

**THE IMPACT OF PRE-KINDERGARTEN ENROLLMENT ON STUDENT
PERFORMANCE AS IDENTIFIED BY THIRD GRADE READING AND
MATH TEXAS ASSESSMENT OF KNOWLEDGE AND SKILLS
(TAKS) SCORES AMONG SELECTED TITLE I
ELEMENTARY SCHOOLS**

A Record of Study

by

WANDA MALDONADO

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

May 2008

Major Subject: Educational Administration

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Approved by:

Co-Chairs of Committee, Virginia Collier
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ABSTRACT

The Impact of Pre-kindergarten Enrollment on Student Performance as Identified by Third Grade Reading and Math Texas Assessment of Knowledge and Skills (TAKS) Scores Among Selected Title I Elementary Schools. (May 2008)

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The purpose of this study was to determine if the intervention of attending public school pre-kindergarten reflected an impact on student achievement as measured by third grade Texas Assessment of Knowledge and Skills (TAKS) considering gender, English language learner status, socio-economic status, and the language of the test. To determine this impact, the performance of third grade students who attended pre-kindergarten in 10 selected elementary schools in San Antonio was compared to students in these same schools who did not attend pre-kindergarten.

Quantitative techniques and analyses were used to illustrate data collected from the research sample. A t-test for independent means was used for Research Questions #1 and #2. An Analysis of Variance (ANOVA) procedure was also used to analyze the data as a function of gender, English language learner status, socio-economic status, and the language of the test in Research Question #3.

Findings in the study included the following:

1. There was statistical significant difference on third grade TAKS reading scores among the students who attended pre-kindergarten.
2. There was statistical significant difference on third grade TAKS math scores among the students who attended pre-kindergarten.
3. There was no statistical significant difference on third grade TAKS reading or math among the students who attended or did not attend pre-kindergarten based on gender, socio-economic, English language learner status, and the language of the test.

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My sons, Joel and Robert, are the love of my life. I am so proud of them. I wanted to do this for them as an example of what can be accomplished when you are determined.

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CHAPTER I

INTRODUCTION

The No Child Left Behind Act of 2001 (NCLB) is the current driving legislation in American education. It is the latest reform effort enacted that focuses on closing the achievement gap between disadvantaged minority groups and their peers by increasing a school's accountability based on student performance (U.S. Department of Education, 2005a). There are four main components in NCLB: (a) accountability for results, (b) research-based education programs, (c) increased parental involvement, and (d) expanded local control and flexibility.

Within the accountability component of NCLB, schools and school districts must show adequate yearly progress (AYP) so that by the year 2014 all students are achieving a "proficient" level in reading and math in either English or Spanish in state assessments. To measure progress toward this goal, data are reported by student groups such as disadvantaged students, students with disabilities, students with limited English proficiency, and students from major racial and ethnic groups. In addition, students are not permitted to pass to the next grade level if they do not pass the state reading test in third grade and reading and math in fifth grade in English or Spanish (Texas Education Agency [TEA], 2007). This goal of reaching proficiency in reading and math for all students is based on the assumption that all children start school ready to learn. NCLB also assumes that all children are equally prepared for the formal instruction in

The style for this record of study follows that of the *Human Resource Development Quarterly*.

kindergarten and first grade, which will lay the foundation and preparation for the third grade assessment (Neuman, 2003).

While NCLB requires all states to measure student achievement, there are identified impediments to student success. One of these impediments is the fact that more than half of the United States children are reported to have one or more risk factors for school failure. Some of these designated risk factors are that children may be identified as coming from families that are economically disadvantaged or identified as English language learner. Children with these designated risks factors are likely to have had limited exposure to language development opportunities, books, storybook reading, and other literacy-related activities. These literacy opportunities are critical in providing a foundation for reading readiness as children begin the reading process (Magnuson, Meyers, & Ruhm, 2004). Poor school readiness increases the likelihood of grade level retention, low academic achievement, special education placement, and ultimately school dropout (Ramey & Ramey, 2004). Politicians, researchers, and policymakers all agree that in order to overcome the educational deficit of economically disadvantaged children, the educational system that serves three and four year old children must be improved (Guthrie & Springer, 2004).

President Bush in his state of the union address delivered January 2002 mentioned the need to prepare children to read and succeed in school. He also mentioned the need to improve early childhood programs. Early childhood is the period in a child's life from birth to five years old when the child develops physical, emotional,

social, and cognitive skills. These skills begin to develop at birth and serve as a foundation for reading readiness skills that are needed as the child begins to read.

The Good Start, Grow Smart (White House, 2002) is an early childhood initiative that addresses the significant number of young children who are receiving care outside the home. The purpose of the Good Start, Grow Smart initiative is to help states and communities strengthen early learning for children. This initiative reflects President Bush's belief that all children must begin school with an equal chance at achievement.

In addition to receiving care outside the home, there are a variety of other early childhood care settings. These include: (a) parental care at home; (b) informal care such as a relative, babysitter, or family day care center; and (c) preschool, which includes Head Start programs or pre-kindergarten programs (Magnuson & Waldfogel, 2005).

For the purpose of this study, the focus was on pre-kindergarten programs that operate in public schools. Pre-kindergarten programs are designed to help disadvantaged students achieve school readiness and success. Eligibility for the programs are restricted to children who are at least three years old and are educationally disadvantaged as defined by school poverty criteria outlined in the federal free and reduced price lunch program, unable to speak and comprehend the English language, or homeless (Council of Chief State School Officers[CCSSO], 2005a).

Statement of the Problem

There is performance data on private school programs, day care programs, and the Head Start program but little reported data on public school pre-kindergarten programs as presented by the National Center for Education Statistics (NCES).

According to the report entitled *Pre-kindergarten in U.S. Public Schools: 2000-2001* (NCES, 2003), there is little data on the role public schools play in early childhood education. Most of the available data does not differentiate public school programs from other early childhood programs. Additional research is needed in order to reinforce the importance of (a) providing opportunities for all students to attend a quality pre-kindergarten program (b) aligning the components of high quality pre-kindergarten programs with Texas Essential of Knowledge and Skills and Texas Assessment of Knowledge and Skills in order to impact future school success, (c) discussing of early learning interventions and the implications and policy recommendations of such, (d) addressing the needs of the Hispanic population in our schools, and (e) disseminating information to decision-makers in Texas school districts and government in reference to the importance of all students having the opportunity to attend a quality Texas pre-kindergarten program.

Purpose of the Study

The added pressure that accompanies high-stakes testing has forced attention on the quality of instructional programs. The results of high stakes tests has been used to determine student promotion, assignment to particular classes, and whether or not students graduate (Coltrane, 2002). In Texas, students who do not pass the TAKS at the high school exit level do not receive a diploma. In addition, beginning with the 2002-2003 school year, third grade students who did not meet the passing standards on the reading test in English or Spanish have been subject to retention (TEA, 2005b).

Stricter requirements and higher standards have led educators to take a closer look at the importance of early intervention for all students designated at risk of failure in schools (Barnett & Hustedt, 2003). Over the past 20 years, there has been a gradual expansion of early childhood education programs for three and four year olds as one example of early intervention (Wohl, 2001). The purpose of this study, therefore, was to determine if the intervention of attending public pre-kindergarten impacted third grade TAKS regardless of gender, English language learner status, socio-economic status, and the language of the test.

To determine this impact, the performance of third grade students who attended pre-kindergarten in 10 selected elementary schools in San Antonio, Texas, was compared to students in these same schools who did not attend pre-kindergarten. All 10 schools within this study were Title I schools, so all students were identified as economically disadvantaged. Further breakdown of indicators was taken into consideration as to gender, second language learners status, socio-economic status, and the language of the test. Table 1.1 represents the demographics for the school district that was part of this study.

Table 1.1 indicates the high number of Hispanics at this school district. Table 1.2 indicates the high number of low socio-economic students, followed very closely by a high number of designated at-risk students. It is important to note that although there is a high number of Hispanics, there are only 17% identified English language learners.

Table 1.1. Numbers and Percentage of Students in the San Antonio School District Used in This Study

Ethnicity	Number of Students	Percentage of Students
Hispanic	9,371	95.8
White	231	2.4
African American	151	1.5
Asian/Pacific Islander	21	0.2
Native American	12	0.1
Total	9,786	100.0

Table 1.2. Number and Percentage of Students in Selected Categories for the San Antonio School District Used in This Study

Categories	Number of Students	Percentage of Students
Students Receiving Free and Reduced Lunch (low-SES)	8,900	90.0
English Language Learners (ELL)	1,647	16.8
At-Risk Students	8,064	82.4

Significance of the Study

The achievement gap among economically disadvantaged and other groups is evidenced by student performance on TAKS scores. A review of TAKS data shows that the economic disadvantaged group is lagging behind in student achievement. One

reason is that many of the students entering kindergarten are coming in with a deficit. One of the interventions that can be provided is a quality pre-kindergarten program. This study will assist in determining the impact of public pre-kindergarten programs on student achievement.

Research Questions

The study was guided by the following research questions:

1. Is there a significant difference in the third grade 2006-2007 TAKS reading scores administered in English or Spanish between students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?
2. Is there a significant difference in the third grade 2006-2007 TAKS math scores administered in English or Spanish between students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?
3. When comparing gender, English language learner status, socio-economic status, and the language of the test, is there a significant difference in the third grade 2006-2007 TAKS math and reading scores administered in English or Spanish among students who participated in public pre-kindergarten programs compared to those who did not participate in public

pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

Operational Definitions

Findings of this study are to be reviewed within the context of the following definition of operational terminology:

Academic Excellence Indicator System (AEIS): The AEIS is a report released by the Texas Education Agency (TEA) in the fall of each school year. It contains information submitted by school districts through the Texas Public Education Information Management System during the previous year. The information contained in the AEIS relevant to this study are the achievement scores of students on the Texas Assessment of Knowledge and Skills by grade level, gender, socio-economic status, and limited English proficiency category.

At-Risk: A student is designated “at risk” of dropping out of school based on state-defined criteria (§TEC 29.081). A student at-risk of dropping out of school includes each student who is under 21 years of age and meets a TEA indicator that identifies the student as being at-risk.

English Language Learner (ELL): ELL is a term used to describe a student whose native language is other than English and has not met the criteria for being classified as English proficient. This term is often used in the literature in lieu of limited English proficient. For the purpose of this study, English language learner has been used.

Head Start Program: The Head Start program is a federal government education initiative that has provided children from low-income families with free access to early education programs since 1965.

Limited English Proficient (LEP): LEP is a term used to describe a student whose native or dominant language is other than English and who has yet to meet the criteria for being classified as English proficient. While the term English language learner was often used in the literature in lieu of limited English proficient, TEA continues to use the latter. For the purpose of this study, English language learner has been used.

Pre-kindergarten Students: These are students who participate in a public school district's pre-kindergarten program. In Texas, these students must meet specific state criteria. The criteria is that students must be eligible for federal free or reduced price lunch based on an income survey and are four years old by September 1. Students are also eligible if they are determined to be Limited English Proficient based on a home language survey and results of a language proficiency assessment. The group of students represented in this study is Hispanics.

Public Education Information Management System (PEIMS): PEIMS is a statewide data management system for public education information in the state of Texas. Information such as district organization, finance, staff, and student demographic can be accessed from this database.

Second Language Acquisition: This term refers to students who are learning a second language in addition to their native language. These students have been identified as second language learners after completing a home language survey and being assessed using a language proficiency test. These students receive instruction in their native language and in the second language.

Socio-Economic Status (SES): This term identifies the current level of income to determine eligibility for free, reduced, or full price meals under the national school lunch and child nutrition program or other public assistance. This status is determined by providing income documentation.

Texas Assessments of Knowledge and Skills (TAKS): This term refers to the criterion-referenced test administered to students in grades 3-11 in the areas of reading, language arts, math, writing, science, and social studies. Students in third grade are tested in math and reading only. The test is administered in English and Spanish.

Title I-Improving the Academic Achievement of the Disadvantaged: This program provides financial assistance to the local education agency and schools with high numbers or high percentage of poor children to help ensure that all children meet challenging state academic standards. The school district in this study is a Title I district; therefore, all schools in this school district are considered Title I.

Assumptions

The findings of this study have been preceded by the following assumptions:

1. The researcher was impartial and objective in the analysis of data.

2. The methodology proposed and described offers the most logical and appropriate design for this particular research project.
3. The interpretation of the data accurately reflected that which was intended.

Limitations

The findings of this study were limited by the following:

1. The scope of this study was limited to the information and data acquired from the literature review and TAKS results.
2. The findings of this study may not be generalized to any group other than the selected elementary public schools in San Antonio, Texas.

Organization of the Record of Study

The study is organized into five chapters. Chapter I presents an introduction to the study and includes a statement of the problem, purpose of the study, significance of the study, research questions, assumptions and limitations of the study, and definition of key terms.

Chapter II contains the review of related literature. Chapter III contains the methodology used in the study. Chapter IV presents the analysis of the data. The summary and conclusions are included in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Across the United States, school districts are strategically planning on ensuring all children reach academic proficiency and no child is left behind. Educators, policymakers, and business leaders are looking beyond K-12 education systems. They are realizing that by the time some children reach kindergarten, they are already behind their peers in school readiness skills. As children advance through elementary, middle, and high school, the cost is higher and the gap is wider and more difficult to close. Many states have realized that they must get it right from the beginning by providing additional funds to provide pre-kindergarten services to more or all children, with the goal to better prepare young children for success during their educational career and beyond (Reynolds, Magnuson, & Ou, 2006; Sturrock, 2005).

In addition, the potential for positive returns on investments in early childhood programs has led to recruit and develop new allies in particular, business leaders, and economic advocates in supporting early childhood programs. They have come to the realization that high-quality investments in the education and health of young children would have huge long-term economic payoffs, both to our children and to society at large (Bruner, 2004; Jacobson, 2001; Lynch, 2004).

In other words, providing pre-kindergarten services is an important strategy in order to increase economic productivity, promote school readiness, and meet the accountability requirements that all schools are facing at the federal, state, and local

level (Brooks-Gunn, 2003, 2005; Kauerz & McMaken, 2004; O'Brien & Dervarics, 2006; Reynolds et al., 2006).

This chapter presents a review of the literature as it pertains to the impact of attending pre-kindergarten on student achievement. The literature will be reviewed in the following areas: (a) historical background of pre-kindergarten programs in the United States and international influence on such; (b) historical background of pre-kindergarten programs in Texas including a description of the Texas Pre-kindergarten Curriculum Guidelines; (c) Hispanic population in pre-kindergarten; (d) the importance of pre-kindergarten programs, including the impact of landmark projects and programs; (d) a discussion on the impact of attending pre-kindergarten on student achievement and, (e) summary of the chapter.

History of Pre-kindergarten Programs

Pre-kindergarten Programs in the United States

Early childhood education in the United States has been influenced by Western European nations. This influence can be seen in the manner Americans understand children's early learning development and also policies and practices. We can see this by examining the historical timeline of early childhood education in the United States (New, 2005).

The history of early childhood education in the United States began in Boston in 1828. The Boston Infant School is considered the country's first day care center for children ages eighteen months to four years old. It was established for two reasons: to enable mothers to work and also to provide an appropriate setting for children while the

mothers were working. The Boston Infant School placed emphasis on the importance of children's early years before the age of six (Andrews & Slate, 2001). The Infant School was modeled after the infant schools in Scotland developed by Robert Owens, a Welsh educator. Infant Schools in Scotland were for children two through six years old whose mothers worked in factories. Children in these schools received literacy and moral instruction while attending school (Saracho & Spodek, 2003).

Another example of the influence of European culture was the term "nursery" school that was implemented by advocates of health services to describe environments for the "total child." Abigail Eliot founded the Ruggles Street Nursery School Training Center in Boston after visiting Britain and following their model. She expanded the idea of the whole child to include the family (New, 2005). The school was established for children of poor women and its focus was on teaching parenting skills, custodial care, and hygiene. This type of nursery school continued until the 1960's (Mitchell, Seligson, & Marx, 1989).

Likewise, the Montessori program was another educational program offered to young children during the time of the nursery school movement. Development of these schools in the United States began in the 1920's, and they continue to be represented in all areas of the United States. This program was based on the works of Dr. Maria Montessori, an Italian physician. Dr. Montessori began her career working with mentally retarded students and later worked with children who lived in the slums of Rome. She emphasized sensory education and identified periods in the development of children when the children were more receptive to learning (Saracho & Spodek, 2003).

The nursery school movement continued to develop slowly through the mid-1960's until the federal government got involved in providing preschool education for children from low-income families. Pre-kindergarten programs for disadvantaged children were provided through the Economic Opportunity Act (EOA) of 1964 and the Elementary and Secondary Education Act of 1965 that were part of President Lyndon B. Johnson's War on Poverty. The acts were designed to bridge the gap between poverty and middle class and provide individuals with opportunities for education and training for work (Andrews & Slate, 2001).

In addition to these influences, special education legislation has strongly affected early childhood education. In 1986, the passage of Public School Law 99-457, a mandate for free and appropriate public education for preschool children, ages three-five with disabilities increased the number of students attending pre-kindergarten (Landry, 2005).

In response to the interest in early education, in 1991, the U.S. National Institute of Child Health and Human Development (NICHD) formed a team of researchers to design and implement a study of child care (Landry, 2005). The study addressed the relationship between child care arrangements, experiences and children's developmental outcomes. The study measured the following variables:

- parenting practices,
- maternal vocabulary,
- children's social development, and
- language mastery.

Data from this study reflected that the amount of time spent in a day care had no relationship to language or cognitive development. The study did show that the overall quality of child care predicted children's language and cognitive development. Quality was determined by sensitive care giving and frequency of language stimulation. The NICHD study showed the value of a high quality child care arrangements, but it did not identify any specific early childhood programs that showed the impact of child care on later life (Landry, 2005).

Consequently, three federal initiatives were implemented in order to have a clearer picture of pre-kindergarten programs, the transition of preschool children into kindergarten, and determining and promoting the lasting effects pre-kindergarten had on the primary grades (Reynolds et al., 2006).

The three initiatives are the following:

- Project Development Continuity Initiative was implemented by the Office of Child Development. It began in 1966 and was designed to enhance the transition of preschool to kindergarten and the primary grades. The project was short lived and had little evaluation of effectiveness.
- Follow Through-Head Start is the most well known PK-3 program. U.S. Office of Education funded and implemented this initiative across the nation from 1968 to 1996; the goal of Follow Through was to do what Head Start did not – provide a continuum of intervention services for low-income children from preschool to third grade. Due to the funding cuts and difficulties in coordinating services between Head Start and school-based

settings, Follow Through became a social experiment of the effects of alternative instructional methods on school achievement. The more recent National Head Start – Follow Through was continued in order to provide a more continuous intervention experience between preschool and third grade. It was implemented from 1991-1998, in 31 sites.

- Title I of the Elementary and Secondary Education Act of 1965 (now part of the No Child Left Behind Act) has been the latest initiative that addresses and provides a variety of funds for children and public educations. Title I provides block grants to school districts that serve relatively high proportions of children from low-income families.

The Elementary and Secondary Education Act (ESEA) of 1965 marked the beginning of federal funding for early childhood education. ESEA is the government's single largest investment in elementary and secondary education (National Education Association [NEA], 2002). This act is reauthorized every five years since its enactment and has undergone numerous name changes. However the basic premise of the law still stands today," it provides targeted resources to help ensure that disadvantaged students have access to a quality public education" (NEA, 2002). The ESEA outlines and provides funds for many educational programs that are essential for public education. These programs cover a wide range of the educational spectrum including:

- The Eisenhower Professional Development Program,
- Educational technology,
- Class size reduction,

- Safe and drug free schools,
- Native American Education,
- Charter schools,
- Community learning centers,
- Head Start, and
- Title I, which assists disadvantaged children.

The ESEA has impacted other acts such as the Individuals with Disabilities Act, Bilingual Education Act, and the Goals 2000: Educate America Act. All these acts that derived from the ESEA allocate funds and stipulate rights for all children receiving an education. Without the ESEA, much of the educational progress that has been made specifically in Bilingual Education would have been delayed or never occurred. Today, the ESEA is known as the No Child Left Behind Act of 2001. President Bush signed the act on January 8, 2002. The major premise of the law is still in existence; however, there have been significant changes done that include stronger accountability for students and teachers, increased flexibility and local control, expanded options for parents and research-based and innovative programs in the schools. This legislature, of course, impacts all the states, and it directly impacts early childhood education.

In addition to the influences and initiatives presented in the previous section, there are equally important early intervention projects such as the Prenatal/Early Infancy Project, the Carolina Abecedarian Project, the High/Scope Perry Preschool Project and the Chicago Child-Parent Center Preschool Project that were landmark programs that

have paved the way and influenced present preschool philosophy and programs. These early intervention programs gave evidence to the short and long-term impact early childhood education can have on children and society (Landry, 2005; Reynolds, 2001). These programs will be discussed in a later section of this chapter.

Pre-kindergarten Programs in Texas

In 1984, Texas public schools were required to offer state-funded pre-kindergarten programs. The Texas Legislature, Chapter 29 of the Texas Education Code, mandated that school districts, serve high-risk four year olds. The goal was to break the cycle of costly remediation and school failure in later years by building a solid foundation of school success among four year olds (NCES, 2003).

As a result of this mandate, pre-kindergarten classes officially began in Texas in the 1985-1986 school year. Pre-kindergarten programs were funded for half-day services through the Foundation School Program, but states could apply for a pre-kindergarten expansion program in order to provide full day services if they so desire (Barnett, Hustedt, Hawkinson, & Kenneth, 2006).

The State of Preschool Yearbook (Barnett et al., 2006) summarizes state-funded pre-kindergarten data across the United States and profiles each state with its corresponding information as it pertains to the individual state. According to this yearbook, Texas requires all districts with 15 or more eligible children who are at least four year old to offer public school pre-kindergarten. Children are eligible for the program if they are homeless, qualify for the federal free or reduced free lunch, or have limited English proficiency or children of members of the armed forces who are on

active duty and have been injured or killed on duty are eligible for services as well. Districts may also serve children who do not meet eligibility requirements at their own expense or families may be required to pay tuition (Barnett et al., 2006).

The Texas Education Agency began monitoring and evaluating pre-kindergarten programs in 1995. The most recent evaluation was done in 2000 using the Public Information Management System data to evaluate the quality of the state's pre-kindergarten programs (TEA, 2007). This report indicated that students attending pre-kindergarten were less likely to be retained, were more likely to be reading at grade level, and had fewer referrals to special education. In the 2006-2007 school year, Texas served 182,293 pre-kindergarten students. These students were at-risk three year olds and four year olds. This number would likely have been higher except that some school districts chose not to serve three year olds. Still, \$484 million dollars was spent on providing pre-kindergarten services to Texas children in 2006 (Barnett et al., 2006).

Texas Pre-kindergarten Curriculum Guidelines

The stated purpose of Texas pre-kindergarten programs is to ensure that disadvantaged children develop the skills necessary for success in the regular public school curriculum, including language, mathematics, and social skills (CCSSO, 2005a). Districts that have a state-funded pre-kindergarten program must provide at least three hours of programming, although they may expand their program to a full day using either their own local funds, state Expansion Grant funds for which they can apply, federal Title I funds, or Migrant funds (CCSSO, 2005a). Student transportation is not required, but districts may offer it.

There is no required class size or student/teacher ratio for pre-kindergarten programs. TEA encourages school districts to follow the minimum required ratio for kindergarten 22:1. Teachers teaching in pre-kindergarten programs must have certification that qualifies them to teach in pre-kindergarten to fourth grade classrooms. They must also have an early childhood education or kindergarten endorsement. If they are teaching English language learner students, they must also have a bilingual endorsement (CCSSO, 2005b).

In order to meet the needs of early childhood children, quality programs must provide a challenging but achievable curriculum. This curriculum must engage children in reasoning, thinking, problem-solving, and communicating with others. Therefore, teachers need early childhood knowledge on theory and research in addition to knowing how to implement developmental appropriate practices for the young child. These are of utmost importance in implementing a high-quality pre-kindergarten program (TEA, 1999).

Texas Pre-kindergarten Guidelines (TEA, 1999) presented by the commissioner of education is a document that helps teachers in making decisions about curriculum content for pre-kindergarten children. These guidelines are based on knowledge of theory and research about how children develop and learn; they reflect the growing consensus among early childhood professional organizations that a greater emphasis be placed on young children's conceptual learning acquisition of basic skills and participation in relevant and meaningful learning experiences (TEA, 1999). These guidelines describe the content and goals that children are to learn in each content area

and what they should be able to achieve. The intent of this document is to ensure that all three and four year olds have the opportunity to meet their goals by extending their existing skills and developing new ones based on the experiences they bring to school. These guidelines help align Texas pre-kindergarten programs with the Texas Essential Knowledge and Skills (TEKS).

The curriculum guidelines are organized in the following content areas:

- Early language literacy and within this area, the following components are addressed: listening comprehension, speech production and discrimination, vocabulary, verbal expression, phonological awareness, print and book awareness, letter knowledge and early word recognition, motivation to read, and developing knowledge of literary forms and written expression.
- Mathematics: number and operations, patterns, geometry, and spatial sense, measurement, classification, and data collection.
- Science: science processes and science concepts.
- Social Studies: individual, culture, and community; history; geography, and economics.
- Fine Arts, art, music, and dramatic play.
- Health and Safety.
- Personal and Social Development: personal and physical development, gross and fine motor movement, and development, and
- Technology Applications.

These guidelines help “build connections between subject matter disciplines by organizing the large amounts of information into a set of meaningful concepts” (TEA, 1999, p. 1). These guides help teachers define and implement a comprehensive curriculum. In order to help with the alignment of the guidelines into meaningful learning activities, the University of Texas, Center for Reading and Language Arts, has developed a handbook that helps with the application and implementation of the Texas guidelines into instructional practice (TEA, 1999).

As pre-K children enter school, they will be at different places in the learning continuum, based on their skills and needs. For instance, children with disabilities may need accommodations and modifications; children, whose first language is not English, will need support from a bilingual or ESL teacher while learning the second language. All these differences must be taken into consideration when planning instruction. These differences should be not seen as a limitation but a building foundation for learning (Kresslein, 2007).

Hispanics in Pre-kindergarten

The nation’s minority population reached 100.7 million in 2007; a year ago, the minority population totaled 98.3; this reflects a growth of 1.7 million in one year (U.S. Census Bureau, 2007). Among the minority population, Hispanics have become the fastest and largest growing minority in the U.S. In July 2006, there were a total of 44.3 million, 14.8% of the total population (U.S. Census Bureau, 2007). According to the 2000 Census, Texas has the second largest concentration of Hispanics after California.

As a result of the large number of Hispanics, the age distribution and growth of the Hispanic population have critical implications for the present and future of political, economics, and educational policy, particularly for early childhood education (Collins & Ribiero, 2004; Garcia & Jensen, 2006). In general, the number of Hispanic children in proportion to all children has been increasing more rapidly than the number of non-Hispanics. These trends are accounted by the large number of Hispanic women of childbearing age and also by the number of immigrants arriving in the United States (Collins & Ribiero, 2004). In 2003, Hispanic children under the age of 5 amounted to 4.2 million or 21% of the total of 19.8 million children in that age range (U.S. Census Bureau, 2007).

According to the National Task Force on Early Childhood Education for Hispanics (2006), Hispanic children under the age of five are less likely to be enrolled in early childhood programs than any other major racial minority groups. Although there has been progress in the number of students in these programs, there are still underserved in Head Start and pre-kindergarten programs. Among the barriers for underrepresentation that are mentioned are (a) language barriers with program operators, (b) inadequate supply of affordable pre-kindergarten programs or slots in Hispanic communities, and (c) lack of information on availability of early childhood programs (Buysse, Castro, West, & Skinner, 2004; Garcia, Jensen, & Cuellar, 2006; Peterson-LaCelle & Rivera, 1994; Schwartz, 1996).

As a result of identifying the barriers in reference to under representation of Hispanic children in early childhood programs, the National Task Force of Early Childhood Education was established in 2004 for the purpose of identifying major educational challenges facing Hispanics children from birth through primary grades has made some recommendations in order to increase the number of students who attend pre-kindergarten programs. These are:

- Increase Hispanic access to quality Early Childhood Education Programs;
- Increase the number of Spanish Speaking teachers; and
- Increase efforts to design, test, and evaluate language and literacy development strategies.

In addition to these recommendations, Collins and Ribiero (2004) and the Child Care Bureau (2004) have also recommended some action steps that are relevant to all students and specific recommendations for the Hispanic population. Table 2.1 is copied from the article entitled, “Toward an Early Care and Education Agenda for Hispanic Children” (Collins & Ribiero, 2004).

An increasing number of preschool age children who are considered at risk and children from diverse language and cultural backgrounds are being served by pre-kindergarten programs, but we still have many who are not (Andrews & Slate, 2001). Early childhood programs are driven by the commitment of the nation to equality of educational opportunity including a successful beginning specifically for children of poverty, and we must make every effort to provide these opportunities to all children (Edwards, 1999).

Table 2.1. Early Care and Education Agenda for Hispanic Children

Action Steps	Examples of Targeting Hispanic Children
1. Strategic assessments of child care and early education at the state and community levels should take into account both the need for and the availability of services for children of all major racial/ethnic groups, with particular attention to special needs (e.g., disabilities and limited English proficiency).	<ul style="list-style-type: none"> • Ensure that needs assessments take into account current demographic data on Hispanic children, since the landscape is changing so rapidly. • Involve Hispanic families and community groups in preparing and reviewing state and community assessments.
2. Parent outreach and involvement efforts should be expanded to include the use of culturally appropriate messages and the involvement of community religious, social, and economic institutions; and they should be targeted to reach families of all racial/ethnic groups, including families who speak languages other than English.	<ul style="list-style-type: none"> • Ensure that child care, prekindergarten, Head Start, and other early childhood programs have telephone, Internet, and other contact access for persons who speak Spanish. • Prepare outreach and informational publications in Spanish as well as English.
3. Early learning guidelines for child care and other education programs should be respectful of children's home languages and cultures and give priority to language-rich learning environments that take into account the language(s) spoken by the children.	<ul style="list-style-type: none"> • Early learning guidelines for children from birth to age 5 should include guidance focused on children whose home language is Spanish. • Brochures and booklets that provide guidance for teachers, caregivers, and parents in how to implement early learning guidelines should be in Spanish as well as English.
4. Training and professional development of teachers should give priority to research-based strategies for enhancing the language, literacy, and school readiness of all children, including children with limited English proficiency.	<ul style="list-style-type: none"> • Training in Spanish should be available for Spanish-speaking teachers and caregivers. • Training materials should provide guidance on how to teach children whose home language is Spanish.
5. Early childhood workforce recruitment measures should focus on attracting linguistic and cultural minorities to assure that the professionals working with children are as diverse as the children they serve.	<ul style="list-style-type: none"> • Recruitment materials should be available in Spanish. • Outreach and recruitment efforts should be conducted in communities with high concentrations of Hispanics.
6. Early education partnerships among child care, Head Start, and prekindergarten programs should be encouraged to improve services to underserved populations, including Hispanics.	<ul style="list-style-type: none"> • An example of an effective partnership would be collaboration between groups that represent Latinos or have been successful in serving Hispanic children and programs that are seeking to improve services.

Table 2.1 (continued)

Action Steps	Examples of Targeting Hispanic Children
7. Program quality in centers and other settings should be monitored regularly using research-based assessment instruments that give priority to caregiver-child interaction, language and literacy (including English-language learners), cultural diversity, parent involvement, and developmental and educational appropriateness of the environment and curriculum (e.g., Early Childhood Environment Rating Scale-ECERS-R).	<ul style="list-style-type: none"> • When available, assessment instruments should be used that are appropriate for program settings that include children who speak Spanish. • When instruments are used that have not been developed and standardized on settings that include sufficient numbers of Hispanic children, Hispanic experts should be consulted on interpretation of the results.
8. Child assessment and evaluation outcome measures should be linguistically and culturally appropriate, as well as developmentally appropriate, for all children, including English-language learners.	<ul style="list-style-type: none"> • Child assessment instruments should not be used to evaluate the language and literacy functioning of a child whose home language is Spanish unless a version is developed for use with such children.
9. Reviews of policies and procedures should include assessment of the impact of such guidelines on the program participation of all families, including Latinos.	<ul style="list-style-type: none"> • Groups that represent Latinos or have been successful in serving Hispanic children should be consulted in such reviews.
10. Research should address the scope and quality of services for Hispanics and other underserved populations of vulnerable children and families, including the special needs of English-language learners.	<ul style="list-style-type: none"> • A high priority for research is how to promote early literacy and learning for children from birth to age 5 whose home language is Spanish.

Importance of Pre-kindergarten Programs

The importance of early childhood education programs are highly documented and supported by research. Although the United States has historically viewed and followed theories and beliefs of European leaders, philanthropists, and philosophers such as Piaget, Froebel, Emilia, Montessori, Vygotsky, Locke, Rousseau, and Freud, there continues to be no one theory on early childhood education (New, 2005). Based on

the variations in theories, policymakers in the United States need to meet the challenge of selecting from an assortment of potential viewpoints to meet the individual cultural need of society (New, 2005). The importance and benefits of early childhood programs is an area that has been researched and continues to be investigated.

As a part of that research, Levine (2005) emphasized and supports the need and importance for high-quality early learning opportunities for young children since the areas of health, cognition, and emotion are strongly developed in the early years; therefore, interrupting or limiting this development could result in problems that will be costly in the future. There is evidence, both quantitative and qualitative, that these early learning opportunities would improve the functioning of the family and reap long-term benefits for society (Gormley, Gayer, Phillips, & Dawson, 2005; U.S. Department of Education, 2007).

The American Federation of Teachers (2003) encourages, supports, and reiterates the many benefits from high-quality early childhood education as a means of ensuring that children are better prepared to handle the demands of formal schooling. They also mention the importance of the development of school readiness during the preschool years and the promotion of access to high-quality early childhood education because of its well-documented and positive impact on children's success. Additional benefits that can be mentioned are reduction of drop-out rate (a) reduces anti-social behavior, (b) increases economic productivity, (c) provides less grade retention, (d) promotes higher graduation rates, and allows fewer special education placements (Bogard & Takanishi, 2005).

High quality early education programs can produce substantial benefits for participating children, their families and society as a whole. This high-quality early care has been associated with both short-term and long-term cognitive, social and emotional benefits for young children's development (Barnett & Hustedt, 2003; Kagan & Kauerz, 2006). Research has made clear the widespread societal benefits, including reduced dependency costs, increased employment and associated tax revenue, and reduced crime that can result from high-quality early childhood programs have, in some cases, far outweighed their upfront cost (Ackerman & Barnett, 2006; Stipek, 2004).

In addition, there is a growing understanding of the importance of social and emotional school readiness to both success in school now and success in the workplace later on in life. Children who do not begin kindergarten socially and emotionally competent are often not successful in the early years of school and can also have behavioral, emotional, academic, and social development problems that will follow them into adulthood (Cavanaugh, Lippitt, & Moyo, 2000; Huffman, Mehlinger, & Kerivan, 2000).

Similarly, the National Institute for Early Education Research (NIEER) Policy Report titled, *Overlooked Benefits of Pre-kindergarten*, Schulman (2005) mentions additional benefits to attending pre-kindergarten: (a) start children on the path to financial stability and independence, (b) increase the likelihood that mothers of participating children get good jobs, (c) enhance the parenting skills of participants' parents, (d) strengthen commitment to and attitude toward school, and (e) produce positive effects that extend into future generations.

Similarly, Schumaker, Irish, and Lombardi (2003) wrote:

Research indicates that it will be more costly in the long run if we don't take better advantage of the 'opportunity time' that children spend in child care to prepare them for the great expectations we have for them in school. (p. 37)

Finally, growing school readiness and early childhood interest has brought increased attention to identifying educational programs that are most effective for young children (Reynolds et al., 2006). Programs that can yield measurable benefits and some of these benefits endure for some time after the program has ended (Greenwood, 1999). There are some early childhood programs that are landmark programs that have influenced our present early childhood philosophy and are paramount in establishing the positive impact of early childhood education. The following section will describe some of these programs.

Landmark Preschool Programs

The following programs represent examples of well-conceived programs. These programs all had long-term follow-up studies that analyzed the outcomes of the programs: The Prenatal/Early Infancy Program, until 15 years old; The Abecedarian Early Childhood Intervention, until 21 years old, The Chicago Child Parent Centers, until 22 years old; Head Start until 31 years old; and The Perry Preschool Project until 41 years old. In addition, the programs covered a broad range of possible ages for the participants: The Prenatal/Early Infancy Program from pre-natal to two years old; The Early Head Start from birth to ages three, and Head Start, ages three through five; The Abecedarian Early Childhood Intervention from early infancy through age eight; The Perry School Project from ages three through five; and The Chicago Child Parent

Centers from age three to nine. Finally, these programs took place in a wide variety of areas from rural (The Abecedarian Childhood Intervention); to small town (The Perry Preschool project); to small city (The Prenatal/Early Infancy); to large urban inner city (The Chicago Child Parent Centers) (Lynch, 2004). The programs are arranged chronologically by beginning dates.

The High/Scope Perry Preschool Project

The High/Scope Perry Preschool Project took place in Ypsilanti, Michigan. It lasted from 1962 to 1967. The sample was composed of 123 African American children of whom 58 completed the experimental preschool program. The children had low IQs, in the 70-85 range, and from families with low socioeconomic status. They were randomly assigned to one of two groups: one enrolled in a preschool program and one not. Those enrolled in preschool high-quality center-based child care and education attended for two school years at ages three and four. Services included daily 2.5 hour classes and 1.5 weekly home visits with mother and child. Evaluations of the children were performed annually until the children reached age 11 and then again at 14, 15, 19, and 27. Analysis was followed through the age of 41. The project tracked 58 participants and 65 control children through adulthood. At age 27, the participants of the program in comparison to the control group had (Schweinhart, 2007; Schweinwart, Barnes, & Weikart, 1993):

- higher rates of high school completion,
- a lower incidence of welfare assistance as adults,
- a lower incidence of out-of-wedlock births,

- lower rates of repeated arrests, and
- a higher likelihood of earning \$ 2,000 or more per month.

Project Head Start and Early Head Start

Another program that largely impacted the provision of childcare for young children was the initiation of Project Head Start. This program was launched as an eight-week summer program by the Office of Economic Opportunity in 1965 and Lyndon B. Johnson's War on Poverty. Project Head Start was designed to break the cycle of poverty by providing preschool children of low-income families with a comprehensive program to meet their emotional, social, health, nutritional, and psychological needs in addition to school readiness. Head Start is the country's only widespread federally funded early childhood intervention for low-income families and children with developmental delays or disabilities. Head Start began with a budget of \$96,400,000 in 1965 and an enrollment of 561,000. Head Start programs continue to grow in both enrollment and funding with a budget of \$6,843,114,000 and an enrollment of 906,993 in 2005 (U.S. Department of Health and Human Services, 2004). Funding of Head Start programs is contingent on meeting set federal performance guidelines. Each center undergoes an onsite review at least once every three years based on 24 program performance measures related to multiple program components. Head Start serves primarily three and four year old children. The majority of Head Start programs operate part-time and part year, but efforts are being made, in coordination with other agencies and community services to provide full day care in order to meet the needs of working parents (Magnuson et al., 2004).

Early Head Start is an extension of the Head Start program that targets low income pregnant women and families of infants and toddlers. It serves over 600,000 children from birth to age three in some 700 programs statewide. By age three, children in Early Head Start performed significantly better than control groups on cognitive, language, and social emotional development indicators. Their parents were more emotionally supportive, used less punitive parenting, provided more stimulating home environments, and read more to their children. The parents are also more likely to participate in education and job training and less likely to have another child during the years after enrollment in Early Head Start than were control group parents.

The Chicago Child Parent Center Preschool Program

The Chicago Child-Parent Center (CPC) Preschool Program was developed to promote academic success among low-income children and to encourage parents to become involved in their children's education. The CPC program targets low-income minority children in high-poverty neighborhoods. The CPC program was established in 1967 through Title I funding. CPC represents the second oldest federal preschool program after Head Start and the longest running extended early intervention.

This program includes three components: (a) development of reading and language skills, (b) parental involvement, and (c) comprehensive services (Reynolds, 2001; Reynolds & Temple, 1998).

This program offers half-day preschool for three and four year olds and full or part day kindergarten for five year olds. Parents are required to be involved in the center at least one-half day per week. The comprehensive services include (a) attending to

children's nutritional and health needs, i.e. free breakfast and lunches and health screening; (b) coordinated adult supervision; (c) funds for professional development and instructional supplies; and (d) emphasis on reading readiness through reduced class size, writing, and reading activities in the center (Reynolds, Temple, Robertson, & Mann, 2002). Some of the features of this program are:

- high parent participation,
- well-paid teachers,
- ongoing professional development, and
- coordinated early childhood education spanning several years.

At age 21, the participants had:

- lower rates of school drop outs,
- higher numbers of completed education,
- lower rates of juvenile arrest,
- lower rates of violent crimes, and
- higher rates of high school completion.

Carolina Abecedarian Project (ABC)

The Carolina Abecedarian Project (ABC) began in rural North Carolina in 1972.

It was an early childhood intervention program that took place between the years of 1972-1977. Its purpose was to improve development and school performance of low-income children. ABC served children from families that met a certain level of socio-demographic risk of cognitive delays or academic problems. Ninety-eight percent of the

sample was African American. ABC employed an experimental design, with a random assignment of families to either a program group or a limited program control group (Campbell & Ramey, 1995).

Children in both groups received social services and nutritional supplements. After completing the early intervention phase, participants in both groups were randomly assigned to either a program group or a control group.

Children in the program received five years of enriched educational day care from four months to five years (prior to kindergarten). A systematic curriculum was used including learning activities in the cognitive, language, and social emotional development. This program occurred at a single site for yearly cohorts through 1977, followed by a school-age intervention for three years starting in kindergarten and going through second grade (age eight). While the day care model emphasized literacy and language skills and small child-teacher ratio, the school age intervention followed a family-support model of intervention. The school-age program was designed with the aim of supporting children's academic development through increasing and enhancing parent involvement in the educational process (Campbell & Ramey, 1995). The three-year school age program provided families with a Home School Resource Teacher who offered materials and activities for mothers to use at home with their children (Campbell, Helms, Sparling, & Ramey, 1998). Teachers worked as a school/home liaison. In addition, the school-age program included a six-week summer transition program prior to kindergarten entry.

The original sample was composed of 111 children. Fifty-seven infants from low-income families received intensive, high-quality day care full-time from birth to age three. The first year they received care at home through home visitations, and the remaining two years they received service in a preschool setting. Each child had an individualized prescription that addressed educational, social, and emotional development.

The comparison group had 54 untreated children who were raised at home or in a different child care setting. This program had very positive results. At the age of 21, the participants of the program had (Campbell et al., 1998):

- more years of completed education,
- higher rates of four-year college or university enrollment,
- more skilled jobs,
- a modest increase in Full Scale and Verbal IQ, and
- a lower rate of teenaged parenthood.

The Prenatal/Early Infancy Project

The prenatal/early infancy Project took place in Elmira, New York. The length of the project was 1978-1982. Four hundred first-time mothers were enrolled in the program before their 30th week of pregnancy. The women enrolled in the program were overwhelmingly at high risk of poor child and family outcomes: 85% were under age 19 and/or unmarried and/or of low economic status. The women were randomly assigned to one of two intervention groups or one of two control groups. The women in the

aggressive intervention group received on average nine visits during pregnancy and 23 home visits. The main intervention was a home visiting program conducted by registered nurses, who provided parent education, social support, and referral to social services. The program continued until children were two years old (Karoly et al., 1998).

Some of the benefits were:

- less visits to a hospital emergency room
- lower number of child abuse cases
- fewer months on welfare
- fewer months receiving food stamps
- lower number of mother being arrested
- lower number of mother being convicted
- lower number of subsequent pregnancy
- longer time between the first and second birth

In summary, early childhood education in America today has been influenced by all of the above previously mentioned early childhood programs and research. These programs have impacted present pre-kindergarten programs and, of course, student achievement which is our ultimate goal.

Impact of Pre-kindergarten Programs on Student Achievement

Research has consistently shown that four year olds who attend a high-quality pre-kindergarten program are more successful in kindergarten and beyond, both academically and socially (Espinosa, 2002; Kauerz, 2006; Marcon, 2002; TEA, 1999).

In her study, Lynch (2004) states children who participate in well-designed and well-executed early childhood programs tend to have higher scores on math and reading achievement tests, have greater language abilities, are better prepared to enter elementary school, are more likely to pursue secondary education, have less grade retention, have less need for special education and remedial coursework, have lower dropout rates, have higher levels of school attainment, have improved nutrition, have better access to health care services, have higher rates of immunization, have better health, and experience less child abuse and neglect (Barnett & Camille, 2002; Carter, 2007).

Additionally, Sturrock (2005) reports on several studies and researchers who clearly state the benefits of preschool and that not only the poorest families benefit but also children from middle class families can receive a boost in language and math skills from preschool. She also mentions that “more is not better but the quality of the preschool is what is going to impact not only academics but also the important aspect of social and emotional development of young children” (Sturrock, 2005, p. 3).

Equally important, Gilliam and Leiter (2003) mention that it is well known that pre-kindergarten programs, when delivered at the appropriate levels of quantity and quality, have meaningful and lasting positive impact for children, families, and later academic achievement (Rouse, Brooks-Gunn, & McLanahan, 2005). In addition, many philosophers and religious leaders have also commented on the power of early experiences have on the rest of a child’s life (Schickedanz, 1995; Stipek, 2004).

Early childhood years are the most important period for literacy development (Kinch & Azer, 2002). It provides children with cognitive, academic, social and emotional skills they require to be successful in elementary school. Children who attend preschool are more likely to graduate from high school and be productive citizens. They are also less likely to have children during their teenage years and avoid being entangled in the criminal justice system (Barnett, 2002; Gilliam, 2005).

Furthermore, the Southern Regional Board (SREB) report titled: *Improving Children's Readiness for School: Preschool Programs Make a Difference, But Quality Counts!*, reported on studies of state pre-kindergarten programs that showed that these programs can make a real difference in terms of children's later success in school and preventing later school failure particularly if they place strong emphasis on language (Denton, 2002; Galinsky, 2006; Wong & Snow, 2000).

According to decades of scientific research, the years before kindergarten are critical learning years for young children. Children at this age are ready to learn early reading and math skills, simple science concepts, how to get along in a group setting, and longer attention span. In fact, research tells us that the foundation for reading success should be in place long before a child reaches first grade. To be successful readers, children must have a broad array of early language experiences. Young children who have good vocabularies and who are taught early reading skills before they start school are more likely to become good readers and to achieve academic success throughout their school career (U.S. Department of Education, 2005b).

Findings since the 1960's have indicated that preschool programs can enhance children's cognitive skills, literacy, and social skills necessary for school success, as well as promoting school achievement. The lasting effects of preschool programs on educational attainment can benefit the participants and society with income that includes higher projected lifetime earnings and savings (Ou & Reynolds, 2004).

States recognize that raising levels of school achievement requires investments to improve the quality of children's preschool environment, especially for children from disadvantaged backgrounds (U.S. Department of Health and Human Services, 2003). There is a strong connection between the development a child undergoes early in life and the level of success that the child will experience later in life (White House, 2002).

Therefore, Kauerz and McMaken (2004) state "with a solid foundation of empirical research that shows the long-term benefits of high-quality early learning programs, the time is ripe for asserting early learning as a critical contributor to academic success later in school" (p. 3).

Overall, these findings provide support for the positive role of early cognitive development in predicting academic and cognitive growth. Children's early school experiences are a matter of national concern as evidence consistently points to the significance of early achievement in predicting future educational accomplishments (Downer & Planta, 2006; Lynch 2004).

Summary of the Review of Literature

Numerous consistencies existed among the literature examined. The importance of early childhood and the need for quality programs was well supported and documented. Public investments in such programs have been promoted on the grounds that they can provide high rates of return in the form of academic performance, greater employment rates, and reduced crimes (Ackerman & Barnett, 2006).

Consequently, this study focused on the impact of attending pre-kindergarten on student achievement as measured by the Texas Assessment of Knowledge and Skills. The review of literature included the historical perspective of pre-kindergarten programs in the U.S. and Texas including pre-kindergarten curriculum guidelines. The Hispanic population in pre-kindergarten was also discussed and the importance of pre-kindergarten programs in particular to student achievement including landmark programs was included in this chapter.

CHAPTER III

METHODOLOGY

The purpose of this study was to determine if the intervention of attending public school pre-kindergarten reflected an impact on student achievement as measured by third grade Texas Assessment of Knowledge and Skills (TAKS) considering gender, English language learner status, socio-economic status, and the language of the test. To determine this impact, the performance of third grade students who attended pre-kindergarten in 10 selected elementary schools in San Antonio was compared to students in these same schools who did not attend pre-kindergarten. Dependent variables taken into consideration were gender, English language learners, socio-economic status, and the language of the test.

This chapter reviews research questions and includes a discussion of the research design, population, instrumentation, procedures for data collection, an analysis of data, and a summary of the chapter.

Research Questions

The study was guided by the following research questions:

1. Is there a significant difference in the third grade 2006-2007 TAKS reading scores administered in English or Spanish between students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

2. Is there a significant difference in the third grade 2006-2007 TAKS math scores administered in English or Spanish between students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?
3. When comparing gender, English language learner status, socio-economic status, and language of the test, is there a significant difference in the third grade 2006-2007 TAKS math and reading scores administered in English or Spanish among students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

Research Design

This researcher analyzed quantitative data from 10 elementary schools in San Antonio, Texas, at a midsize school district. The data included scale scores of third grade students on the English and Spanish versions of the 2006-2007 Texas Assessment of Knowledge and Skills Test in reading and math. Third grade students are allowed to take up to three administrations in order to pass this assessment. For the purpose of this study, the researcher utilized scores from the first administration.

The data were cross-referenced to the third grade students who had participated and did not participate in public pre-kindergarten in 2002-2003. The data were further disaggregated into gender, English language learner (ELL) and non-ELL,

socioeconomic status, and the language of the test. Socio-economic status was categorized as follows: students who are eligible for free or reduced lunch based on family income and those students who are not eligible for free or reduced lunch.

Population

The school district in this study is a Title I school district, which means that this school district is provided with federal funds because of the high numbers or high percentage of poor children. This funding helps ensure that all children meet challenging state academic standards (TEA, 2005a).

The students who were the focus of this study attended pre-kindergarten in 10 elementary schools in this school district in south San Antonio, Texas, in the 2002-2003 school year. Of this group, only those who were later enrolled in third grade and took the 2006-2007 Texas Assessment of Knowledge and Skills in English or Spanish in reading and math were included in this study. The study group was divided into two sub-groups: (a) students who participated in pre-kindergarten in 2002-2003 and passed TAKS in 2006-2007 and (b) students who did not participate in pre-kindergarten in 2002-2003 and passed TAKS in 2006-2007.

For the purpose of clarification, the following terms are defined:

- English language learners: Students whose native or dominant language is other than English and who have yet to meet the criteria for being classified as English proficient. For the purpose of this study, English language learner has been used, although Limited English Proficient is the term used by TEA.

- Socio-economic status: Term used to identify the current level of income to determine eligibility for free, reduced, or full price meals under the national school lunch and child nutrition program or other public assistance.
- At-risk: Student designated “at risk” of dropping out of school based on state-defined criteria (§TEC 29.081). A student designated at-risk of dropping out of school includes each student who is under 21 years of age and meets a TEA indicator that designates the student as being at-risk.

For the purpose of this study, the criteria that would apply are:

- A pre-kindergarten student who did not perform satisfactorily on a readiness test or assessment instrument administered during the current school year.
- A student of limited English proficiency as defined by TEC 29.052.

The number of students in these tables included students who moved within the 10 schools in the school district during the years they attended PK and third grade.

There were a total of 717 students who took math TAKS and 720 students who take the reading TAKS. The TAKS test was administered to third grade students in English or Spanish. The reading test was administered on February 20, 2007. The math test was administered on April 17, 2007.

Tables 3.1 and 3.2 represent the total number of students in third grade who took the third grade 2006-2007, reading and math, TAKS by campus, pre-kindergarten participation, gender, ELL, socio-economic status, and the language of the test.

The data in table 3.1 indicate that the number of students who did not participate in pre-kindergarten and took the TAKS reading test was much higher than those who

participated in the program. Of the students who attended pre-kindergarten, there were more males than females and more non-ELL. Almost all of the pre-kindergarten participants were identified as low socio-economic status.

Table 3.1. Number of Students Who Took the TAKS Reading Test at Each Campus in the San Antonio School District in This Study

	A	B	C	D	E	F	G	H	I	J	Total
Number of students who took reading test	58	75	68	93	61	79	62	58	71	95	720
Number of students who did not attend Pre-K and took reading test	33	51	40	44	38	56	46	37	41	50	436
Number of students who attended Pre-K and took reading test	25	24	28	49	23	23	16	21	30	45	284
Number of males who attended Pre-K and took reading test	12	17	16	24	10	9	8	17	13	31	157
Number of females who attended Pre-K and took reading test	13	7	12	25	13	14	8	4	17	14	127
Number of non-ELL who attended Pre-K and took reading test	15	13	16	39	11	18	9	15	18	34	188
Number of ELL who attended Pre-K and took reading test	10	11	12	10	12	5	7	6	12	11	96
Number of low SES who attended Pre-K and took reading test	24	24	27	49	21	23	16	21	30	45	280

The data in Table 3.2 indicate that the number of students who did not participate in pre-kindergarten and took the TAKS math test was much higher than those who participated in the program. Of the students who attended pre-kindergarten,

there were more males than females and more non-ELL. All of the pre-kindergarten participants were identified as low socio-economic status.

Table 3.2. Number of Students Who Took the Math TAKS Test at Each Campus in the San Antonio School District in This Study

	A	B	C	D	E	F	G	H	I	J	Total
Number of students who took math test	56	75	67	93	61	80	63	58	69	95	717
Number of students who did not attend Pre-K and took math test	31	52	39	44	38	58	48	38	39	50	437
Number of students who attended Pre-K and took math test	25	23	28	49	23	22	15	20	30	45	280
Number of males who attended Pre-K and took math test	12	17	16	24	10	8	8	16	13	31	155
Number of females who attended Pre-K and took math test	13	6	12	25	13	14	7	4	17	14	125
Number of non-ELL who attended Pre-K and took math test	15	13	16	39	11	17	8	15	19	34	187
Number of ELL who attended Pre-K and took math test	10	10	12	10	12	5	7	5	11	11	93
Number of low SES who attended Pre-K and took math test	24	24	27	49	21	23	16	21	30	45	280

The students who attended pre-kindergarten attended a full day pre-kindergarten program. These students were four years old by September 1 and eligible to attend if they met one of the following criteria:

- Unable to speak and comprehend English based on the scores of an oral language proficiency test.
- Low-socio-economic status based on a federal formula to determine income eligibility.
- Homeless, as defined by federal law, regardless of the residence of the child, or either parent of the child, or the child's guardian or other person having lawful control.
- Children of members of the armed forces who were on active duty or had been injured or killed on duty.

The pre-kindergarten students were instructed with the Texas Education Agency (TEA) Pre-kindergarten Curriculum Guidelines that were released in 1999. These guidelines included expected outcomes for pre-kindergarten students in the area of language and early literacy, mathematics, science, social studies, fine arts, health and safety, personal and social development, and technology applications. In the area of language and early literacy development, the guidelines addressed listening comprehension, speech production and speech discrimination, vocabulary, verbal expression, phonological awareness, and print and book awareness.

The guidelines stated that for students whose first language was not English, their first language should be the foundation for acquiring the English language. Bilingual classes were to function in acquiring the second language through the use of their first language – in this case, Spanish.

The following tables indicate the number of students who took the test in English or Spanish. in reading and math, respectively. Table 3.3 indicates there were more students who took the test in English in the group who attended pre-kindergarten and the group who did not attend pre-kindergarten. The number of students who took the test in Spanish was higher among the group who did not attend pre-kindergarten.

Table 3.3. Number of Students Who Took the TAKS Reading Test in English or Spanish in the San Antonio School District in This Study

Description	Number
Students who took reading test	720
Students who took test in English and did not attend pre-kindergarten	409
Students who took test in English and attended pre-kindergarten	275
Students who took test in Spanish and attended pre-kindergarten	9
Students who took test in Spanish and did not attend pre-kindergarten	27

Table 3.4 indicates there were more students who took the test in English in the group who attended pre-kindergarten and the group who did not attend pre-kindergarten. The number of students who took the test in Spanish was higher among the group who did not attend pre-kindergarten.

Table 3.4. Number of Students Who Took the Math TAKS Test in English or Spanish in the San Antonio School District in This Study

Description	Number
Students who took math test	717
Students who took test in English and did not attend pre-kindergarten	414
Students who took test in English and attended pre-kindergarten	271
Students who took test in Spanish and attended pre-kindergarten	9
Students who took test in Spanish and did not attend pre-kindergarten	23

Instrumentation

This researcher used the Academic Excellence Indicator System (AEIS) reports that were released by the Texas Education Agency during the fall of each school year. The AEIS reports contain information submitted by school districts through the Texas Public Education Information Management System (PEIMS), which is the major source of information for the Texas Assessment of Knowledge and Skills (TAKS) during the previous year. The Public Education Information Management System is a statewide data management system for public education information in the state of Texas. The PEIMS database reports information about student demographics, attendance, and special program participation. The information contained in the AEIS reports that were relevant to this study were the achievement scale scores in reading and math for third

grade students on the Texas Assessment of Knowledge and Skills (TAKS) by gender, socio-economic status, English language learner status, and the language of the test category. TAKS is the state's primary mandated assessment that measures student academic performance in grades 3-11 in specific content areas. Texas Education Agency (TEA) confirms high validity for the TAKS test and that it is a genuine evaluation of the state curriculum and student performance. Committees of Texas educators have made every effort to align the Texas Essential Knowledge of Skills (TEKS) with TAKS to ensure high levels of validity. This level of validity has been measured for all student populations. Test reliability measures, such as the Kuder-Richardson formula (KR-20), indicate that the internal consistency of the TAKS test for multiple choice and short answer question are in the high 80's to low 90's.

Procedures for Data Collection

This researcher requested permission to conduct research (Appendix A) at a mid-size school district in San Antonio via a letter addressed to the superintendent of schools for the school district in question. After acquiring permission, the researcher proceeded to collect TAKS reading and math scale scores in English and Spanish for third grade students in the elementary schools from the 2006-2007 AEIS report. The AEIS reports gave me the additional information needed as to the gender, socio-economic status, English language learner, and the language of the test. The school district assessment department assisted in compiling the necessary AEIS reports. Additionally, the PEIMS district office was contacted in order to obtain the fall

submission for the 2002-2003 school year for pre-kindergarten, which provided us with a list of students who attended pre-kindergarten in 2002-2003.

Analysis of Data

Quantitative techniques and analyses were used to illustrate data collected from the research sample. The researcher followed the principles prescribed and outlined according *Educational Research: An Introduction* by Gall, Borg, and Gall (1996). Descriptive statistics enabled the researcher to summarize and organize data in a meaningful and effective meaningful format. They provide tools for describing collections of statistical observations and presenting information in an understandable form (Nachmias & Nachmias, 1996). The researcher used mean scores, standard deviations, frequencies, and correlation as part of the descriptive analysis. Multiple displays, such as charts and tables, were used to present findings.

Analysis of the quantitative data was performed through the use of Statistical Package for the Social Sciences (SPSS), an electronic driven statistical software program in order to answer the research questions that were the focus of the study. A t-test for independent means was used for Research Questions #1 and #2. The t-test as the statistical treatment was used in order analyze the differences between the means of the two groups, the students who attended pre-kindergarten, and those who did not attend pre-kindergarten. A level of significance of .05 was used to determine the level of significance for each test. The results of the t-test are discussed in the findings presented in the Chapter IV of this study

An Analysis of Variance (ANOVA) procedure was also used to analyze the data as a function of gender, English language learner status, socioeconomic status, the language of the test, and participation in the district's pre-kindergarten program. The scale scores of the 2006-2007 third grade TAKS test in reading and mathematics served as the dependent variable, and pre-kindergarten program participation, socioeconomic status, ELL, gender, and the language of the test were the independent variables.

This researcher determined if differences were significant by using an Analysis of Variance (ANOVA), which is a statistical test of significance developed by Sir Ronald Fisher in the 1920's and 30's and is sometimes known as Fisher's ANOVA. The test is designed to establish whether or not a significant (no chance/non-random) difference exists among several means. Statistically, it is the ratio of the variance occurring within the sample groups (Fisher, 1978).

The identity of students was protected because only student identification numbers were used. Individual students were not identified by name. These numbers are used by the school district's Public Education Information Management System. This information was maintained in a secure location and was destroyed upon completion of the research. An Institutional Review Board form (IRB) was submitted to Texas A&M University Human Subjects Review Committee. This committee reviewed and approved this study prior to receipt and analysis of the data. A copy of the approved IRB form is attached (Appendix B).

Summary

This chapter included a review of the purpose of the study and research questions used in the study. It also included a description of the research design, selection of subjects, ethical considerations, and instrumentation, along with the procedures of data collection and the methodology used in the analysis of TAKS results in reading and math for third grade students in a school district in San Antonio, Texas, who were enrolled in the 2006-2007 school year.

CHAPTER IV

FINDINGS OF THE STUDY

Introduction

The purpose of this study was to determine if the intervention of attending public school pre-kindergarten reflected an impact on student achievement as measured by the third grade Texas Assessment of Knowledge and Skills (TAKS) considering gender, English language learner status, socio-economic status, and the language of the test. To determine this impact, the performance of third grade students who attended pre-kindergarten in 10 selected elementary schools in San Antonio was compared to students in these same schools who did not attend pre-kindergarten. Further breakdown of indicators was taken into consideration as to gender, English language learners, socio-economic status, and the language of the test. This chapter presents and analyzes the data compiled from the different sources and also answers each research question posed in Chapter I.

Research Question #1

Is there a significant difference in the third grade 2006-2007 TAKS reading scores administered in English or Spanish between students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

The population for Research Question #1 consisted of 720 third grade students who took the Reading Texas Assessment of Skills and Knowledge in the 2006-2007

school year in 10 elementary schools in a mid-size school district in San Antonio, Texas.

Research Question #1 investigated the impact of the intervention of participating in a pre-kindergarten program in comparison to those who did not participate in a pre-kindergarten program on third grade reading Texas Assessment of Knowledge and Skills (TAKS). The data were analyzed using an independent samples t-test. Table 4.1 reports the descriptive statistics for the two groups.

Table 4.1 Number of Students Tested (N), Mean Scale Scores (M), and Standard Deviation (SD) for Third Grade Students Tested on the Reading TAKS Test

Did students attend Pre-K?	N	M	SD
No	437	2,211.00	180.415
Yes	283	2,245.70	172.971

Table 4.2 provides the data for the independent samples t-test. The level of significance for the procedure was .011. This was less than the alpha level of 0.05. Therefore, it was inferred that the means in the population, from which these sample means were drawn, were different. There is a statistical difference between the population means. The intervention of attending pre-kindergarten had an impact on third grade TAKS Reading.

Table 4.2. Independent Sample t-test for Reading Scale Scores by Pre-K Enrollment

t-Score	df	Significance
-2.562	718	.011*

*Significant ≤ 0.05 .

Research Question #2

Is there a significant difference in the third grade 2006-2007 TAKS math scores administered in English or Spanish between students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

The population for Research Question #2 consisted of 717 third grade students who took the Mathematics Texas Assessment of Knowledge and Skills in the 2006-2007 school year in 10 elementary schools in a mid-size school district in San Antonio, Texas.

Research Question #2 investigated the impact of the intervention of participating in pre-kindergarten program in comparison to those who did not participate in a pre-kindergarten program on the third grade mathematics Texas Assessment of Knowledge and Skills (TAKS). The data were analyzed using an independent samples t-test. Table 4.3 reports the descriptive statistics for the two groups.

Table 4.3. Descriptive Statistics for Intervention of Pre-kindergarten on Third Grade Mathematics TAKS

Did students attend Pre-K?	N	M	SD
No	447	2,160.66	187.072
Yes	270	2,219.16	196.274

Table 4.4 provides the data for the independent samples t-test. The level of significance for the procedure was .001. This was less than the alpha level of 0.05. Therefore, it was inferred that the means in the population, from which these sample means were drawn, were different. There is a statistical difference between the population means, which means that the intervention of attending pre-kindergarten had an impact on third grade TAKS mathematics.

Table 4.4. Independent Sample t-test for Math Scale Scores by Pre-K Enrollment

t-score	df	Significance
-3.982	715	.001*

*Significant ≤ 0.05 .

Research Question #3

When comparing gender, English language learner status, socio-economic status, and the language of the test, is there a significant difference in the third grade 2006-2007 TAKS math and reading scores administered in English or Spanish among

students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

The population for Research Question #3 consisted of 720 third grade students who took the Reading Texas Assessment of Skills and Knowledge (TAKS) in 2006-2007 school year and 717 third grade students who took the Mathematics Texas Assessment of Skills and Knowledge (TAKS) in 2006-2007 school year in 10 elementary schools in a midsize school district in San Antonio, Texas.

Research Question #3 investigated data not only by third grade TAKS reading and mathematics as the dependent variable, but also by the independent variables of gender, socio-economic status, English language learners, and the language of the test. In all cases, a two-way (ANOVA) was conducted in order to investigate the results. Table 4.5 reports the descriptive statistics of pre-K program attendance by gender. Table 4.6 reports the data for the two-way ANOVA results.

Table 4.6 presents the three variables that are compared on the two-way ANOVA. The variables are program enrollment, gender, and the interaction of the two. Each of the three variables was examined, respectively.

The p-value obtained from the procedure relating to program enrollment was 0.014. This was less than the alpha level of 0.05. The means of the two groups are not the same. One group has statistically higher scores than the other.

The p-value obtained from the procedure relating to gender was 0.113. The means of the two groups are the same. One group has statistically the same score as the

other group. Boys and girls scored the same on the third grade TAKS reading test when taking into consideration the enrollment in pre-kindergarten. There was no statistical difference among the two genders, third grade reading TAKS, and enrollment in pre-kindergarten.

Table 4.5. Number of Students (N), Mean Scale Scores (M), and Standard Deviation (SD) of Student's Reading Scale Scores Organized by the Gender of the Students

Did students attend Pre-K?	Gender	N	M	SD
No	Female	221	2,233.24	177.143
	Male	215	2,189.45	180.867
	Total	436	2,211.64	180.122
Yes	Female	127	2,244.16	156.471
	Male	157	2,244.94	186.926
	Total	284	2,244.59	173.672
Total	Female	348	2,237.22	169.743
	Male	372	2,212.87	185.243
	Total	720	2,224.64	178.214

Table 4.6. Two-Way ANOVA Results for Reading Scale Scores of Students Organized by Gender

Source	df	Mean Square	F	Significance
Program Enrollment	1	188,338.675	6.009	.014
Gender	1	78,981.121	2.520	.113
Interaction	1	84,854.225	2.707	.100

The p-value obtained from the procedure relating to the interaction between program enrollment and gender was 0.100. The means of the two genders across the two enrollment options were the same. Each group has statistically the same score as the other within the two enrollment categories. This means that boys and girls scored statistically the same on third grade TAKS reading test irrespective of pre-kindergarten enrollment. Table 4.7 reports the descriptive statistics of Pre-K program attendance by socio-economic status. Table 4.8 reports the data for the two-way ANOVA results.

Table 4.7. Number of Students (N), Mean Scale Scores (M), and Standard Deviation (SD) of Student's Reading Scale Scores Organized by the Socio-Economic Status (SES) of the Students

Did students attend Pre-K?	SES	N	M	SD
No	Not free and reduced lunch	43	2,301.16	184.035
	Free and reduced lunch	393	2,201.85	177.197
	Total	436	2,211.64	180.122
Yes	Not free and reduced lunch	4	2,271.25	63.158
	Free and reduced lunch	280	2,244.21	174.760
	Total	284	2,244.59	173.672
Total	Not free and reduced lunch	47	2,298.62	176.791
	Free and reduced lunch	673	2,219.47	177.292
	Total	720	2,224.64	178.214

Table 4.8. Two-Way ANOVA Results for Reading Scale Scores of Students Organized by Socio-Economic Status (SES) of Students

Source	df	Mean Square	F	Significance
Program Enrollment	1	554.651	.018	.894
SES	1	57,145.642	1.838	.176
Interaction	1	18,697.229	.601	.438

Table 4.8 presents the three variables that are compared on the two-way ANOVA. The variables are program enrollment, socio-economic status, and the interaction of the two. Each of the three variables was examined, respectively.

The p-value obtained from the procedure relating to program enrollment was 0.894. This was greater than the alpha level of 0.05. The means of the two groups are the same. One group has statistically the same score as the other. Students who were enrolled in a Pre-K program scored statistically the same as those who did not attend a Pre-K program on the third grade TAKS reading subtest regardless of socio-economic status.

The p-value obtained from the procedure relating to socio-economic status was 0.176. This was greater than the alpha level of 0.05. There is no statistical difference between the two groups. Students from both groups scored statistically the same on the third grade TAKS reading subtest.

The p-value obtained from the procedure relating to the interaction between program enrollment and socio-economic status was 0.438. The means of the two socio-economic groups across the two enrollment options were statistically the same. Both groups scored the same irrespective of program enrollment on third grade TAKS reading subtest. Table 4.9 reports the descriptive statistics of Pre-K program attendance by English language learner status. Table 4.10 reports the data for the two-way ANOVA results.

Table 4.9. Number of Students (N), Mean Scale Scores (M), and Standard Deviation (SD) of Student's Reading Scale Scores Organized by English Language Learner (ELL) Status of Students

Did students attend Pre-K?	ELL	N	M	SD
No	Non-ELL	349	2,217.46	186.367
	ELL	87	2,188.32	151.234
	Total	436	2,211.64	180.122
Yes	Non-ELL	188	2,245.95	178.589
	ELL	96	2,241.94	164.497
	Total	284	2,244.59	173.672
Total	Non-ELL	537	2,227.43	184.018
	ELL	183	2,216.45	160.164
	Total	720	2,224.64	178.214

Table 4.10. Two-Way ANOVA Results for Reading Scale Scores of Students Organized by English Language Learner Status (ELL) of Students

Source	df	Mean Square	F	Significance
Program Enrollment	1	223,990.045	7.100	.008
ELL	1	36,505.653	1.157	.282
Interaction	1	31,548.562	.665	.415

Table 4.10 presents the three variables that are compared on the two-way ANOVA. The variables are program enrollment, English language learner status, and the interaction of the two. Each of the three variables was examined, respectively.

The p-value obtained from the procedure relating to program enrollment was 0.008. This was less than the alpha level of 0.05. The means of the two groups are not the same. One group has a statistically higher score than the other. Students who attended a Pre-K program outperformed students who did not attend a Pre-K program on the third grade TAKS reading test.

The p-value obtained from the procedure relating to English language learner status was 0.282. This was greater than the alpha level of 0.05. The means of the two groups are statistically the same. Students from both groups scored statistically the same on the third grade TAKS reading test.

The p-value obtained from the procedure relating to the interaction between program enrollment and ELL was 0.415. The means of the groups across the two enrollment options were statistically the same. Both groups scored statistically the same

irrespective of program enrollment on third grade TAKS reading test. Table 4.11 reports the descriptive statistics of Pre-K program attendance by the language of test. Table 4.12 reports the data for the two-way ANOVA results.

Table 4.11. Number of Students (N), Mean Scale Scores (M), and Standard Deviation (SD) of Student's Reading Scale Scores Organized by the Language of the Test

Did students attend Pre-K?	Language of test	N	M	SD
No	English	409	2,211.15	181.844
	Spanish	27	2,219.15	154.421
	Total	436	2,211.64	180.122
Yes	English			
	Spanish	275	2,244.91	175.185
	Total	9	2,234.78	125.435
		284	2,244.59	173.672
Total	English	684	2,224.72	179.832
	Spanish	36	2,223.06	146.142
	Total	720	2,224.64	178.214

Table 4.12. Two-Way ANOVA Results for Reading Scale Scores of Students Organized by the Language of the Test

Source	df	Mean Square	F	Significance
Program Enrollment	1	15,818.566	.500	.480
Language of the Test	1	29.581	.001	.976
Interaction	1	2,132.149	.067	.795

Table 4.12 presents the three variables that are compared on the two-way ANOVA. The variables are program enrollment, the language of the test, and the interaction of the two. Each of the three variables was examined, in turn.

The p-value obtained from the procedure relating to program enrollment was 0.480. This was greater than the alpha level of 0.05. The means of the two groups are the same, as one group has statistically the same score as the other. Students who were enrolled in Pre-K program scored statistically the same on the third grade TAKS reading test as those who did not attend a pre-kindergarten program.

The p-value obtained from the procedure relating to the language of test was 0.976. This was greater than the alpha level of 0.05. The means of the two groups are statistically the same. Students from both groups scored statistically the same on the third grade TAKS reading test.

The p-value obtained from the procedure relating to the interaction between program enrollment and English language learner status was 0.795. The means of the two groups were statistically the same. Each group has statistically the same score as the other within the two enrollment categories. Both groups scored the same, irrespective of program enrollment on third grade TAKS reading test. Table 4.13 reports the descriptive statistics of Pre-K program attendance, by gender. Table 4.14 reports the data for the two-way ANOVA results.

Table 4.14 presents the three variables that are analyzed in the two-way ANOVA. The variables are program enrollment, gender, and the interaction of the two. Each of the three variables was examined, respectively.

Table 4.13. Number of Students (N), Mean Scale Scores (M), and Standard Deviation (SD) of Student's Math Scale Scores Organized by the Gender of the Students

Did students attend Pre-K?	Gender	N	M	SD
No	Female	218	2,170.49	190.557
	Male	219	2,155.86	183.506
	Total	437	2,163.16	186.985
Yes	Female	125	2,202.21	179.663
	Male	155	2,222.02	210.849
	Total	280	2,213.18	197.440
Total	Female	343	2,182.05	187.022
	Male	374	2,183.28	197.740
	Total	717	2,182.69	192.554

Table 4.14. Two-Way ANOVA Results for Math Scale Scores of Students Organized by Gender

Source	df	Mean Square	F	Significance
Program Enrollment	1	405,813.751	11.099	.001
Gender	1	1,138.282	.031	.860
Interaction	1	50,246.019	1.374	.241

The p-value obtained from the procedure relating to program enrollment was 0.001. This was less than the alpha level of 0.05. The means of the two groups were not the same. One group had a statistically higher score than the other. Students who were enrolled in a Pre-K program outperformed those students who did not attend a Pre-K program on the third grade TAKS math test.

The p-value obtained from the procedure relating to gender was 0.860. This was greater than the alpha level of 0.05. The means of the two groups were the same. One group had statistically the same score as the other. Boys and girls scored the same on the third grade TAKS math test.

The p-value obtained from the procedure relating to the interaction between program enrollment and gender was 0.241. This was greater than the alpha level of 0.05. The means of the two groups across the two enrollment options were the same. Each group had statistically the same score as the other within the two enrollment categories. Boys and girls scored the same, irrespective of program enrollment on the third grade TAKS math test. Table 4.15 reports the descriptive statistics of Pre-K program attendance by socio-economic status. Table 4.16 reports the data for the two-way ANOVA results.

Table 4.15. Number of Students (N), Mean Scale Scores (M), and Standard Deviation (SD) of Student's Math Scale Scores Organized by the Socio-Economic Status (SES) of Students

Did students attend Pre-K?	SES	N	M	SD
No	Not free and reduced lunch	41	2,258.29	225.931
	Free and reduced lunch	396	2,153.31	179.963
	Total	437	2,163.16	186.985
Yes	Not free and reduced lunch	4	2,207.50	110.663
	Free and reduced lunch	276	2,213.26	198.534
	Total	280	2,213.18	197.440
Total	Not free and reduced lunch			
	Free and reduced lunch	45	2,253.78	217.837
	Total	672	2,177.93	189.974
		717	2,182.69	192.554

Table 4.16. Two-Way ANOVA Results for Math Scale Scores of Students Organized by Socio-Economic Status (SES) of Students

Source	df	Mean Square	F	Significance
Program Enrollment	1	298.693	.008	.928
SES	1	35,095.220	.973	.324
Interaction	1	43,713.036	1.212	.271

Table 4.16 presents the three variables that were compared on the two-way ANOVA. The variables were program enrollment, socio-economic status, and the interaction of the two. Each of the three variables was examined, in turn.

The p-value obtained from the procedure relating to program enrollment was 0.928. This was greater than the alpha level of 0.05. The means of the two groups were statistically the same. One group had statistically the same score as the other. Students who were enrolled in a Pre-K program scored the same as those who did not attend a Pre-K program on the third grade TAKS math test.

The p-value obtained from the procedure relating to socio-economic status was 0.324. This was greater than the alpha level of 0.05. The means of the two groups were statistically the same. One group had statistically the same score as the other. Students from both groups scored statistically the same on the third grade TAKS math test.

The p-value obtained from the procedure relating to the interaction between program enrollment and socio-economic status was 0.271. This was greater than the alpha level of 0.05. The means of the two socio-economic groups across the two enrollment options were statistically the same. Each group had statistically the same score as the other within the two enrollment categories. Both groups scored statistically the same irrespective of program enrollment on third grade TAKS math test. Table 4.17 reports the descriptive statistics of Pre-K program attendance by English language learner status. Table 4.18 reports the data for the two-way ANOVA results.

Table 4.17. Number of Students (N), Mean Scale Scores (M), and Standard Deviation (SD) of Student's Math Scale Scores Organized by the English Language Learner (ELL) of the Students

Did students attend Pre-K?	ELL	N	M	SD
No	non-ELL	349	2,161.16	189.522
	ELL	88	2,171.08	177.384
	Total	437	2,163.16	186.985
Yes	non-ELL	187	2,193.84	192.227
	ELL	93	2,252.05	203.040
	Total	280	2,213.18	197.440
Total	non-ELL	536	2,172.56	190.928
	ELL	181	2,212.69	194.745
	Total	717	2,182.69	192.554

Table 4.18. Two-Way ANOVA Results for Math Scale Scores of Students Organized by English Language Learner Status (ELL) of Students

Source	df	Mean Square	F	Significance
Program Enrollment	1	425,873.687	11.723	.001
ELL	1	153,045.444	4.213	.040
Interaction	1	76,912.355	2.117	.146

Table 18 presents the three variables that were compared in the two-way ANOVA. The variables were program enrollment, English language learner status, and the interaction of the two. Each of the three variables was examined, in turn.

The p-value obtained from the procedure relating to program enrollment was 0.001. This was less than the alpha level of 0.05. The means of the two groups were statistically the same. One group had a statistically higher score than the other. Students who were enrolled in a Pre-K program outperformed those students who did not attend a Pre-K program on the third grade TAKS math test.

The p-value obtained from the procedure relating to program enrollment was 0.040. This was less than the alpha level of 0.05. The means of the two groups were statistically the same. One group had a statistically higher score than the other. English language learners who were enrolled in a Pre-K program outperformed non-English language learners who did not attend a Pre-K program on the third grade TAKS math test.

The p-value obtained from the procedure relating to the interaction between program enrollment and English language learner status was 0.146. The means of the two language groups across the two enrollment options were statistically the same. Each group had statistically the same score as the other within the two enrollment categories. Both English language learner groups scored statistically the same irrespective of program enrollment on third grade TAKS math test. Table 4.19 reports the descriptive statistics of Pre-K program attendance by language of test. Table 4.20 reports the data for the two-way ANOVA results.

Table 4.19. Number of Students (N), Mean Scale Scores (M), and Standard Deviation (SD) of Student's Math Scale Scores Organized by the Language of the Test

Did students attend Pre-K?	Language of test	N	M	SD
No	English	414	2,160.83	185.883
	Spanish	23	2,205.09	205.743
	Total	437	2,163.16	186.985
Yes	English	271	2,209.92	194.878
	Spanish	9	2,311.22	258.090
	Total	280	2,213.18	197.440
Total	English	685	2,180.25	190.869
	Spanish	32	2,234.94	222.668
	Total	717	2,182.69	192.554

Table 4.20. Two-Way ANOVA Results for Math Scale Scores of Students Organized by the Language of the Test

Source	df	Mean Square	F	Significance
Program Enrollment	1	149,937.779	4.114	.043
Language of test	1	131,849.581	3.617	.058
Interaction	1	20,252.058	.556	.456

Table 4.20 presents the three variables that were compared in the two-way ANOVA. The variables were program enrollment, the language of the test, and the interaction of the two. Each of the three variables was examined, in turn.

The p-value obtained from the procedure relating to program enrollment was 0.043. This was less than the alpha level of 0.05. The means of the two groups were statistically the same. One group had a statistically higher score than the other. Students who were enrolled in a Pre-K program outperformed those students who did not attend a Pre-K program on the third grade TAKS math test.

The p-value obtained from the procedure relating to gender was 0.058. This was greater than the alpha level of 0.05. The means of the two groups were statistically the same. One group had statistically the same score as the other. Both language groups scored statistically the same on the third grade TAKS math test.

The p-value obtained from the procedure relating to the interaction between program enrollment and the language of the test was 0.456. This was greater than the alpha level of 0.05. The means of the two groups across the two enrollment options were statistically the same. Each group had statistically the same score as the other within the two enrollment categories. The two groups scored the same irrespective of program enrollment on the third grade TAKS math test.

Chapter Summary

This chapter presented and analyzed the data that answered each research question posed in Chapter I of this study. A demographic descriptive statistics table was presented for each question. In addition a table representing the sample means and the test of significance for each question illustrated the results. Research Questions #1 and #2 examined the data as it pertain to attendance in pre-kindergarten and the impact of such on reading and math TAKS, respectively. The results of both questions showed a

positive impact on reading and math third grade TAKS. Research Question #3 examined the variables of gender, socio-economic status, English language learner status, and the language of the test in relation to attending pre-kindergarten and the impact of such on third grade reading and math TAKS. The results reflected no significant impact on the third grade TAKS as it pertains to the variables examined and the attendance of pre-kindergarten program. Chapter V presents a summary of the results of the study examined in Chapter IV in addition to conclusions and recommendations for further studies based on the findings in Chapter IV and the literature review in Chapter II.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The results of this study indicated that attending pre-kindergarten impacted the achievement level expected at third grade in reading and math as measured by the state assessment. This study was conducted in 10 elementary schools in a San Antonio, Texas school district. These results support the literature presented in Chapter II that report that early education plays a significant role in school readiness and elementary grades (Ackerman & Barnett, 2006; American Federation of Teachers, 2003; American Institute for Research, 2004; Andrews & Slate, 2001; Landry, 2005; Magnuson & Waldfogel, 2005; Ramey & Ramey, 2004; Reynolds, 2001; Reynolds et al., 2006; Rouse et al., 2005). Similarly, the earlier longitudinal studies of programs such as the Perry Preschool Project, Abecedarian Project, and Chicago Child Parent Center all support the significant benefits of early education and its positive effects in the years following preschool (Barnett & Hustedt, 2003; Bruner, 2004; Campbell, 1998; Campbell & Ramey, 1995; Campbell et al., 1998; Landry, 2005; Love, Brooks-Gunn, Paulsell, & Fulligni, 2002; Mitchell, 2001; Schweinhart, 2007).

Pre-kindergarten programs target three and four year old students who are identified as meeting the attendance requirement criteria that have been set by the state (Kauerz & McMaken, 2004; Levine, 2005; Mitchell, 2001; Mitchell et al., 1989; NCES, 2003; No Child Left Behind Act of 2001, 2007; Southern Regional Education Board, 2003). Students who meet the criteria may have the potential of not having the readiness skills that are needed to enter kindergarten and be successful as they enter the

elementary grades. According to the TEA Code 29.153, in order to participate in a public school pre-kindergarten program, students will either be an: English language learner, low socio-economic, or homeless, since these are the students who will be at a possible risk of failure in the elementary grades and beyond (Cavanaugh et al., 2000; Child Care Bureau, 2004; CCSSO, 2005b; Denton, 2002; Duncan, Ludwig, & Magnuson; 2007).

An additional area that is stressed in the review of literature is the increase in the numbers of preschool children. This increase will surely impact not only pre-kindergarten but the elementary grades and beyond (Rouse et al., 2005; Tharp, 1997; U.S. Census Bureau, 2007; U.S. Department of Education, 2007). Among the preschool population, the fastest growing minority group is the Hispanic group, which will have implications for families, communities and government (Bryant et al., 2002; Coltrane, 2002; Espinosa, 2002; Garcia & Jensen, 2006; Garcia et al., 2006; Wong & Snow, 2000).

On the contrary, the results of this study do not agree with the articles by Bogard and Takanishi (2005). The authors mention the benefits of early childhood programs, but they also mention that the cognitive gains made in pre-kindergarten are not always sustained through the elementary school years. They suggest that perhaps one year of early childhood is not enough to show achievement in the higher grades.

Along these same lines and in agreement with the preceding articles, Kauerz and McMaken (2004) and Marcon (2002) mention that pre-kindergarten programs should prepare young children for elementary grades. These authors question the sustainability

of high achievement in reading and math beyond pre-kindergarten. They state that the student's high achievement in reading and math in pre-kindergarten often decline as they continue through the elementary grades.

Taking into consideration the literature and studies on pre-kindergarten programs and their impact on student achievement, this final chapter summarizes the research procedures and findings of this study along with implications for practice and recommendations for future studies.

Summary of Research Procedures and Analysis

The following reports were collected from the district's assessment and registrar's office in order to gather information for data analysis and findings depicted in tables in Chapter IV and summarized in this chapter.

- Texas Assessment of Knowledge and Skills (TAKS) reading and math scale scores in English and Spanish for third grade students in the 10 elementary schools for the 2006-2007 school year.
- Academic Excellence Indicator System (AEIS) reports that gave the researcher information as to the gender, socio-economic, and English language learner status of students.
- The fall Public Education Information Management System (PEIMS) submission report for the 2002-2003 school year provided the researcher a list of students who attended pre-kindergarten in 2002 in the 10 elementary schools in this study.

The statistical procedures utilized in this study were descriptive and inferential. A t-test for independent means was used for Research Questions #1 and #2. The t-test as the statistical treatment was used in order analyze the differences between the means of the two groups; students who attended pre-kindergarten and those who did not attend pre-kindergarten. A level of significance of .05 was used to determine the level of significance for each test.

An analysis of variance (ANOVA) procedure was used to analyze the data for Research Question #3. A two-way ANOVA was used to determine if a significant difference exists among the independent variables, such as gender, socioeconomic status, English language learner, and the language of the test.

Results and Conclusions

The results of this study and conclusions drawn by the researcher are discussed according to the individual research questions that guided the study.

Research Question #1

Is there a significant difference in the third grade 2006-2007 TAKS reading scores administered in English or Spanish between students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

Statistical significant difference was observed among the students who attended pre-kindergarten on the 2006-2007 third grade reading TAKS. Based on the results found in tables 4.1 and 4.2, it was found that the students who attended pre-kindergarten

demonstrated higher achievement on the third grade TAKS in reading than the students who did not attend pre-kindergarten. Therefore, the researcher concluded that attending pre-kindergarten does have an impact on the achievement level on state assessment in the area of reading in third grade.

The findings of this study coincide with the findings in the Carolina Abecedarian Project and the Child Parent Center in which the benefits of early childhood programs are sustained into the primary grades (Reynolds et al., 2006). In addition, it has been indicated that preschool programs can enhance children's cognitive skills and promote school achievement in the elementary grades, and this statement agrees with the findings in this study (Ou & Reynolds, 2004).

Research Question #2

Is there a significant difference in the third grade 2006-2007 TAKS math scores administered in English or Spanish between students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

Statistical significant difference was found among the students who attended pre-kindergarten on the 2006-2007 third grade math TAKS. Based on the results in Tables 4.3 and 4.4, it was found that the students who attended pre-kindergarten demonstrated higher achievement on the third grade TAKS in math than the students who did not attend pre-kindergarten. Therefore, the researcher concluded that attending

pre-kindergarten does have an impact on the achievement level on state assessment in the area of math in third grade.

The results of this study support the findings in the report from the National Bureau of Economic Research report entitled: *Does the Pre-kindergarten Improve Preparation and Performance?*, which indicated that students that attended pre-kindergarten achieved academic gains in the primary grades (Landry, 2005).

Research Question #3

When comparing gender, English language learner status, socio-economic status, and the language of the test, is there a significant difference in the third grade 2006-2007 TAKS math and reading scores administered in English or Spanish among students who participated in public pre-kindergarten programs compared to those who did not participate in public pre-kindergarten programs attending 10 elementary schools in a selected mid-size school district in San Antonio, Texas?

No statistical significant difference was found among the students who attended pre-kindergarten and the students who did not attend on third grade reading and math TAKS in relation to the following variables: gender; English language learner status; socio-economic status, and the language of the test. The implication of these results is important because although attending pre-kindergarten does impact the results on third grade TAKS when taking the variables in question into consideration, it reflects that these did not impact the results on the third grade reading or math TAKS.

The results of this study as it pertains to this question do not support the findings of reports that state that children from economically disadvantaged families are

predictors of poor performance on achievement tests (National Center for Children of Poverty, 2005). Along these same lines, Guthrie and Springer (2004), state that economic constraints and social situations can predict academic performance and that statement is found to be in disagreement with the findings of this study.

Implications for Practice

The results of this study along with literature and other studies provide evidence that the intervention of attending public pre-kindergarten has benefits for children, their families, and society (Ackerman & Barnett, 2006; American Federation of Teachers, 2003; Stipek, 2004).

The state accountability system is also reinforcing, ensuring, and expecting that all students regardless of their ethnicity or economic status receive the quality education they need in order to be successful students and productive citizens. Schools need to provide students the necessary skills so they can perform and exhibit positive results in state assessments as it is expected and mandated with the No Child left Behind Act (NCLB). NCLB's accountability component requires that all students achieve a proficient level in reading and math state assessments beginning in third grade and continuing through high school (O'Brien & Dervarics, 2006; Reynolds et al., 2006).

In order for achievement to occur beginning in pre-kindergarten and continuing through the elementary grades as this study's result indicated, there has to be some critical components in place. Galinsky (2006), in her report titled: *The Economic Benefits of High Quality Early Childhood Programs: What Makes the Difference?*, mentions the following basic components should be in place in order to have positive

results: (a) well-educated, (b) well-trained, and (c) well-compensated teachers; (b) small class sizes; (c) intensive programs that meet the needs of the student population, and (d) a program that supports and educates parents. Galinsky also mentions the need for a curriculum that is research based and instructional leaders who are well versed and trained in early childhood education.

As we look at the school district in this study and its population, we want to stress that this is a highly populated Hispanic school district. The U.S. Census Bureau (2007) states that Hispanics are one of the fastest growing ethnic groups in the United States. Collins and Ribiero (2004) state that this growth has implications on early education. Some of these implications need to be addressed in order to meet the needs of this diverse population.

Along these lines, Buysse et al. (2004) mention that early childhood programs may be unprepared to address the diverse and educational needs of young Hispanic children and their families. For this reason, it is of utmost importance that school districts are informed and prepared to address the needs of our minority preschool students and their families so that all students have the necessary readiness skills in order to attain the positive results that schools are expected to reach.

The National Task Force on Early Childhood Education for Hispanics (2006) claim that Hispanics children are underrepresented in early childhood programs. They state that one of the reasons is the language barrier that exists among school personnel and the children's families and also the lack of information in reference to the services provided at the schools. Therefore, district leadership should examine how parental

involvement is addressed at the campus level, specifically with the parents of minority children. District personnel should find ways to communicate with parents of English language learners in their dominant language and try to hire personnel who speak the language that is spoken in the community.

Based on the results of this study, the number of students who did not attend pre-kindergarten was much higher than the students who attended pre-kindergarten; therefore, district leadership should look into implementing a universal pre-kindergarten program and the expansion of the half-day pre-kindergarten program to a full day since this will surely help in increasing the number of students who participate in pre-kindergarten programs and impact student achievement.

Recommendation for Future Study

The scope of this study is limited to the 10 elementary campuses in a school district in San Antonio, Texas. The information gathered in the review of literature demonstrates that there is a gap in the research pertaining to public pre-kindergarten. Taking into consideration that preschool age children are one of the fastest growing population, specifically the Hispanic group, this is an area that should be researched further. In addition, the accountability system in the United States and Texas is a system that requires that school districts and schools meet the adequate yearly progress and ensure that all students are proficient in reading and math by third grade. Therefore, in order for students to perform at the expected achievement as they enter kindergarten, pre-kindergarten should be considered as an intervention in order to ensure academic success by third grade. Based upon information provided in the review of literature, the

findings in the study and the conclusions of this study, the following are recommendations for further research.

1. Further research should be conducted to measure the performance of this pre-kindergarten group at Grade 5 to see if the achievement level is maintained in higher grades.
2. Further research should be conducted to examine pre-kindergarten teacher preparation programs in San Antonio colleges and/or universities as well as other universities across Texas in order to align theory and research with practical implications in the classroom, in addition to creating links among higher ed and public schools.
3. Further research should be conducted to examine professional development offered and conducted for pre-kindergarten teachers, especially teaching strategies in working with diverse populations. These should be measured in terms of teacher perception in order to align professional development with the needs of teachers, so that teachers are prepared and empowered to deliver effective instructional techniques.
4. Further research should be conducted in highly populated Hispanic communities to determine parental perception, involvement, and participation in their child's pre-kindergarten education since the Hispanic population will be the largest minority group among our early childhood population in the coming years.

5. Further research should be conducted in order to examine the vertical alignment of PK-3rd grade curriculum and beyond in order to ensure that skills that are introduced in pre-kindergarten are reinforced, mastered, and as a result aligned with state assessments.

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APPENDIX A
PERMISSION OF CONDUCT RESEARCH

**SOUTH SAN ANTONIO INDEPENDENT SCHOOL DISTRICT**

2515 BOBCAT LANE • SAN ANTONIO, TEXAS 78224-1298 • (210) 977-7000

May 17, 2007

To Whom It May Concern:

I grant Wanda Maldonado permission to conduct research in the South San Antonio School District relating to the impact of attending pre-kindergarten on third grade TAKS (2006-07).

In her study, I grant permission to analyze PEIMS data which will include- AEIS reports and TAKS reports for all 10 elementary schools in South San Antonio ISD. I understand that the records of this study will be kept confidential and that only aggregate results will be shared. I also understand that no names of students, staff or school district will be used.

Sincerely,

A handwritten signature in cursive script that reads "Ron L. Durbon".

Ron L. Durbon
Superintendent of Schools
South San Antonio I.S.D.

APPENDIX B
IRB APPROVAL FORM

**TEXAS A&M UNIVERSITY
VICE PRESIDENT FOR RESEARCH - OFFICE OF RESEARCH COMPLIANCE**

1186 TAMU
College Station, TX 77843-1186
1500 Research Parkway, Suite B-150

979.458.1467
FAX 979.862.3176
<http://researchcompliance.tamu.edu>

Institutional Biosafety Committee

Institutional Animal Care and Use Committee

Institutional Review Board

DATE: 26-Jul-2007

MEMORANDUM

TO: MALDONADO, WANDA
TAMU-EDUCATIONAL ADMN & HUMAN RESOURCE(00028)

FROM: Office of Research Compliance
Institutional Review Board

SUBJECT: Initial Review

**Protocol
Number:** 2007-0439

Title: The Impact of Student Enrollment in Public Pre-Kindergarten on Student Performance as Identified by Third Grade Texas Assessment of Knowledge and Skills (TAKS) Scores in Reading and Math in Selected Elementary Schools in Region 20 Education Service Center in Texas

**Review
Category:** Exempt from IRB Review

The Institutional Review Board (IRB) has determined that the referenced protocol application meets the criteria for exemption and no further review is required. However, any amendment or modification to the protocol must be reported to the IRB and reviewed before being implemented to ensure the protocol still meets the criteria for exemption.

This determination was based on the following Code of Federal Regulations:
(<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>)

45 CFR 46.101(b)(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Provisions:

This electronic document provides notification of the review results by the Institutional Review Board.

VITA

Wanda Maldonado
5610 Green House
San Antonio, Texas 78223

EDUCATION

- 2004-2008 Doctor of Education, Educational Leadership
Texas A&M University, College Station, Texas
- 1983-1985 Master of Arts, Bilingual-Bicultural Studies
The University of Texas at San Antonio, San Antonio, Texas
- 1973-1980 Bachelor of Arts, Secondary Education
The University of Puerto Rico, Cayey, Puerto Rico

CERTIFICATIONS

- 1988-1990 Mid-Management Certification in School Administration
Texas A&I, Kingsville, Texas

PROFESSIONAL EXPERIENCE

- 2007-Present Director of Bilingual Programs
Manor Independent School District, Manor Texas
- 2006-2007 Adjunct Professor, Alamo Community College, San Antonio, Texas
- 2003-2007 Principal, South San Antonio Independent School District
San Antonio, Texas
- 1999-2003 Area Manager, Success for All Foundation, New England Area
- 1982-1999 Principal, 1995-1999
Vice Principal, 1991-1995
Teacher (3rd, Pre-K, Reading), 1982-1991
South Side Independent School District, San Antonio, Texas
- 1980-1982 Teacher (8th, 11th, 12th), Cayey School District, Cayey, Puerto Rico

This record of study was typed and edited by Marilyn M. Oliva at Action Ink, Inc.