 preschool and kindergarten students in 1,320 classrooms in the fall of 2004 from the states of Michigan, New Jersey, Oklahoma, South Carolina, and West Virginia. Depending on the students' strongest language, students were tested in either English or Spanish (Barnett et al.).

The study found that state-funded preschool programs had a statistically significant impact on student's early language, literacy and mathematical development. The key findings in the study were the following (Barnett et al., 2005, p.2):

1. State-funded preschool produces an increase in children's vocabulary scores of nearly four raw score points, which equals 31 percent more growth over the year and an eight percent increase in children's average vocabulary scores. This improvement translates into an additional four months of progress in vocabulary growth due to the preschool program. This outcome is particularly important because the measure is strongly predictive of general cognitive abilities.
2. Children who attended state-funded preschool scored higher on a test of early math skills. State-funded preschool increased children's math scores by almost

one and a half raw score points, 44 percent more growth in a year due to the program and a 13 percent increase in children's average math scores. Skills tested included basic number concepts, simple addition and subtraction, telling time, and counting money.

3. State-funded preschool had strong effects on children's understanding of print concepts. The program increased all children's print awareness scores by nearly 17 percentage points, which is 85 percent more growth over the year and a 39 percent increase in children's print awareness scores. Children who attended a state-funded preschool program before entering kindergarten know more letters, more letter-sound associations, and are more familiar with words and book concepts.
4. There were no significant effects on children's phonological awareness. A relatively new measure was used, and it is difficult to determine whether this result is due to a true lack of program effects. Children in this study appeared to perform well on this test, with or without the preschool program.

The results of this study were surprising compared to an earlier study conducted the same year that revealed that the Head Start National Impact Study showed no statistically significant effects for four-year-olds on vocabulary or early math scores (Barnett et al., 2005). Both studies used similar tests, but the National Institute For Early Education Research showed vocabulary gains three or four times greater than those of the Head Start study (Barnett et al.). It was suggested that the different outcomes between the two types of programs might be due to the effects of higher qualifications and sometimes higher compensation of teachers who teach in state pre-kindergarten programs as those

compared to Head Start. It was noted that the five states that were studied had almost universal requirements for prekindergarten teachers. These requirements included a license, bachelor's degree, and certification in early childhood education. Head Start only requires teachers to have a two-year Associate's degree or Child Development Association credentials (Barnett et al.).

However, Head Start, a federal government education initiative, is still to be considered a Pre-k school readiness opportunity for parents to consider for their children (Currie & Thomas, 1995). Head Start began in 1964 as part of the War on Poverty (Currie & Thomas). The purpose of this program was to improve the learning skills, social skills, and health status of poor children so they could begin schooling on an equal footing with their more advantaged peers. Families must qualify to participate in Head Start based on income guidelines. It has also been left up to the parent to seek out Head Start enrollment. These programs do not come knocking. It relates back to parents choosing to send their children to school (Currie & Thomas).

The jury is still out on the questions of whether participation in Head Start has any lasting beneficial effects (Currie & Thomas, 1995). Children who are selected for Head Start are not randomly selected. As stated above they are selected based on their family's income. Families who chose to place their children in Head Start do so based on the expected returns from those investments. Families who feel that Head Start will benefit their children are probably also making other unobserved investments in their children (Currie & Thomas). Many of the studies of Head Start cannot take into account these other unobserved investments. In Head Start programs, there are often fewer places for students than applicants seeking to enroll. Little is known about the selection process

in Head Start programs. Selection can be determined in a variety of ways. Staff tends to select the most disadvantaged children (Currie & Thomas).

According to their findings, Currie and Thomas (1995) suggest that Head Start closes over one-third of the gap between children attending the program and their more advantaged peers. They also found that white children over nine years old who attended Head Start are 47 percent less likely to have repeated a grade than other white children (Currie & Thomas). One of the most convincing studies finds that there are initial gains to Head Start that fade over time and become insignificant by the third grade (Currie & Thomas).

Another alternative setting where early learning can take place is in a daycare or in-home setting. Some parents keep their children in daycare or in-home settings because they simply feel that their children are not ready or mature enough to be able to adjust to a group setting and be away from home (Emmerson, 2008). When considering Pre-k verses daycare or in-home settings, the Pre-k environment may offer a child a more structured environment (Emmerson). Even though activities might be planned for children who are placed in daycare or in-home settings, they will not be receiving the same caliber of education as a Pre-k program (Emmerson). Daycare and in-home settings are often viewed as custodial care, while Pre-k programs are seen as preparing children for kindergarten and triggering school readiness skills (Emmerson).

Early Childhood Intervention and Program Effects

Early childhood interventions can focus on a child or on the child and the family together. Child development research suggests that the rate of human learning and development is most rapid in the early years (Office, 2000). The timing of interventions becomes particularly significant when a child runs the risk of missing important opportunities to learn during a state of maximum readiness (Office). The most teachable moments and stages of greatest readiness must be taken advantage of so that a child will not have difficulty in learning a particular skill at a later time in his/her education. Early interventions can assist children in developing to their potential (Office).

Early Intervention services and programs can also have a significant impact on parents and families. Access to early interventions can improve parents' attitudes about themselves and their child, improve skills for teaching their child, and better provide support for the whole family (Office, 2000). Society can also reap the benefits from early interventions by increasing a child's development and educational gains and decreased dependency upon social institutions. Early interventions can also affect the family's ability to cope with various obstacles of their child's education and the child's increased eligibility for future employment, therefore providing economic and social benefits (Office). "Early intervention has been shown to result in the child (a) needing fewer special education and other habilitative services later in life; (b) being retained in grade less often; and (c) in some cases being indistinguishable from non-handicapped classmates years after intervention" (Smith, 1988, p. 2).

Dr. W. Steven Barnett, a professor at the Graduate School of Education at Rutgers University, published a report in 1995 that investigated the long-term effect of early childhood programs. In the report, it was stated that,

> a recent investigation found that age at entry to or years of experience in child care during the preschool years influenced the reading and math achievement of children at ages five and six, but differently for children from high and low income homes. For children from impoverished homes, earlier entry and/or more years in care produced a larger effect on reading scores than fewer years. Conversely, effects were negative for children in the highest-income families. The key may be differences in the quality of the children's home environments rather than income per se: children whose home environments were very highly supportive of cognitive development and socialization actually had lower scores if they had been in care outside their homes, while children whose home environments were relatively poor gained the most from outside care (Barnett, 1995, p. 27).

In 1987, the South Bay Union School District, in Imperial Beach, California, found that their students achieved in the lowest quartile in the state, and the district began systematically looking for ways to improve student achievement, beginning with their youngest students (Roberson, 1998). With a shift in new leadership and a new focus on high-quality early childhood education, the district established the VIP Village in 1992. The Village consists of 24 preschool classrooms that includes 18 state-funded classes for low-income students, 2 classes supported by the district, and 4 special education classes. There was no single factor responsible for the development of the South Bay Union's

program, but there were several key components that enabled the program to exist and to flourish (Roberson, p. 1-2):

- Administrative support. Without the involvement of district administration, VIP Village would not have become a reality, the parents and community would be unaware of its services, and certainly the tracking of student achievement would not occur. This program began because of a 1987 directive to include preschools in staff development, parent education, and other programs.
- Planned staff development. Preschool teachers had formerly not participated in in-service programs on assessment (and its connection to curriculum), quality program standards, early literacy, and technology. Previous staff development for preschool staff had focused on teacher-made materials for children to use.
- Parent involvement and parent education programs. In 1994, the award of a federal Title VII Special Populations Grant ("VIPisimo") from the U.S. Department of Education enabled us to hire two family service liaisons. Since then, parent and community participation in the classroom has tripled.
- Community partnerships. South Bay decided long ago to establish close ties to health and social service agencies throughout the community. For example, the local health clinic conducts preschool physicals in the VIP Village Family Center. The United Way, San Diego Gas and Electric, the Imperial Beach Optimist Club, and several local businesses also contribute to the program. The district's "Reach out to Families" center works with the

preschool to refer families with domestic violence issues and with job training, counseling, clothing, and housing needs. A large district interagency committee also serves the needs of preschoolers and their families. The school district has supported the preschool from the beginning.

- Curriculum and assessment alignment. Beginning with a Primary Articulation Committee, representatives from preschool through grade 3 met and developed grade-level standards and assessment procedures to ensure continuity of instruction and evaluation. The committee paid special attention to ensuring developmentally appropriate practices, based on sound principles of early childhood education. Knowing what teachers emphasize at various grade levels proves valuable. We place student record cards in each preschool child's file, so that receiving school's kindergarten teacher can immediately identify areas of strength and need. A portfolio also follows each preschooler, including anecdotal records of preschoolers at play—their work. Any special education or health needs, areas of strength, successful interventions, and family information are also included.
- Long term follow-up. Since 1988, the district has assigned identification numbers to its preschoolers to initiate a longitudinal study of student achievement.

Roberson (1998) reviewed the South Bay Union School District's thriving preschool program. Reportedly, it took educators and policymakers recognizing the need for a high-quality preschool. The program has kept a close watch on preschool students' levels of achievement. The results have been solid and have exceeded highest

expectations of the district (Roberson, 1998). The Comprehensive Test of Basic Skills-Form 4 (CTBS/4) scores were collected each year, and the preschool graduates have outscored both comparison groups, district and Title I, and have actually doubled the scores of some Title I students. The district's data even showed that the academic success of the VIP graduates has followed them through their elementary school careers. All of this evidence combined has confirmed the need for preschool education in their district (Roberson).

Many long-term studies of early childhood participants have found significant benefits through well-designed and well-executed programs (Lynch, 2005). These programs enable children to enter school ready to learn and help them to succeed in school and throughout life. Long-term benefits for students are document in studies such as the Perry Preschool Project of Ypsilanti, Michigan; the Prenatal/Early Infancy Project of Elmira, New York; the Abecedarian Early Childhood Intervention of North Carolina; and the Chicago Child-Parent Center Program of Chicago, Illinois. Each one of these programs compared children who participated in the program with comparable children not participating in the program. According to Lynch (2005), the combined results of these studies were astounding: (p. 2-3).

> These studies found that children who participated in high-quality
>
> ECD programs tend to have
>
> - Higher scores on math and reading achievement tests;
> - greater language abilities;
> - less grade retention;
> - less need for special education and other remedial work;

- lower dropout rates;
- higher high school graduation rates;
- higher levels of schooling attainment;
- improved nutrition and health; and
- experienced less child abuse and neglect.

These children are also less likely to be teenage parents and more likely to

- Higher employment and earnings as adults;
- pay more taxes;
- depend less on welfare;
- experience lower rates of alcohol and other drug use;
- engage in fewer criminal acts both as juveniles and as adults; and
- have lower incarceration rates.

Children aren't the only ones who benefit from high-quality ECD programs. For example, in one or more studies, mothers of participants

- Have fewer additional births;
- have better nutrition and smoke less during pregnancy;
- are less likely to abuse or neglect their children;
- complete more years of schooling;
- have higher high school graduation rates;
- are more likely to be employed;
- have higher earnings;

- engage in fewer criminal acts
- have lower alcohol and other drug abuse; and
- are less likely to use welfare.

The United States is not the only country that values early childhood education; however, in the editorial story, *European Preschools Should Embarrass USA*, by John Merrow in 2002, Merrow recalls a trip to Europe visiting small towns and villages. The towns and villages seemed to each have a prominently placed sign pointing the way to the local preschool. While making a documentary about preschools, Merrow visited three preschools in and around Paris and found that even though the preschools were positioned in dramatically different neighborhoods, there was virtually no difference in the appearance and staffing of the preschools. All of the preschools were staffed with well-trained and well-paid teachers (Merrow, 2002).

Merrow found the same scenario across Europe. "Almost all 4-year-olds in England, Luxembourg and the Netherlands go to public school. So do more than 70 percent of Greek children of preschool age, more than 80 percent of Spanish children and more than 90 percent of those in Germany, Denmark and Italy. Virtually every industrialized country in the world provides free, high-quality preschool for children regardless of family income." (Merrow, 2002, p. 1). The United States seems to have a mixture of preschools with poorly trained and poorly paid staff. In the editorial, Mr. Merrow reported that even though 70 percent of American 4-year-olds and 40 percent of 3-year-olds attend some sort of preschool, the quality of each preschool and teachers' salaries ranges from excellent to appalling.

The editorial goes on to suggest that the larger problem is that our government is willing to get involved with preschools but only for the poor (Merrow, 2002). There is no question that leveling the playing field for disadvantaged children is essential, but we should probably be looking at the European model and creating a preschool system that is good enough for everyone, rich or poor and anyone in-between (Merrow).

Early interventions and programs may not, by themselves, permanently raise achievement; however, children's experiences prior to kindergarten entry are found to be correlated with cognitive development and school readiness, as measured by standardized assessments (Ramey & Ramey, 2004). Therefore, it is important that every young child have the opportunity to experience early childhood interventions and programs prior to entering school.

School Readiness

Students enter schools today at a wide variety of academic and developmental readiness levels. "It is an ominous omen for American society that over the past two decades approximately one-third of children entering kindergarten are consistently judged by their kindergarten teachers as not ready for typical kindergarten-level work" (Ramey & Ramey, 2004, p. 2). The United States continues to hold high expectations for its adult members to "be literate, proficient in basic math, and facile with means of acquiring and using new knowledge. As automation of routine jobs increases and as globalization of business results in the transfer of manufacturing and service jobs to less expensive foreign labor markets, the pressures increase to become an even more academically accomplished society" (Ramey & Ramey, 2004, p. 2).

> Studies show that at least half of the educational achievement gaps between poor and non-poor children already exist at kindergarten entry. Children from low-income families are more likely to start school with limited language skills, health problems, and social and emotional problems that interfere with learning. The larger the gap at school entry, the harder it is to close. If we want all children to read proficiently by fourth grade—and to grow into healthy teens and productive adults—then we must make wise investments in the early years (Rhode Island KIDS COUNT, 2005, p. 3).

There are many components and factors that shape a child's readiness for school. Three interrelated components that state and national levels agree must be addressed are "children's readiness for school, school's readiness for children, and the capacity of families and communities to provide developmental opportunities for their young children" (Rhode Island KIDS COUNT, 2005). The School Readiness Indicators Initiative report from the work of 17 states in 2005 suggests that a core set of common indicators could be used as a beginning point for other states to monitor school readiness. The intent of the report was to get the nation to choose to adopt a common set of indicators that could serve as a national framework for promoting policies that ensure school readiness and school success (Rhode Island KIDS COUNT, 2005).

Consideration must be given to the thought that children will not enter school ready to learn unless families, schools, communities, and leaders provide the experiences and environments that will support children's physical, social, emotional, language, literacy, and cognitive development of children (NAEYC, 2004). Today, more than ever, the information and knowledge exists that supports how young children develop and how

to best support their early learning. The National Association for the Education of Young Children believes that promoting universal school readiness requires (NAEYC, p. 1):

1. Giving all children access to the opportunities that promote school success,
2. Recognizing and supporting children's individual differences, and
3. Establishing reasonable and appropriate expectations for what children should be able to do when they enter school.

In the broad sense, school readiness is about children, families, early environments, schools, and communities. Children are not innately ready or not ready for school (Maxwell & Clifford, 2004). The development and skills of a child are strongly influenced by families and interactions with other people and environments long before they come to school (Maxwell & Clifford). In order to ensure that every child enters school ready to succeed, and that schools are effective in educating every child that comes through the doors, the commitment and investment will not be small; however, it will be essential (Maxwell & Clifford).

There are several essential experiences that need to take place in the early learning years for a child. These experiences can be deemed crucial experiences. The seven types of experiences that are essential to ensure normal brain and behavioral development and school readiness are (Ramey & Ramey, 2004, p. 3)

1. Encourage exploration.
2. Mentor in basic skills.
3. Celebrate developmental advances.
4. Rehearse and extend new skills.

5. Protect from inappropriate disapproval, teasing, and punishment.
6. Communicate richly and responsively.
7. Guide and limit behavior.

These essential experiences do not require money or any special equipment or toys; however, they do involve time and an active commitment from parents and other caring individuals. From birth, babies are actively learning throughout the day from all of the surroundings and experiences. "There is a positive quantitative relationship between receiving more (or less) of these seven essentials and children's development (Ramey & Ramey, 2004, p. 3).

At the forefront of our country's domestic social policy concerns is school readiness and school achievement. Well-educated people are vital to our country's future as a democracy and as a nation that prides itself on productivity and sound economics (Ramey & Ramey, 2004). Waiting for students to fail and then providing remediation or requiring retention does not seem to be the logical answer. Instead, the scientific evidence affirms that children who do not have positive early transitions to school—that is, those children who have early failure experiences in school—are those most likely to become inattentive, disruptive, or withdrawn (Ramey & Ramey). Later, these same students are the most likely to drop out of school early; to engage in irresponsible, dangerous, and illegal behaviors; to become teen parents; and to depend on welfare and numerous public assistance program for survival (Ramey & Ramey, p. 2).

Effectiveness and Accountability of Early Childhood Programs

The position of the National Association for the Education of Young Children (NAEYC) and the National Association of Early Childhood Specialists in State

Departments of Education (NAECS/SDE) take the position that it is the responsibility of policy makers, the early childhood profession, and other stakeholders in the lives of young children to (NAEYC & NAECS/SDE, 2003, p. 2)

- Construct comprehensive systems of curriculum, assessment, and program evaluation guided by sound early childhood practices, effective early learning standards and program standards, and a set of core principles and values: belief in civic and democratic values; commitment to ethical behavior on behalf of children; use of important goals as guides to action; coordinated systems; support for children as individuals and members of families, cultures, and communities; partnerships with families; respect for evidence; and shared accountability.
- Implement curriculum that is thoughtfully planned, challenging, engaging, developmentally appropriate, culturally and linguistically responsive, comprehensive, and likely to promote positive outcomes for all young children.
- Make ethical, appropriate, valid and reliable assessment a central part of all early childhood programs. To assess young children's strengths, progress, and needs, use assessment method that are developmentally appropriate, culturally and linguistically responsive, tied to children's daily activities, supported by professional development, inclusive of families, and connected to specific, beneficial purposes: (1) making sound decisions about teaching and learning, (2) identifying significant concerns that may require focused intervention for individual children, and (3) helping programs improve their educational and developmental interventions.

- Regularly engage in program evaluation guided by program goals and using varied, appropriate, conceptually and technically sound evidence, to determine the extent to which programs meet the expected standards of quality and to examine intended as well as unintended results.
- Provide the support, professional development, and other resources to allow staff in early childhood programs to implement high-quality curriculum, assessment, and program evaluation practices and to connect those practices with well-defined early learning standards and program standards.

The development and dissemination of these position statements had a direct aim. The NAEYC and NAECS/SDE felt that it was necessary to take informed positions on issue affecting young children's education. They also wanted to promote broad-based dialogue on these issues (NAEYC & NAECS/SDE, 2003). Creating an evidence-based frame of reference so that all stakeholders could understand early childhood curriculum, assessment and program evaluation and their relationship to early learning was extremely necessary. The two groups also wanted to influence public policies and stimulate investments needed to create high-quality learning environments and better educational and developmental outcomes for all young children (NAEYC & NAECS/SDE).

According to Ramey & Ramey (2004), three major public policy recommendations are made in lieu of early interventions and school readiness (p. 7):

- First, states and communities should develop strong leadership for a comprehensive early childhood educational initiative that is linked explicitly to include the truly high-risk children (who are far fewer than all children in

poverty), incorporate the scientific evidence about what really produces measurable benefits, and build upon the resources already available in states.

- Our second recommendation is to combine funding streams and to promote innovative partnerships. This will help to strengthen existing programs that already are collaborative and can demonstrate positive outcomes; it will also be an opportunity to improve or eliminate those programs that are ineffective or poor in quality. In the future, continued support for preschool programs should be linked to ongoing performance measures of the program's quality and the demonstrated benefits to children in terms of their cognitive, linguistic, and social competence.
- Our third recommendation concerns practical accountability. In the past, most early childhood intervention programs did not have well-designed and practically useful accountability systems. Child assessments should not be construed as high-stakes testing of children or a disguised effort to diminish public support for early childhood education; rather, child and program assessments should be seen as responsible (and long overdue) monitoring and evaluation procedures for public preschool services and supports targeted at our nation's most vulnerable young citizens.

History of Early Childhood Programs

Universalizing preschool and early childhood education is not a new movement. In fact, Americans have been trying to get support from the public for educating our youngest children for more than 150 years (Beatty, 2004). "In 1830, a petition to formally incorporate infant schools into the Boston Public Schools was rejected by the Primary

School Committee. Opposing it, primary-school teachers said infant-school graduates were difficult to manage, while a mental-health specialist and child-rearing advice-givers argued that excessive early stimulation was damaging to children. Proponents, the women of the Infant School Society of Boston, complained that men had been insufficiently supportive of their plan" (Beatty, p. 1).

Despite opposition, as historian Maris Vinovskis documents, many three and four year old children in Massachusetts attended public schools with their older siblings until the mid-19th century, even though teachers protested (Beatty, 2004). The number of these young children attending with siblings declined as urban schools became more age grouped and academically standardized. The role of mothers and the sacredness of family became more prevalent (Beatty).

In 1909, Bessie Locke founded the National Kindergarten Association in New York City in an attempt to bring public education to our nation's children. Even though she was not a professional educator, she felt there was a need for such a service (Beatty, 2004). Locke eluded conflicts within the kindergarten movement and "enlisted prominent businessmen, college presidents, and education reformers like John Dewey. Taking its case to Washington, the National Kindergarten Association persuaded the commissioner of education to let the organization establish and fund a Kindergarten Bureau within the U.S. Bureau of Education" (Beatty, p. 1). Locke's attempt to get the kindergarten bill through Congress failed and she refocused her efforts at the state level. She rallied local parent-teacher organizations, church groups, and governors' wives. She also used media campaigns to get her information to the public (Beatty).

In 1965, the founding of the Head Start program helped to conquer the war on poverty and new psychological research on the benefits of early childhood education (Beatty, 2004). The Head Start program was championed by Marian Wright Edelman of the Children's Defense Fund and Massachusetts Senator Ted Kennedy. During the Clinton administration, the Head Start program benefited from large budget increases. To this day, there are long waiting lists at many Head Start centers (Beatty).

The closest the United States has ever come to getting federally funded universal preschool education was with the support of Walter Mondale and John Brademas through the Comprehensive Child Development Act of 1971 (Beatty, 2004). This act passed both houses of Congress with support from a coalition of psychologists, liberal politicians, and child-advocacy groups, but President Nixon vetoed the bill. The cost was one stumbling block, but the veto was based on "ideological grounds, raising the specter of the 'Sovietization' of the private family" (Beatty,p. 2).

Advocates have continued to ask for early childhood education programs. The evidence of developmental benefits of quality preschools still mounts. Various states have had some levels of success. "As of 2002, 40 states had some manner of publicly funded preschool programs, most targeted at children from low-income families but many inching toward universal models. In fact, there has been a 17-percent increase in children attending Pre-k nationwide since 2001, according to a 2004 study by the Trust for Early Education, a preschool advocacy group" (Beatty, 2004, p. 2).

The state of Oklahoma pursued the goal of high-quality early education and prevailed. Currently, in public schools in Oklahoma, preschool is offered through the

state education budget. This is due to bipartisan support and strong gubernatorial leadership (Beatty, 2004).

Future of Early Childhood Programs

Early childhood education has emerged as an important component of basic education. Along with private institutions offering early childhood education, the United States government is also taking measures to ensure early childhood education is available for all (Kumar, 2007). "While the local communities, private organizations, and State agencies contribute more than ninety percent of education; federal expenditure generally remains below ten percent. States and communities, as well as public and private organizations of all kinds, are involved in establishing schools and colleges, develop curricula, and determine requirements for enrollment in educational institutes of USA" (Kumar, 2007, p. 1).

An emerging trend includes the government taking some measures to make early childhood education, such as preschool education, more available for all. The U.S. Department of Education sets aside grant money for Title-I, and the Early First program, established in the No Child Left Behind Act, provides competitive grants to preschool programs and school districts. These grants were created to fund the development of model programs that support school readiness of preschool-aged children (Kumar, 2007). The preschool-aged children targeted in these grants are particularly from low-income families. The Bush administration promoted the "Good Start, Grow Smart" (Kumar, p. 1) policy for preschool education in the USA. However, in spite of all the efforts to provide quality preschool to all, fees for preschools in several parts of the USA have reached enormous amounts. The rising cost of preschool and early childhood education programs

in the USA paints a different picture from European countries that provide state sponsored free quality early education (Kumar, 2007).

New research continues to surface concerning early childhood programs. Early childhood intervention programs can have a positive impact on children's emotional and behavioral outcomes. This includes long-term reductions of criminal behavior (Isaac & Roessel, 2008). Information from recent studies demonstrates how state Pre-k programs have had positive effects on children's readiness to learn (Isaac & Roessel). The recent findings from the national Head Start Impact Study, released in 2005, provided evidence that previously existed to show that positive impacts are made on children through early childhood programs (Isaacs & Roessel).

Summary

A snapshot taken today of children and families served by various early childhood programs verses just ten years ago would look very different. So many more children attend childcare and early childhood programs due to the trend of both parents working outside the home thus changing the needs of children and families (Heckman, 2004). The change in the needs of children and families also alters the picture of the types and qualities of programs offered to children before entering school. The belief exists that school readiness programs and high-quality early education will produce long-lasting benefits with students. Too many children enter kindergarten with limitations that could have been minimized or eliminated through early attention to the needs of the child and attention to school readiness skills. Nobel Prize-winning Economist, James Heckman, University of Chicago states:

> Learning starts in infancy, long before formal education begins, and continues throughout life. Early learning begets later learning and early success breeds later success, just as early failure breeds later failure. Success or failure at this stage lays the foundation for success or failure in school, which in turn leads to success or failure in post-school learning. Recent studies of early childhood investments have shown remarkable success and indicate that the early years are important for early learning. Moreover, early childhood interventions of high quality have lasting effects on learning and motivation. As a society, we cannot afford to postpone investing in children until they become adults, nor can we wait until they reach school age – a time when it may be too late to intervene (Heckman, p. 1).

The states that continue to add public preschool programs and increase access to early childhood education will help to ensure student success and improve a school's chances of meeting the No Child Left Behind targets (Merrow, 2002). From the USA Today article John Merrow states, "We can, and we should, be creating a preschool system that would be good enough for everyone. Public preschools should be built the same way we constructed our highway system: the same road available to all Americans, rich and poor" (Merrow, p. 3). The next chapter discussed the methodology utilized to obtain results for this study.

CHAPTER THREE: DESIGN AND METHODOLOGY

The purpose of this study is to explore the nature of the relationship between gender participation in early childhood programs, such as PAT and Pre-k, and student achievement and the perception that teachers have concerning the impact that early childhood programs have on student success. This study confirms existing beliefs about the importance of early childhood programs and posits new ones as they unfold in the data. As the Irish poet, William Butler Yeats, stated, "Education is not the filling of a pail, but the lighting of a fire" (Quotations Book, 2008, p. 1). Early childhood programs that are offered in the young years to children are the fire that lights their way throughout the rest of their schooling.

Research Questions

Methodical measures were taken in order to discover the impact of early childhood programs on student achievement. The following review of methodology confirms the purpose of the study, research questions, and research hypothesis. The research questions allow for a more detailed examination when considering the broad topic of the impact of early childhood programs.

1. What is the relationship between students (boys, girls), who have participated in PAT and Pre-k programs (prior to entering kindergarten) and those who did not participate in PAT and Pre-k programs, and their language/reading scores from K-3 standardized testing?

2. What are the perceptions of kindergarten teachers concerning the impact that early childhood programs, such as PAT and Pre-k, have on a student's academic success?

Methodology

Considering this study had several dependent variables, five three-way analysis of variance (ANOVA) were used to examine the collected data. This allowed the researcher to examine whether there were differences among the dependent variables simultaneously. In the first section of the study, the researcher used a 2x2x2 factorial design with gender, participation or non-participation in PAT, and participation or non-participation in Pre-k.

A quantitative approach was used in the first section of the study in order to explore the nature of the relationship between early childhood programs and student achievement. Within the study, the independent variables for the student data were gender, participation in the PAT program, and participation in a Pre-k program. The dependent variables were Dial-3 scores, kindergarten Stanford scores, first grade Stanford scores, second grade Stanford scores, and third grade Stanford scores when applicable.

The second section of the study used a brief combination of a quantitative and qualitative approach. The independent variable for the teacher perception survey was participation in the PAT program or a Pre-k program, and the dependent variable was the teacher's perception of impact score based on a Likert scale. The study had a quantitative predominance; however, the brief qualitative assessment was highlighted as supplementary data for additional connectivity and future examination.

Research Setting and Participants

The setting of the research occurred in one rural public elementary school, utilizing data from the fall of 2004-2007, and kindergarten teachers from schools comparable in size in the southwest Missouri area. The target population was all K-3 students in the one rural public elementary school. Student names and information were kept anonymous. The study's student sample included 288 K-3 students. The study's teacher sample consisted of 60 kindergarten teachers. Teacher names and information were kept anonymous. The setting and participants created a factor of inherent generalization. Because not all school districts administer the same tests and retain the same data on students, the study had specific conditions that may or may not exist in other school districts. Therefore, it is important for other researchers to be cautious in extending the results of this study to other settings.

Data Collection Procedures and Instruments

This study included information from the Dial-3 Parent Survey and Language data, the district's Parents as Teachers data, and the Total Reading data from Stanford testing from students in a rural public elementary school district enrolled in grades K-3 for the 2007-2008 school year. The current standardized testing data for 2007-2008 and up to three years worth of past standardized testing data from the Dial-3 and Stanford were analyzed and compared. For the expanded purposes of the study, selected kindergarten teachers from districts comparable in size, were given a web-based perception survey in the southwest Missouri area concerning their perception of early childhood programs and the impact they have on student achievement. Verbal consent and approval was given from the rural public elementary school district Superintendent of

Schools and building principal (researcher) to analyze and document district secondary data. Students' names were not used and data was numbered to ensure anonymity. Individual students were not identified in the study. The completion and submission of the survey information from kindergarten teachers signified individual consent.

The Dial-3 is an individually administered developmental screening tool. It is administered by a team of adults (Mardell-Czudnowski & Goldenberg, 1998). It assesses motoric, conceptual, and language behaviors of children from ages 3 years and 0 months to 6 years and 11 months. Items on the screening tool assess developmental skills that are believed to be the foundation for academic learning. The three performance areas that are assessed are motor, concepts, and language. Scores can be derived from a total of all three areas or in each individual area. The Dial-3 was designed to meet all the standards of technical adequacy including norms, validity, and reliability (Mardell-Czudnowski & Goldenberg). Many of the Dial-3 assessment events are supported by pragmatic evidence as measures of skills and abilities that are precursors to beginning reading and other significant academic areas. The Dial-3 was standardized between 1995 and 1997 on a national sample of 1,560 English-speaking children and 605 Spanish-speaking children. Gender, race, geographic location, size of community, and chronological age were taken into consideration. Norms are provided at two-month intervals because developmental changes occur quickly in early childhood (Mardell-Czudnowski & Goldenberg).

The Dial-3 Parent Questionnaire is completed by parents or guardians during the screening. The completed questionnaire provides normed scores for a child's self-help and social skills. The screening tool also requests information such as medical history, family background, and general concerns about a child's development. The results of the

Dial-3 screening are discussed with the parent or guardian immediately after the screening process. The results let the parents or guardian know that their child's development appears to be delayed in comparison to others his/her age or their child's development appears to be developing in a sufficient manner. Each school district or program can modify the Dial-3 screening tool to meet the needs of the particular group (Mardell-Czudnowski & Goldenberg, 1998).

The Stanford Achievement Test Series has been commonly referred to as SAT 9 or SAT 10. The number reflects the series being used. The Stanford Achievement Test measures students' school achievement in reading, language arts, mathematics, science and social science (Harcourt, 2003). The test first appeared in 1923 and revisions were published over the years. The revisions were made to update the content so that it was better aligned with current curriculum standards and to improve the kinds of information available from the testing (Harcourt). The Stanford Achievement Test assesses the concepts and skills that are ordinarily taught during the second half of any given year and the first half of the following year (Harcourt).

The Stanford reading subtests are prepared to mirror present beliefs about the ways in which good readers create meaning with text and the ways in which students are taught to read. One of the special features that the Stanford test offers in the reading subtest is that the reading comprehension selections are written by well-known authors of children's books and magazines. The Stanford Achievement can be scored within the school district administering the test or it can be scored at the publisher's scoring center (Harcourt, 2003).

The Kindergarten Teacher Perception Survey was created by the researcher in order to gather data on kindergarten teacher's perception of whether or not early childhood programs, such as PAT and Pre-k programs, positively impact students' academic success. The study's teacher sample was made up of 60 kindergarten teachers. Teacher names and information were kept anonymous.

The web-based Kindergarten Teacher Perception Survey was sent out via email in to elementary buildings that contained kindergarten classrooms. The districts that were surveyed were districts comparable in size to the southwest Missouri rural school district where Dial-3 and Stanford scores and data were taken for the study. Building administrators were the recipients of the consent letter to participate in the survey.

The data generated allowed the researcher to examine the open perception of kindergarten teachers. The teacher's perception of impact was scored on a Likert scale. Only three questions were asked in the perception survey. The first question asked the kindergarten teacher to rate the Parents as Teachers early childhood program as (1) being not at all beneficial and (5) being extremely beneficial in impacting student's academic success. The second question asked the kindergarten teacher to rate any Pre-k early childhood program as (1) being not at all beneficial through (5) being extremely beneficial in impacting student's academic success. The final question asked the kindergarten teacher which area a student is most positively impacted in if he/she have been exposed to early childhood programs such as PAT and Pre-k. The areas to choose from were social and emotional, language development, pre-reading skills, motor skills, mathematics, and cognitive thinking skills.

Perception data was collect via the web-based survey data bank. Ample time was given for kindergarten teachers to respond to the survey. The perception survey was sent to 19 elementary building administrators reaching potentially 80 kindergarten teachers.

Data Analysis Procedures

The student data was collected and analyzed using the Statistical Package for the Social Sciences 15.0 (SPSS). In this study, ANOVA was the procedure used to compare sample means to see if there was sufficient evidence to infer that the means of the corresponding population distributions also differed (George & Mallery, 2006). The analysis determined which factors or combinations of factors were more predictive of high student achievement considering this study had several dependent variables. The output generated by SPSS integrated the descriptive statistics portion of the output with the ANOVA portion. The data generated from the five three-way ANOVA allowed the researcher to examine whether there were differences among the dependent variables simultaneously (George & Mallery, 2006).

The data from the teacher perception survey was also collected and analyzed using the Statistical Package for the Social Sciences 15.0. The output generated by SPSS was descriptive frequencies of each answer on the survey. The data generated allowed the researcher to examine the open perception of kindergarten teachers.

Ethical and Political Considerations of the Study

All of the information that was available to the researcher, including names and data, were kept confidential. No personal student or teacher information appeared in the study. All information and data will remain confidential.

Summary

The methods of this study were influenced by the research questions and research purpose to discover the impact that early childhood programs have on student achievement. The following chapters of the dissertation are structured to analyze the data in chapter four and then draw conclusions from the analysis in chapter five. The information in these chapters will offer opportunities for future examination of the topic.

CHAPTER FOUR: RESULTS

The study's purpose was to explore the nature of the relationship between early childhood programs, such as PAT and Pre-k, and student achievement and the perception that teachers have concerning the impact that early childhood programs have on student success. Included in this chapter are the findings and a synopsis of the statistical analyses administered to understand the data as it relates to the two essential research questions of the study.

Demographic and descriptive information was presented to establish the frequency and characteristics of 288 student participants and 60 teacher participants. Five three-way ANOVA were used to examine the collected data and find the relationship among gender, participation or non-participation in PAT, and participation or non-participation in Pre-k. Descriptive frequencies of each answer on the teacher survey were analyzed and reported. The frequency data generated allowed the researcher to examine the open perception of kindergarten teachers. These additional inferential statistic provided insight to teacher perception of the impact early childhood programs have on student achievement. Descriptive and survey data provided information helpful in determining the degree of the relationship between early childhood programs and student achievement.

All data were entered, processed, and analyzed through the SPSS version 15.0 software program. Statistical analysis of each research question was reviewed, and results of data analyses were presented in tables to illustrate statistical significance.

Analysis of the Data

The descriptive statistics for the Dial-3 (Table 1) showed that boys who participated in PAT and Pre-k programs scored higher M=77.32, SD=18.4 than those who did not participate in PAT and Pre-k programs M=36.09, SD=23.26. The girls who participated in PAT and Pre-k programs also scored higher M=84.65, SD=15.54 than those who did not participate in PAT and Pre-k M=34.58, SD=23.47. The totals for both groups (boys, girls) were M=77.76, SD=20.17 for those who participated in PAT and Pre-k programs and M=40.78, SD=25.89 for those who did not participate in PAT and Pre-k programs. The impact of participation in PAT and Pre-k, as measured by the Dial-3, was clearly demonstrated in the higher mean scores of both groups in comparison to those who did not participate in specific early childhood programs.

Table 1

Means and Standard Deviations of Dial 3 Scores

Boy Students				Girl Students			
Dial 3				Dial 3			
Participation PAT and Pre-k		Non-participation PAT and Pre-k		Participation PAT and Pre-k		Non-Participation PAT and Pre-k	
n = 74		*n* = 46		*n* = 57		*n* = 26	
Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
77.32	18.4	36.09	23.26	84.65	15.54	34.58	23.47

Note. Impact of participation and non-participation in PAT and Pre-k.

The significant data from the ANOVA test results for Dial-3 (Table 2) showed that F=32.58 and p=<.001 for those students who participated in PAT Data and also showed that F=48.95 and p=<.001 for those students who participated in a Pre-k program. The significance level from test results of the Dial-3 indicated a relationship between those students who participated in PAT and Pre-k and scores. Other than participation in PAT and Pre-k, no other relationship of variables in the data was found significant.

Table 2

ANOVA Test Results for Dial 3

		df	*F*	*p*
Participation PAT		1	32.58	p<.001
Participation Pre-k		1	48.95	p<.001
Gender * PAT		1	.965	.327
Gender * Pre-k		1	.061	.805
PAT * Pre-k		1	.242	.623
Gender * PAT * Pre-k		1	1.433	.232
Error	244			
Total	252			
Corrected Total	251			

*Note. ** p<.001*

Figure 1 illustrates the comparison between the Dial-3 mean score of boys and girls who participated and did not participate in PAT. The comparison shows that girls who participated in PAT scored higher than boys who also participated in PAT. Results also show that both girls and boys that participated in PAT had a significantly higher mean score than those who did not participate in either early childhood program.

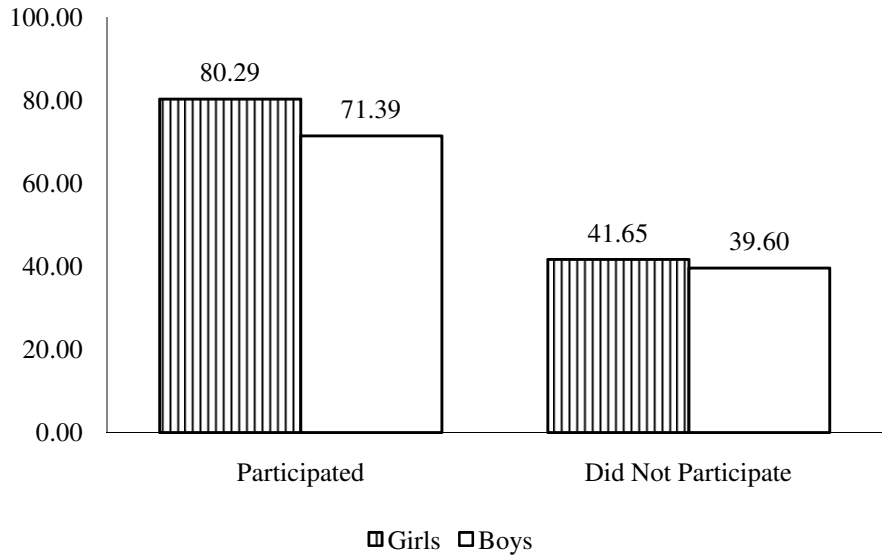

Figure 1. Comparison of Dial-3 Mean Scores: Gender Participation or Non-participation in PAT

Figure 2 illustrates the comparison between the Dial-3 mean score of boys and girls who attended and did not attend a Pre-k. The comparison shows that girls who attended a Pre-k scored higher than boys who also attended a Pre-k. Results also show that both girls and boys who attended a Pre-k had a significantly higher mean score than those who did not attend a Pre-k.

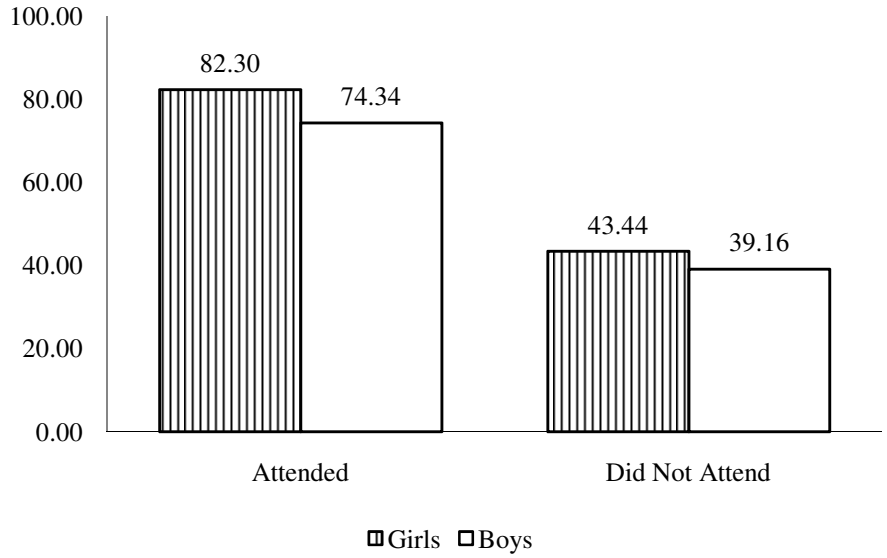

Figure 3. Comparison of Dial-3 Mean Scores: Gender Attendance or Non-attendance in Pre-k

The descriptive statistics for the Kindergarten Stanford test (Table 3) shows that boys who participated in PAT and Pre-k programs scored higher M=82.98, SD=15.8 than those who did not participate in PAT and Pre-k programs M=39.78, SD=26.74. The girls who participated in PAT and Pre-k programs also scored higher M=83.16, SD=13.35 than those who did not participate in PAT and Pre-k programs M=43.89, SD=24.02. The totals for both groups (boys, girls) were M=80.17, SD=17.74 for those who participated in PAT and Pre-k programs and M=47.30, SD=27.40 for those who did not participate in PAT and Pre-k programs. The impact of participation in PAT and Pre-k, as measured by the Kindergarten Stanford test, was clearly demonstrated in the higher mean scores of both groups in comparison to those who did not participate in specific early childhood programs.

Table 3

Means and Standard Deviations of Kindergarten Stanford Scores

Boy Students				Girl Students			
Kindergarten-Stanford				Kindergarten-Stanford			
Participation		Non-participation		Participation		Non-Participation	
PAT and Pre-k		PAT and Pre-k		PAT and Pre-k		PAT and Pre-k	
n = 63		*n* = 27		*n* = 43		*n* = 18	
Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
82.98	15.8	39.78	26.74	82.16	13.35	43.89	24.02

Note. Impact of participation and non-participation in PAT and Pre-k.

The significant data from the ANOVA test results for the Kindergarten Stanford test (Table 4) showed that F=31.48 and p=<.001 for those students who participated in PAT Data also showed that F=21.48 and p=<.001 for those students who participated in a Pre-k program. The significance level from test results of the Kindergarten Stanford test indicated a relationship between those students who participated in PAT and Pre-k and scores. Other than participation in PAT and Pre-k, no other relationship of variables in the data was found significant.

Table 4

ANOVA Test Results for Kindergarten Stanford

		df	*F*	*p*
Participation PAT		1	31.48	p<.001
Participation Pre-k		1	21.48	p<.001
Gender * PAT		1	.101	.751
Gender * Pre-k		1	.029	.865
PAT * Pre-k		1	.239	.625
Gender * PAT * Pre-k		1	.662	.417
Error	175			
Total	183			
Corrected Total	182			

*Note. ** p<.001*

Figure 3 illustrates the comparison between the Kindergarten Stanford mean score of boys and girls who participated and did not participate in PAT. The comparison shows that girls who participated in PAT scored higher than boys who also participated in PAT. Results also show that both girls and boys who participated in PAT had a significantly higher mean score than those who did not participate in PAT.

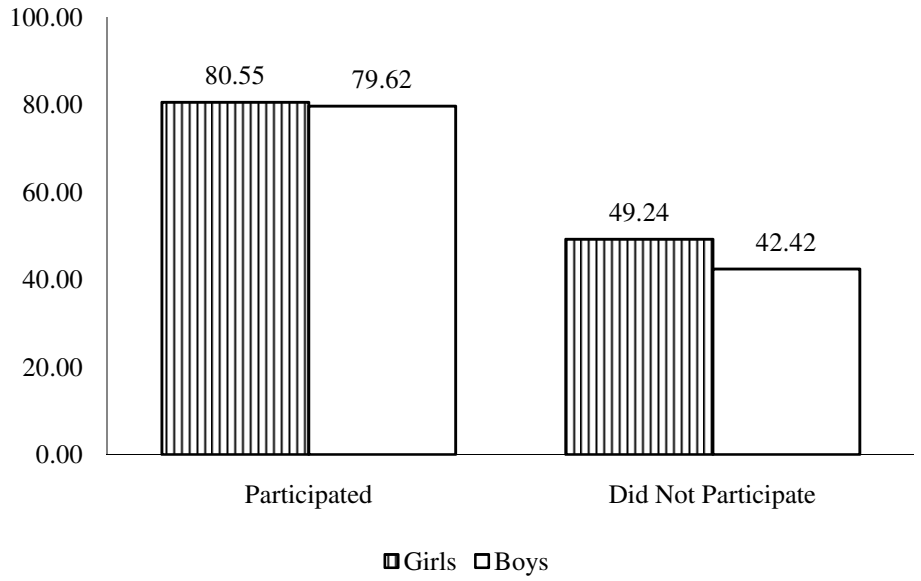

Figure 3. Comparison of Kindergarten Stanford Mean Scores: Gender Participation or Non-participation in PAT

Figure 4 illustrates the comparison between the Kindergarten Stanford mean score of boys and girls who attended and did not attend a Pre-k. The comparison shows that girls who attended a Pre-k scored higher than boys who also attended a Pre-k. Results also show that both girls and boys who attended a Pre-k had a significantly higher mean score than those who did not attend a Pre-k.

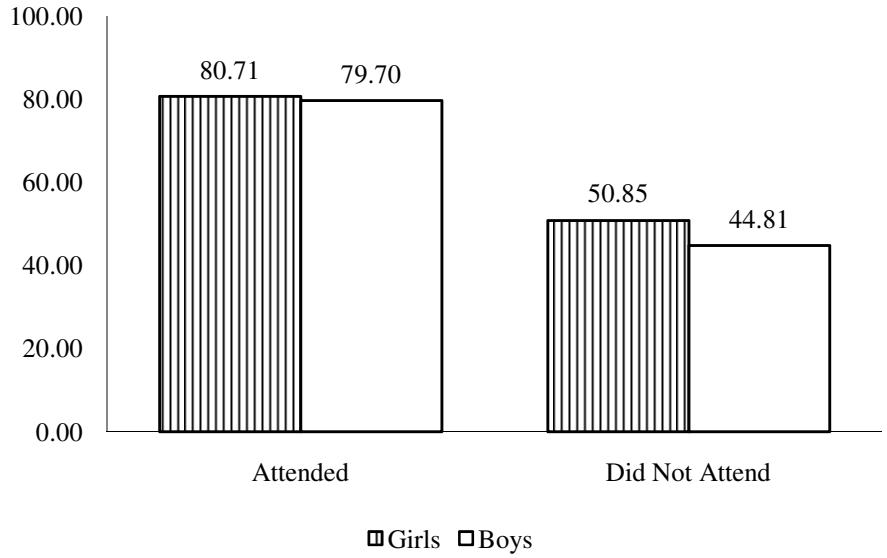

Figure 4. Comparison of Kindergarten Stanford Mean Scores: Gender Attendance or Non-attendance in Pre-k

The descriptive statistics for the First Grade Stanford test (Table 5) shows that boys who participated in PAT and Pre-k programs scored higher M=72.19, SD=17.05 than those who did not participate in PAT and Pre-k programs M=40.45, SD=21.55. The girls who participated in PAT and Pre-k programs also scored higher M=80.02, SD=15.97 than those who did not participate in PAT and Pre-k programs M=39.96, SD=21.15. The totals for both groups (boys, girls) were M=74.45, SD=17.28 for those who participated in PAT and Pre-k programs, and M=41.30, SD=21.95 for those who did not participate in PAT and Pre-k programs. The impact of participation in PAT and Pre-k, as measured by the First Grade Stanford test, was clearly demonstrated in the higher mean scores of both groups in comparison to those who did not participate in specific early childhood programs.

Table 5

Means and Standard Deviations of First Grade Stanford Scores

Boy Students				Girl Students			
First Grade-Stanford				First Grade-Stanford			
Participation		Non-participation		Participation		Non-Participation	
PAT and Pre-k		PAT and Pre-k		PAT and Pre-k		PAT and Pre-k	
n = 61		*n* = 40		*n* = 44		*n* = 22	
Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
72.19	17.05	40.45	21.55	80.02	17.05	39.96	21.15

Note. Impact of participation and non-participation in PAT and Pre-k.

The significant data from the ANOVA test results for the First Grade Stanford test (Table 6) showed F=3.172 and p=.076 for those students who participated in PAT. Data also showed that F=57.66 and p=<.001 for those students who participated in a Pre-k program. The significance level from test results of the First Grade Stanford test indicated a relationship between those students who participated in Pre-k and the reported scores of those students. Other than participation in Pre-k, no other relationship of variables in the data was found significant.

Table 6

ANOVA Test Results for First Grade Stanford

		df	*F*	*p*
Participation PAT		1	3.172	.076
Participation Pre-k		1	57.66	p<.001
Gender * PAT		1	2.24	.136
Gender * Pre-k		1	.170	.680
PAT * Pre-k		1	.503	.479
Gender * PAT * Pre-k		1	1.443	.231
Error	193			
Total	201			
Corrected Total	200			

*Note. ** p<.001*

Figure 5 illustrates the comparison between the First Grade Stanford mean score of boys and girls who participated and did not participate in PAT. The comparison shows that girls who participated in PAT scored higher than boys who also participated in PAT. Results also show that both girls and boys who participated in PAT had a significantly higher mean score than those who did not participate in PAT.

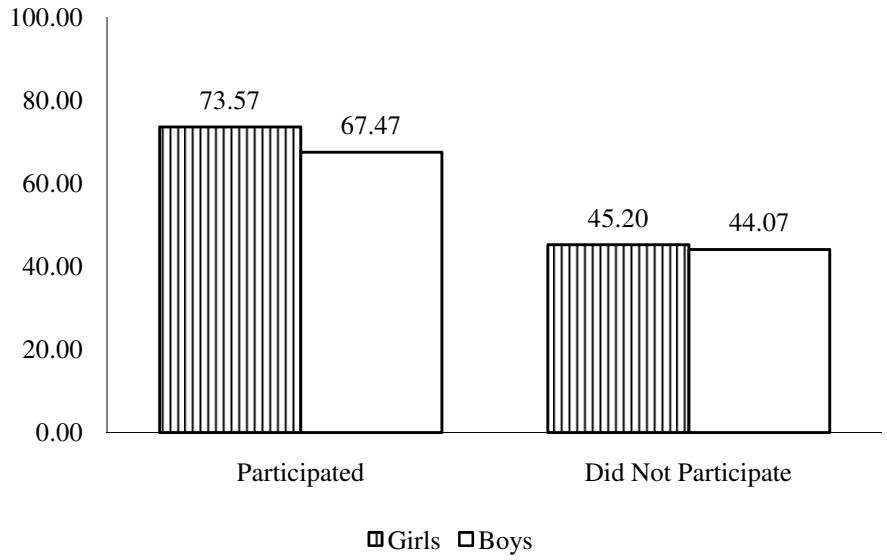

Figure 5. Comparison of First Grade Stanford Mean Scores: Gender Participation or Non-participation in PAT

Figure 6 illustrates the comparison between the First Grade Stanford mean score of boys and girls who attended and did not attend a Pre-k. The comparison shows that girls who attended a Pre-k scored higher than boys who also attended a Pre-k. Results also show that both girls and boys who attended a Pre-k had a significantly higher mean score than those who did not attend a Pre-k.

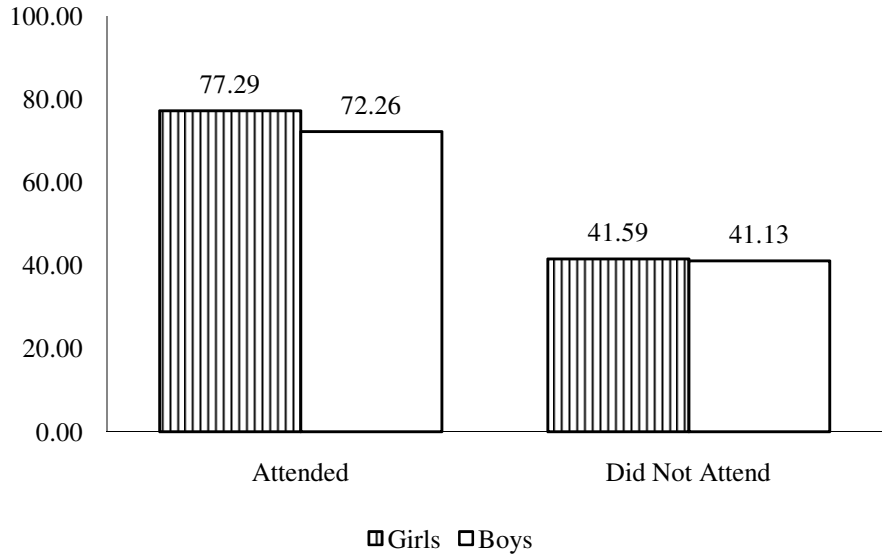

Figure 6. Comparison of First Grade Stanford Mean Scores: Gender Attendance or Non-attendance in Pre-k

The descriptive statistics for the Second Grade Stanford test (Table 7) shows that boys who participated in PAT and Pre-k programs scored higher M=76.41, SD=14.78 than those who did not participate in PAT and Pre-k programs M=29.71, SD-19.46. The girls who participated in PAT and Pre-k programs also scored higher M=78.2, SD=14.8 than those who did not participate in PAT and Pre-k programs M=24.1, SD=16.01. The totals for both groups (boys, girls) were M=76.29, SD=14.99 for those who participated in PAT and Pre-k programs and M=28.92, SD=19.58 for those who did not participate in PAT and Pre-k programs. The impact of participation in PAT and Pre-k, as measured by the Second Grade Stanford test, was clearly demonstrated in the higher mean scores of both groups in comparison to those who did not participate in specific early childhood programs.

Table 7

Means and Standard Deviations of Second Grade Stanford Scores

Boy Students				Girl Students			
Second Grade-Stanford				Second Grade-Stanford			
Participation		Non-participation		Participation		Non-Participation	
PAT and Pre-k		PAT and Pre-k		PAT and Pre-k		PAT and Pre-k	
n = 37		*n* = 28		*n* = 30		*n* = 11	
Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
76.41	14.78	29.71	19.46	78.2	14.8	24.1	16.01

Note. Impact of participation and non-participation in PAT and Pre-k.

The significant data from the ANOVA test results for the Kindergarten Stanford test (Table 8) showed F=1.821 and p=.180 for those students who participated in PAT Data also showed F=55.281 and p=<.001 for those students who participated in a Pre-k program. The significance level from test results of the Second Grade Stanford test indicated a relationship between those students who participated in Pre-k and the reported scores of those students. Other than participation in Pre-k, no other relationship of variables, in the data, was found truly significant.

Table 8

ANOVA Test Results for Second Grade Stanford

		df	*F*	*p*
Participation PAT		1	1.821	.180
Participation Pre-k		1	55.281	p<.001
Gender * PAT		1	.027	.871
Gender * Pre-k		1	.656	.132
PAT * Pre-k		1	.254	.615
Gender * PAT * Pre-k		1	2.741	.101
Error	115			
Total	123			
Corrected Total	122			

*Note. ** p<.001*

Figure 7 illustrates the comparison between the Second Grade Stanford mean score of boys and girls who participated and did not participate in PAT. The comparison shows that girls who participated in PAT scored higher than boys who also participated in PAT. Results also show that both girls and boys who participated in PAT had a significantly higher mean score than those who did not participate in PAT.

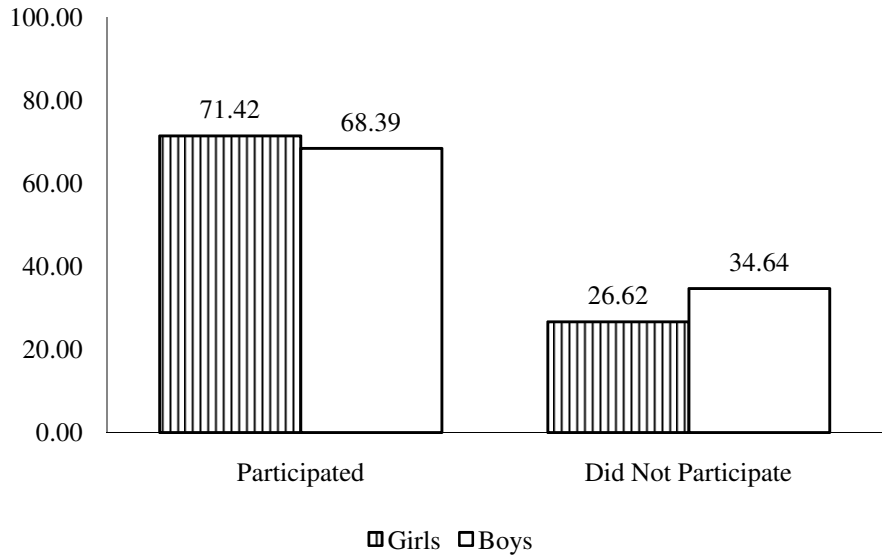

Figure 7. Comparison of Second Grade Stanford Mean Scores: Gender Participation or Non-participation in PAT

Figure 8 illustrates the comparison between the Second Grade Stanford mean score of boys and girls who attended and did not attend a Pre-k. The comparison shows that girls who attended a Pre-k scored higher than boys who also attended a Pre-k. Results also show that both girls and boys who attended a Pre-k had a significantly higher mean score than those who did not attend a Pre-k.

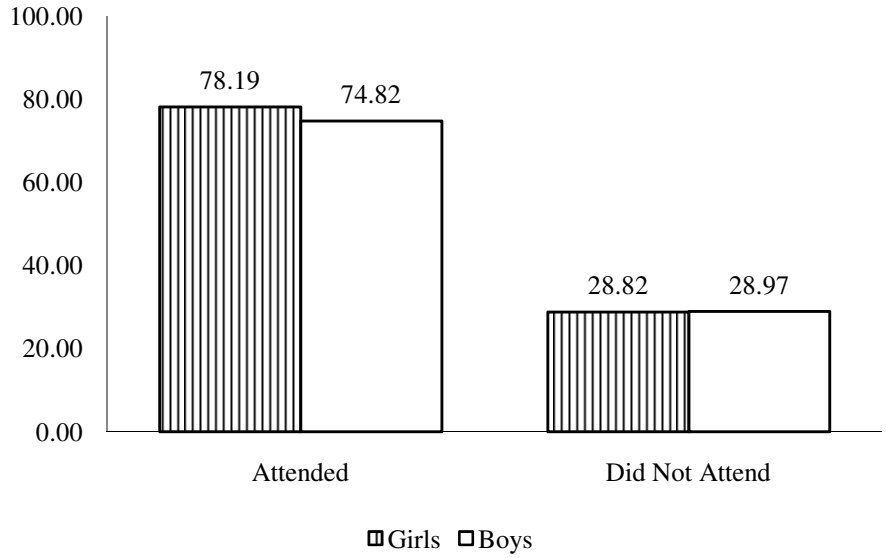

Figure 8. Comparison of Second Grade Stanford Mean Scores: Gender Attendance or Non-attendance in Pre-k

The descriptive statistics for the Third Grade Stanford test (Table 9) shows that the boys who participated in PAT and Pre-k programs scored higher M=67.73, SD=18.53 than those who did not participate in PAT and Pre-k programs M=19, SD=18.06. The girls who participated in PAT and Pre-k programs also scored higher M=74.71, SD=14.38 than those who did not participate in PAT and Pre-k programs M=12.0, SD=14.58. The totals for both groups (boys, girls) were M=69.64, SD=16.58 for those who participated in PAT and Pre-k programs and M=18.08, SD=16.11 for those who did not participate in PAT and Pre-k programs. The impact of participation in PAT and Pre-k, as measured by the Third Grade Stanford test, was clearly demonstrated in the higher mean scores of both groups in comparison to those who did not participate in specific early childhood programs.

Table 9

Means and Standard Deviations of Third Grade Stanford Scores

Boy Students				Girl Students			
Third Grade-Stanford				Third Grade-Stanford			
Participation		Non-participation		Participation		Non-Participation	
PAT and Pre-k		PAT and Pre-k		PAT and Pre-k		PAT and Pre-k	
n = 11		*n* = 16		*n* = 14		*n* = 8	
Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
67.73	18.53	19	18.06	74.71	14.38	12	14.58

Note. Impact of participation and non-participation in PAT and Pre-k.

The significant data from the ANOVA test results for the Third Grade Stanford test (Table 10) showed F=2.133 and p=.150 for those students who participated in PAT. Data also showed F=64.978 and p=<.001 for those students who participated in a Pre-k program. The significance level from test results of the Third Grade Stanford test indicated a relationship between those students who participated in Pre-k and the reported scores of those students. Other than participation in Pre-k, no other relationship of variables, in the data, was found truly significant.

Table 10

ANOVA Test Results for Third Grade Stanford

		df	*F*	*p*
Participation PAT		1	2.133	.150
Participation Pre-k		1	64.978	p<.001
Gender * PAT		1	.001	.977
Gender * Pre-k		1	1.434	.236
PAT * Pre-k		1	.599	.442
Gender * PAT * Pre-k		0		
Error	56			
Total	63			
Corrected Total	62			

*Note. ** p<.001*

Figure 9 illustrates the comparison between the Third Grade Stanford mean score of boys and girls who participated and did not participate in PAT. The comparison shows that girls who participated in PAT scored higher than boys who also participated in PAT. Results also show that both girls and boys who participated in PAT had a significantly higher mean score than those who did not participate in PAT.

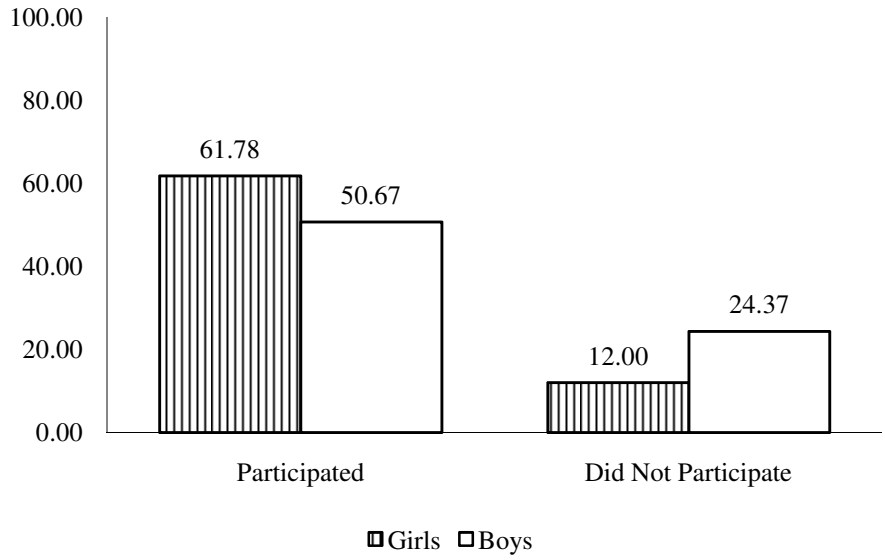

Figure 9. Comparison of Third Grade Stanford Mean Scores: Gender Participation or Non-participation in PAT

Figure 10 illustrates the comparison between the Third Grade Stanford mean score of boys and girls who attended and did not attend a Pre-k. The comparison shows that girls who attended a Pre-k scored higher than boys who also attend a Pre-k. Results also show that both girls and boys who attended a Pre-k had a significantly higher mean score than those who did not attend a Pre-k.

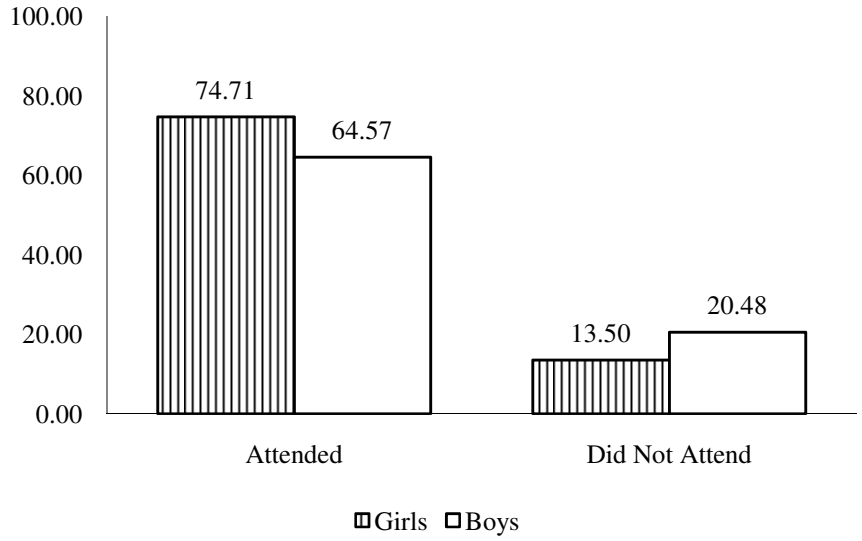

Figure 10. Comparison of Third Grade Stanford Mean Scores: Gender Attendance or Non-attendance in Pre-k

The descriptive statistics for the Kindergarten Teacher Perception web-based survey (Table 11) showed that a majority of the teachers perceived PAT as either a beneficial or an extremely beneficial program for students before entering school. A majority of the teachers perceived Pre-k as an extremely beneficial program before entering school. The main area that kindergarten teachers felt were most impacted by participation in PAT and Pre-k programs was social and emotional development (Table 12).

Table 11

Kindergarten Teacher Perception of Benefit Frequency Table

	PAT *n=60*	Pre-k *n=60*
Not Beneficial	0	0
Somewhat Beneficial	0	0
Moderately Beneficial	2	1
Beneficial	22	8
Extremely Beneficial	36	51

Note. Frequencies show kindergarten teacher perception of P.A.T and Pre-k programs to be extremely beneficial.

Table 12

Kindergarten Teacher Perception of Impact Frequency Table

Area of Impact	
Social and Emotional	26
Language Development	8
Pre-reading Skills	18
Motor Skills	4
Mathematics	3
Cognitive Thinking Skills	1

Note. Frequencies show kindergarten teacher perception of impact from PAT and Pre-k programs as the area of social and emotional.

Research Questions Findings

All of the organized data in Table 1-12 and Figure 1-10 relates to the two research questions that guided this study. Question one focused on the relationship between students (boys, girls) who have participated in PAT and Pre-k programs (prior to entering kindergarten) and those who did not participate in Parents as Teachers and Pre-k programs and their language/reading scores from K-3 standardized testing.

The data results showed that both boys and girls who participated in PAT and Pre-k programs scored higher than those who did not participate in PAT and Pre-k programs. The impact of participation, as measured by the Dial-3 and Stanford tests, was evident in the higher mean scores of both groups, in comparison to those who did not participate in specific early childhood programs. Other than participation in PAT and Pre-k, no other relationship of variables in the data was found significant.

Tables 1-10 support this quantitative question. Question two focused on the perceptions that kindergarten teachers have concerning the impact that early childhood programs, such as PAT and Pre-k, have on a student's academic success. Table 11 displays the data supporting teacher's perceptions. The data in Table 12 shows that kindergarten teachers feel that the area most impacted by exposure to early childhood programs is social and emotional.

Summary

The purpose of this study was to explore the nature of the relationship between early childhood programs, such as PAT and Pre-k, and student achievement and the perception that teachers have concerning the impact that early childhood programs have on student success. The data was analyzed through a three-way ANOVA to find the relationship between students (boys, girls) who participated in PAT and Pre-k programs (prior to entering kindergarten) and those who did not participate in PAT and Pre-k programs and their language/reading scores from K-3 standardized testing. Using a comparison of means from the data generated helped to show the impact that early childhood programs have on student achievement. The conclusive results of this study showed that the mean score of K-3 students of each gender who participated in PAT and Pre-k programs prior to entering kindergarten was continually higher than those who did not participate in the specific early childhood programs. Other than participation in PAT and/or Pre-k, no other relationship of variables in the data was found significant.

Statistical analyses of the data and findings of the study were presented in this chapter. Conclusions to the results are discussed in Chapter Five. In addition,

conclusions, implications, and recommendations for further study are found in the final chapter.

CHAPTER FIVE: DISCUSSION

The purpose of this study was to explore the nature of the relationship between early childhood programs, such as PAT and Pre-k, and student achievement and the perception that teachers have concerning the impact that early childhood programs have on student success. This study confirmed existing beliefs about the importance of early childhood programs. The study's design allowed for investigating test scores through a quantitative approach and kindergarten teacher's perceptions through a qualitative approach. Both approaches lent themselves to the conclusive results of this study.

The study included data from student's Dial-3 and Stanford test scores and were analyzed and compared. For the expanded purposes of the study, selected kindergarten teachers, from districts comparable in size, were given a web-based perception survey in the southwest Missouri area concerning their perception of early childhood programs and the impact they have on student achievement. All of the data was gathered and analyzed through SPSS. The analysis determined which factors or combination of factors was more predictive of high student achievement. The conclusive results of this study showed that on all the test data collected, the mean scores of K-3 students, of each gender, who participated in PAT and Pre-k programs prior to entering kindergarten, were continually higher than those who did not participate in the specific early childhood programs.

Conclusion

The results of the study imply that student participation in PAT and Pre-k programs could be key factors in student achievement. In the five three-way ANOVA results, both boys and girls that participated in the specific early childhood programs consistently out scored those who did not participate. Overall, girls had higher mean scores on all test data if they participated in PAT and Pre-k programs prior to entering kindergarten. Other than participation in PAT and/or Pre-k, no other significant relationship was found between variables.

The qualitative piece from the Kindergarten Teacher Perception survey data provided interesting information that agreed with the quantitative data. The kindergarten teachers surveyed agreed that PAT and Pre-k programs are either beneficial or extremely beneficial to the academic success of students. The area that teachers felt were most impacted was the area of social and emotional growth.

Implications

There are several implications for future support of early childhood programs that can be drawn from this research. The setting and participants created a factor of inherent generalization and even though early childhood programs may be similar in name, the programs can have varying degrees of differences concerning program focuses and implementation. Another implication to consider is that not all school districts administer the same tests and retain the same data on students, and the study had specific conditions that may or may not exist in other school districts. Therefore, it is important for other researchers to be cautious in comparing the results of this study to results of studies conducted in other settings.

Next, test scores do not necessarily take into account the unique characteristics of a particular population or student mobility, and therefore, a score is only one indicator of the impact of early childhood programs. When used in conjunction with other information, test results can be one factor in assisting in the improvement of student learning and academic success.

Finally, this study may be useful for school boards and superintendents as they make decisions about early childhood programs in their districts. A concerted effort by all stakeholders, parents, educators, and policy makers to provide opportunities for children to attend early childhood programs is necessary.

Recommendations for Further Study

Based on the findings of this study, specific recommendations for further research are suggested. The researcher recommends conducting a follow-up study in additional districts and states to investigate the impact of early childhood education programs on student success. The researcher recommends investigating the link between the impact of early childhood programs on at-risk students and other subgroups. The researcher suggests strengthening the research presented in this study with specific cost analysis of a statewide or universal early childhood program reform model. The researcher suggests further studying the impact that proactive programs in early childhood have on retention, attendance, discipline, and juvenile delinquency. The current study focused on the areas of language and reading scores. The researcher recommends looking at other areas of academics and the impact that early childhood programs have on these areas.

The exploratory research in this study involves the finding of unexpected and expected relationships, which can provide insight for additional research. The

recommendations of this study are an indication of the need for further investigation in the area of early childhood programs and student success. Further studies are necessary to validate and expand upon the findings presented in this study. The recommendations offered in this study are based upon the optimism that change will transpire to provide quality early childhood programs and practices that may improve the educational experiences of all students prior to entering kindergarten. Through examining the impact that early childhood programs can have on student achievement, insight can be gained in the importance of taking preventative measures as a leader of a school or organization. High-quality early childhood education is not just ideal for children but rather an essential investment for schools, families, and communities. The key purpose of this study was not just to answer questions, but also to inspire others to view early education in a completely new light and degree of importance.

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Appendix A

Survey Participation Form

Dear Administrator:
I am requesting your assistance in my study of The Effect of Early Childhood Programs on Student Achievement. My study will include kindergarten teacher's perception of whether or not early childhood programs, such as Parents-As-Teachers and Pre-k, positively affect student's academic success. According to DESE records, your building contains kindergarten classrooms. Would you please forward this email to the kindergarten teachers in your building? Your assistance in this study is greatly appreciated.

Dear Kindergarten Teacher,
My name is Kelly Sutherland. I am a doctoral student with Lindenwood University, St. Charles, Missouri.
I am requesting your assistance in my study by taking a web-based survey of kindergarten teacher's perception of whether or not early childhood programs, such as Parents-As-teachers and Pre-k, positively impact student's academic success.

All the information collected will be anonymous. I will not record your name or any information that could be used to identify you or your school.

If you would like to participate, please click on the link below for the survey. The survey is very short.

Appendix B

Kindergarten Teacher Perception Survey

I am requesting your assistance, in my dissertation study, by taking a web-based survey of kindergarten teacher's perception of whether or not early childhood programs, such as Parents-As-Teachers and Prek programs, positively impact student's academic success. The survey will only take approximately 2-5 minutes. Survey results from kindergarten teachers will be collected and compiled anonymously. For purposes of this study, selected kindergarten teachers, from districts comparable in size, are being surveyed in the southwest Missouri area.

The results of this study will also be accessible via Lindenwood University library of dissertations. Your completion of this survey signifies your informed consent. If you have any questions about this study, please contact Kelly Sutherland at sutherlandk@fairgrove.k12.mo.us or at (417)759-2555. Your prompt attention to the submission of this survey is greatly appreciated.

Thank you for your time.
Kelly Sutherland, Fair Grove R-X School District

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* Required

Parents-As-Teachers Program * Rate the following type of early childhood program experience with (1) being not at all beneficial and (5) being extremely beneficial in impacting student's academic success.

	1	2	3	4	5	
Not Beneficial At All	☐	☐	☐	☐	☐	Extremely Beneficial

Prek Program * Rate the following type of early childhood program experience with (1) being not at all beneficial and (5) being extremely beneficial in impacting student's academic success.

	1	2	3	4	5	
Not Beneficial At All	☐	☐	☐	☐	☐	Extremely Beneficial

In your opinion, what area do you feel a student is most positively impacted in if they have been exposed to early childhood programs such as Parents-As-Teachers and Prek? *

- ☐ Social and Emotional
- ☐ Language Development
- ☐ Pre-Reading Skills
- ☐ Motor Skills
- ☐ Mathematics
- ☐ Cognitive Thinking Skills

VITA

Kelly A. Sutherland was born March 16, 1965, in Slater, Missouri. She graduated from Fayette High School in 1983. After graduation, she earned a bachelor's degree in Elementary Education and Early Childhood Education from Central Methodist University (1987), a master's degree in Elementary Education (1991) from Southwest Missouri State University, a master's degree in Elementary and Secondary Administration (2004) from William Woods University, a specialist degree from Lindenwood University (2007), and a doctorate degree in Educational Administration from Lindenwood University (2009).

Kelly served as a teacher in the Willard School District in Willard, Missouri for 16 years and in the Spring Independent School District in Houston, Texas for one year. She then served as the elementary principal for the Pleasant Hope School District in Pleasant Hope, Missouri for two years. For the past three years, she has served as the elementary principal for the Fair Grove School District in Fair Grove, Missouri.

Married to Brian Sutherland, Kelly is the mother of two daughters, Lexie Mylene and Lindy Ann.