PLACEMENT IN THE PREKINDERGARTEN BILINGUAL AND ENGLISH AS A SECOND LANGUAGE PROGRAMS AS A PREDICTOR OF READING ACHIEVEMENT OF 3rd GRADE STUDENTS

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At the beginning of the 21st century, few challenges for educators compared to that of meeting the academic needs of the growing number of Limited English Proficient (LEP) students. Divergent views on whether those needs were best met through instruction in the student’s first language and English, known as bilingual education, or instruction solely in English, compounded the challenge and led to varied language support programs. The present study looked at the prekindergarten (preK) language support program as a predictor of 3rd-grade reading achievement of students with the intention of helping educators understand how best to serve LEP students.

The study included an analysis of 3rd-grade reading achievement for four groups of students with a primary home language of Spanish who attended bilingual or ESL prekindergarten. Multivariate analysis of variance (MANOVA) followed by descriptive discriminant analysis (DDA) was used to analyze scores from the Iowa Tests of Basic Skills (ITBS) reading test and the Texas Assessment of Knowledge
and Skills (TAKS) reading test. No statistically
significant difference in 3rd-grade reading achievement was
found among the four groups at the .05 level. There was,
however, a small-to-medium effect size. The MANOVA
indicated that the group to which the students belonged
accounted for 5.5% of the variance in their scores. The DDA
revealed the ITBS explained most of the difference in the
group performance. The findings suggest that ESL
instruction is a viable option to bilingual instruction for
LEP preK students.
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TABLE OF CONTENTS

ACKNOWLEDGEMENTS ........................................ iii
LIST OF TABLES ........................................... vi
LIST OF FIGURES .......................................... vii

CHAPTER

I. INTRODUCTION ....................................... 1
   Background of the Study ................................ 1
   Statement of the Problem .............................. 6
   Purpose of the Study .................................. 7
   Research Question ..................................... 7
   Hypotheses ............................................ 8
   Significance of the Study ............................. 8
   Limitations of the Study .............................. 9
   Delimitation of the Study ............................. 9
   Definitions of Terms .................................. 9
   Organization of the Dissertation ..................... 11

II. REVIEW OF RELATED LITERATURE ................. 12
   Introduction ........................................ 12
   Current Status of Prekindergarten Education ........ 12
   Research on the Benefits of Prekindergarten .......... 16
   Education of Limited English Proficient Students ........ 20
   Historical Perspective in Texas ..................... 20
   Language Support Program Studies ................... 22
LIST OF TABLES

1. Groups by Program and Grade. .......................... 36

2. IDEA Oral Language Proficiency Tests – English
   Designations. ............................................ 48

3. Percent of Students At or Above Grade Level on ITBS
   and Meeting Standard on TAKS ......................... 53

4. Means and Standard Deviations for the ITBS and
   TAKS .................................................... 54

5. Eigenvalues. .............................................. 57

6. Functions at Group Centroids ............................. 59
LIST OF FIGURES

1. Distribution of ITBS Reading Total Standard Scores . .51
2. Distribution of TAKS Reading Scale Scores. . . . . . .52
CHAPTER I
INTRODUCTION

Background of the Study

At the beginning of the 21st century, few challenges for educators compared to that of meeting the academic needs of the growing number of limited English proficient (LEP) students. Divergent views on whether those needs were best met through instruction in the student’s first language and English, known as bilingual education, or instruction solely in English, compounded the challenge and led to varied language support programs. In light of this debate, an examination of the impact of bilingual and English as a second language (ESL) programs on the youngest of LEP students, prekindergarteners, was warranted. The present study sought to measure the impact of the prekindergarten (preK) language support program on the reading achievement of students when they reached 3rd grade, thereby helping educators understand how to best serve LEP students.

The growth in numbers of LEP students at the end of the last century was rapid. While the total kindergarten through 12th grade enrollment in U.S. schools increased by 12% between the 1991-1992 and 2001-2002 school years, the LEP enrollment grew by 95% during the same time period.
(National Clearinghouse for English Language Acquisition, 2002). Projections for 2030-2040 estimate that language-minority students will comprise 40% of the U.S. school-age population (Thomas & Collier, 2003).

Coupled with this growth in LEP students was a shortage of certified bilingual teachers. In Texas alone during the 1996-1997 school year, 74% of the state’s districts could not provide the required elementary bilingual programs due to a shortage of over 2,000 bilingual education teachers (Texas Education Agency [TEA], 1998). During that same year, over 14% of the bilingual education and ESL teachers who were teaching in the public schools were not certified to teach their assigned classes (Texas Education Agency, 1998).

Intersecting with the increase in LEP students and the shortage of teachers to provide the many state-mandated language support programs was one of the most popular educational panaceas to come out of the last century: accountability. While many states such as North Carolina, Kentucky, and Texas had accountability systems in place for a number of years, Congress mandated that all 50 states develop a system to hold districts and campuses accountable for student achievement. The No Child Left Behind (NCLB) Act of 2001 required states to assess students in grades 3
through 8 in the areas of reading and mathematics, and to
determine the passing rates of these students. NCLB
stipulated that districts and schools should be held
accountable for the participation and performance of
student groups, including students with limited English
proficiency. Should states, districts, and campuses who
received federal Title I funds fail to achieve acceptable
passing and participation rates, sanctions as well as
reduced funding would be imposed (NCLB, 2001).

The inclusion of LEP students magnified the importance
of providing strong language support programs staffed by
qualified teachers. Historically, LEP students had not
always been included in state testing programs. Students
were often exempted based on their English language
proficiency. This exclusion meant that schools were not
held accountable for the academic progress of LEP students,
and their needs were sometimes overlooked (Coltrane, 2002).
NCLB’s emphasis on the participation of all students in
state testing programs suggested that it would not be
possible to delay or ignore any student’s academic needs.

While the inclusion of LEP students in accountability
systems forced attention on the quality of instructional
programs and teachers, it also added the pressures that
accompanied high-stakes testing. Typically, the scores from
high-stakes tests had been used to determine student promotion, assignment to particular classes, and whether or not students graduated (Coltrane, 2002). In Texas, for example, students who did not pass the Texas Assessment of Knowledge and Skills (TAKS) test at the high school exit level did not receive a diploma. In addition, beginning with the 2002-2003 school year, 3rd grade students who did not meet the passing standards on the TAKS reading test were subject to retention (Student Success Initiative, 1999). Texas legislators expected that all students would be reading at grade level by the end of their 3rd grade year. According to McGill-Franzen (1993), “A child who is 8 years old and is not a reader is a child in deep trouble at school” (p. 57). Hakuta, Butler, and Witt (2000) concluded that it takes LEP students 4 to 7 years to become proficient in academic English. The contradiction between policy requirements and language acquisition research meant the likely failure of many LEP students (Miller & Endo, 2004).

Stricter requirements and higher standards led educators to take a closer look at the importance of early intervention for all students at risk of failure in school (Barnett & Hustedt, 2003). The growth in preschool programs served as evidence of this.
Over the past 20 years there has been a gradual expansion of early childhood education programs for three- and four-year-olds. . . . State spending on prekindergarten initiatives has risen from about $200 million in 1988 to nearly $2 billion in 1999 – a dramatic ten-fold increase. (Wohl, 2001, p. 23)

While a few states such as Georgia, New York, and Oklahoma established universal preK programs, making preK available to all 4-year-olds (Barnett & Hustedt, 2003), most states provided services only to those students who met selected criteria for enrollment. “Eligible children are often those with educational disadvantage factors, with poverty or family income only one factor” (Mitchell, 2001, p. 4). In Texas, the Education Reform Act (ERA), passed in 1984, established a preK program for 4-year-olds with limited English proficiency or who came from low-income families.

The trend in providing more students with early childhood education was supported by the growing influence of brain research on educational practice (Diamond & Hopson, 1998, Jensen, 1998; Sylwester, 1995). In an interview on the subject of brain development in 4- to 6-year-olds, Shaywitz stated: “This period in a child’s life is a time of very intense activity in the brain”
(D’Arcangelo, 2003, p. 6). Shaywitz continued: “To correct a reading problem in third or fourth grade, you almost have to undo certain pathways that the child has developed” (p. 6).

The issues of high-stakes testing and accountability, early intervention as a means toward school success, a rapid and continuing growth in numbers of LEP students, and a shortage of bilingual teachers converged to present educators with many demands. To help meet those demands, a question arose: What was the relationship between the language support program provided to preK LEP students and their success as readers in 3rd grade?

Statement of the Problem

Under state statute, Texas students, including the growing number of LEP students, were expected to read at grade level by 3rd grade or face the possibility of retention. A shortage of qualified teachers (Texas Education Agency, 1998) and an LEP population that represented dozens of languages meant that a bilingual preK program was not always feasible as students began their formal education. As a result, some LEP students began their schooling in an ESL setting while others began in a bilingual setting. The problem of the study, therefore, was to determine whether or not the type of language support
program in preK had an impact on reading achievement by the time students reached the critical 3rd grade year.

Purpose of the Study

The purpose of the study was to examine the reading levels of 3rd grade students who were served by either bilingual or ESL preK programs and to use the findings to inform program decisions related to the placement of students in the appropriate preK setting and personnel practices related to the hiring of bilingual and ESL teachers. In addition, the purpose of the study was to add to the extant literature pertaining to the reading achievement of students instructed in bilingual and ESL preK programs.

Research Question

What was the difference in 3rd grade Iowa Tests of Basic Skills® (ITBS) Form A (Houghton Mifflin Company, Boston, MA, www.hmco.com) and the TAKS reading test results for non-LEP students who attended ESL preK followed by general education kindergarten through 3rd grade; LEP students who attended bilingual preK followed by bilingual kindergarten through 3rd grade; LEP students who attended ESL preK followed by ESL kindergarten through 3rd grade; and LEP students who attended ESL preK followed by bilingual kindergarten through 3rd grade?
Hypotheses

1. As measured by the ITBS and TAKS, there is no difference in the 3rd grade reading achievement of non-LEP students who attended ESL preK, LEP students who attended bilingual preK, LEP students who attended ESL preK, and LEP students who attended ESL preK followed by bilingual kindergarten through 3rd grade.

2. The ITBS and TAKS contribute equally to the difference in the 3rd grade reading achievement of students who attended ESL and bilingual preK.

Significance of the Study

The results of the study may help resolve the debate about the need for bilingual preK programs. Research indicates that preschool education has a positive effect on children’s learning and achievement (Barnett, 2002) and ultimately leads to higher graduation rates (Barnett & Hustedt, 2003). While advocates of bilingual education contend that a bilingual preK program best prepares pupils for academic success (Coltrane, 2003), there is some debate surrounding the issue (Porter, 1998). A relationship between the preK program and student reading achievement in 3rd grade might indicate the importance of providing either a bilingual preK program or an ESL preK program. The results also have implications for recruiting and hiring
practices since qualifications for teachers in the two program types vary.

Limitations of the Study

The study had the following limitations:

1. Bilingual preK was available only to students whose first language was Spanish.

2. Students enrolled in ESL preK classes included students whose first language was Spanish but for whom there was insufficient room in the bilingual program, as well as students whose first language was not Spanish or English.

3. Teacher experience and qualifications varied from one class and one campus to another.

Delimitation of the Study

The analyzed data included achievement test results for only those LEP students who were enrolled in preK during the 1999-2000 school year and were enrolled in 3rd grade during the 2003-2004 school year.

Definition of Terms

The following terms are defined for consistency and clarity throughout the study.

*Bilingual education:* A program in which students received part of their instruction in their first language and part of their instruction in English.
**English as a Second Language (ESL):** A program in which students received all of their instruction in simplified English.

**Iowa Tests of Basic Skills (ITBS):** Norm-referenced tests that measured student achievement in reading as well as other academic domains.

**Limited English Proficient (LEP):** A term used to describe a student whose native or dominant language is other than English and who had yet to meet the criteria for being classified as English proficient. While the term English Language Learner was often used in literature in lieu of limited English proficient, the National Center for Education Statistics (NCES) and the TEA continued to use the latter.

**Prekindergarten (PreK):** As used in the study, a preschool education program taken one year prior to kindergarten.

**Texas Assessment of Knowledge and Skills (TAKS):** A criterion-referenced test administered to students in grades 3 through 11 in the areas of reading, English language arts, math, writing, science, and social studies. Students in 3rd grade were tested in reading and math only.
Organization of the Study

The study is organized into five chapters. Chapter I presents the introduction to the study, which includes background of the study, research questions, hypotheses, statement of the problem, purpose of the study, significance of the study, limitations and delimitations of the study, and definitions of key terms.

Chapter II contains the review of related literature, including an examination of studies of prekindergarten education and the education of LEP students.

Chapter III contains the methodology used in the study, and Chapter IV presents the analysis of the data. The summary and conclusions are included in Chapter V.
CHAPTER II
REVIEW OF THE RELATED LITERATURE

Introduction

The literature review focuses on studies of the impact of prekindergarten (preK) education and the education of limited English proficient (LEP) students. Attention is also given to recommendations regarding the teaching of reading skills to LEP students. This chapter also includes information on the history and current status of preK programs for LEP students. Searches for studies began with the Educational Resources Information Center (ERIC) Clearinghouses on Elementary and Early Childhood Education and Language and Linguistics. The U.S. Department of Education and the National Center for Education Statistics (NCES) Web sites were searched for information and data related to the education of preK and LEP students. Additionally, the Center for Research on Education, Diversity, and Excellence and the Center for Applied Linguistics provided primary sources as well as links to other pertinent studies.

The Current Status of Prekindergarten Education

According to the NCES (2003), 796,000 preK-aged children were enrolled in public elementary schools in the
fall of 2000. While this represented a 162% increase in enrollment over a 10-year period, NCES (2003) figures indicated that 65% of U.S. public elementary schools still had no preK classes in 2000-2001.

Mitchell (2001) noted that preK programs were established in stages as a result of differing forces. In the 1980s education reform and emerging research findings regarding the long-term benefits of preK spurred growth in early childhood education. A Nation at Risk (National Commission on Excellence in Education, 1983) was a report developed in response to concerns about the quality of American education. Soon after this report was issued, the Texas Legislature passed the Education Reform Act (ERA) (1984), which included provisions for preK programs in public schools.

In addition to policy reports and legislation, reports in the early 1980s from the High/Scope Perry Preschool Project (Schweinhart & Weikart, 1980) extolled the benefits of early childhood education as did reports from the Abecedarian Project (Carolina Abecedarian Project, 2003).

In the 1990s the National Education Goals (NEG) and progress in neuroscience were factors that further prompted the addition of preK programs in U.S. schools. The NEG, created by the governors of the 50 states and the U.S.
Congress, sought to improve teaching and learning (Summit Education Initiative, 2003). Goal 1 addressed school readiness, and the first objective of this goal called for all children to have access to developmentally appropriate, high-quality preschools (Goals 2000: Educate America Act, 1994). Neuroscience theories regarding windows of opportunity for 2- and 3-year-olds to learn language also served as catalysts for early childhood education (Sylwester, 1995).

The effects of these developments in the 1980s and 1990s were seen in the growth of preK programs. A report by the Child Care Action Campaign (2001) noted that only eight states invested in preK programs through the 1970s, but by the end of the 1990s, 41 states and the District of Columbia had such programs. Annual spending rose from about $200 million in the late 1980s to approximately $2 billion by the end of the next decade.

In spite of this growth in programs and spending, the U.S. was cited as “the only major, wealthy country without a national, comprehensive child care system linked to public education” (Jalongo & Bauer, 1998, p. 4). Some states, however, sought to remedy this. In 1995 Georgia was the first to offer universal preK to all 4-year-olds, and Florida voters approved a 2002 constitutional amendment to
put a similar program in place by 2005 (Barnett & Hustedt, 2003).

In those states that offered preK, the classrooms reflected the growing diversity in the United States. During the 2000-2001 school year 49% of prekindergarteners were white while 24% were Hispanic, 23% were African American, 3% were Asian, and 2% were Native American (NCES, 2003). Furthermore, 61% of preK children were low-income students who qualified for free or reduced-price lunch benefits, a result of the practice of providing preK to children from low-income families (Mitchell, 2001). Considering the ethnic diversity of public school preK enrollment, it followed that there were many LEP students. Fifteen percent of preK students in 2000-2001 were LEP. That number doubled for schools in the western region of the United States (NCES, 2003).

The growth in the LEP population and the expansion of preK programs garnered attention in the NCLB legislation of 2001. This most recent reform of the Elementary and Secondary Education Act addressed both issues. The law addressed the need for preschool environments that supported the acquisition of language and pre-reading skills through literature and oral language. Additionally, the law sought to enable LEP students to learn English
quickly and effectively. To further stress the urgency of this expectation, the law required all LEP students who had been in U.S. schools for 3 consecutive years to be given state reading and language assessments in English (NCLB, 2001). Schools, therefore, were charged with providing early educational opportunities such as preK programs that would help children develop language and pre-reading skills while also developing the English proficiency of those students who were LEP.

Research on the Benefits of PreKindergarten

The benefits of preK programs were documented in long-term studies. The High/Scope Perry Preschool Project, begun in 1962, studied the effects of a high-quality preschool for children of poverty (Schweinhart, 2003). Data were collected over a 37-year period on a group of students from Ypsilanti, Michigan, who were randomly assigned to either the project’s high-quality preschool or no preschool. Researchers determined that program participants exhibited a higher degree of school readiness, experienced higher levels of educational and economic success, and had a reduced number of criminal arrests when compared with subjects who attended no preschool. In more specific academic terms, results of the study found that 71% of the
preschool participants graduated from high school or received a General Education Development certificate compared to 54% of the control group (Schweinhart, 2003).

A second frequently cited study of the effects of early childhood education was the Carolina Abecedarian Project. Another long-term study, this project examined the effects of prescribed preschool educational activities on children from low-income families. The project participants were compared to nonparticipants on cognitive assessments, achievement tests, years enrolled in higher education, and employment rates, with the most recent findings emerging from the age-21 follow-up study. Of the original 111 subjects in the study, 53 treatment group members and 51 control group members were available for assessment at 21. Program participants had higher mental test scores as well as higher reading and math achievement scores. Program participants were more likely to be enrolled in college than nonparticipants (35% compared to 14%) and had higher employment rates (65% compared to 50%) (Carolina Abecedarian Project, 2003).

The Chicago Child-Parent Center (CPC) program was also noted as an important long-term study. In the study, 989 low-income minority children attended a CPC preschool while 550 did not. After 15 years researchers found that those
who attended preschool experienced a lower juvenile arrest rate (16.9%) than those who did not attend preschool (25.1%). The preschool group also had a higher high school completion rate (49.7%) than the comparison group (38.5%). In addition, the preschool group had a lower retention rate than the comparison group (23% versus 38.4%). Finally, CPC participants were less likely to be identified as needing special education services than nonparticipants (14.4% compared to 24.6%) (Reynolds, 2001).

As noted previously, Georgia was the first state to implement universal preK. The Georgia Early Childhood Study (Henry et al., 2003) compared the performance of children in Head Start, private preschools, and Georgia’s public school preK. Findings indicated that 4-year-olds attending Georgia’s preK program received substantial benefits from their program. A beginning-of-year gap that existed between private school and public school preK students in language and cognitive skills was closed by the fall of the kindergarten year. For example, on letter and word recognition as measured by the Woodcock-Johnson III® achievement tests (Riverside Publishing Company, Itasca, IL, www.riversidepub.com), Georgia public preK students had a mean score of 102.6 in the fall of the preK year and a mean score of 106.8 in the fall of their kindergarten year,
for a gain of 4.29 points. Over the same time period, private preschoolers had a gain of 1.82 points, moving from an average of 107.2 to 108.7 (Henry et al., 2003).

In *Inequality at the Starting Gate*, Lee and Burkham (2002) used data from the U.S. Department of Education Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K) to examine the differences in disadvantaged and advantaged children’s cognitive skills as they started kindergarten. Lee and Burkham concluded from the ECLS-K data that “children who attended center-based preschool arrive at kindergarten with higher achievement, providing the potential to reduce inequality by the time students reach kindergarten” (p. 3). Natriello, McDill, and Pallas (1990) identified five factors defining the educational disadvantage that produces these early inequalities: (a) race and ethnicity, (b) poverty, (c) single-parent family structure, (d) poorly educated mothers, and (e) limited English proficiency. The potential for erasing any inequalities due to limited English proficiency pointed to the importance of a good language support system for young students.
Education of Limited English Proficient Students

Historical Perspective in Texas

In 1968 Title VII of the Elementary and Secondary Education Act, also known as the Bilingual Education Act of 1968, initiated federal efforts to provide an appropriate education for LEP students. Money set aside for the implementation of this law went to school districts with large numbers of language-minority students. In 1969 Texas’s first bilingual education law was passed. It allowed bilingual education for elementary students with limited English proficiency but did not require it. Then in 1973 a state law made bilingual education a requirement rather than an option. The Texas Bilingual Education and Training Act directed school districts to provide a program for bilingual education if 20 or more students in the same grade had the same language classification. This legislation applied to 1st grade students initially with grades 2 through 6 added in subsequent years.

In spite of these statutes, the education of LEP students was still found lacking. In the late 1970s, pressure from the Office of Civil Rights led to the expansion of services to LEP students in kindergarten and in secondary grades, but state funds were not supplied
New developments in the early 1980s, however, forced the State of Texas to reconsider the scope of LEP services. A 1981 decision in a lawsuit brought by the Mexican American Legal Defense and Education Fund against the State of Texas was a catalyst for legislation that included appropriations for aiding school districts in the education of LEP students. Districts were required to offer bilingual education in the elementary grades, bilingual or English as a second language (ESL) education in middle school grades, and ESL in high school. In 1984 further legislation added a preK program for LEP students, and funding was enhanced (TEA, 1998).

The instruction of LEP students continued to be both an educational and a political issue into the 1990s and early 21st century. Movements such as Official English, which supported a constitutional amendment making English the official language of the United States, opposed providing education in other languages (Lewelling, 1997). In recent years much attention was given to California’s Proposition 227, an initiative approved by California voters in 1998, which required that students be taught English by being taught in English (Proposition 227, 1998). Proponents of the instructional program underlying Proposition 227 contended that California’s plan to
restrict bilingual education was reasonable in light of subsequent student outcomes there and in other places employing structured English immersion (Baker, 1998; Rossell, 2001, 2003). Texas, however, continued to require bilingual education, with approximately half of Texas LEP students in bilingual education programs by the 1996-1997 school year (TEA, 1998).

Language Support Program Studies

Numerous studies have been conducted to determine the types of programs that best supported English language acquisition. A frequently cited longitudinal study conducted by Ramirez, Yuan, and Ramey (1991) examined the effects of structured English immersion, early-exit, and late-exit transitional bilingual education on LEP student achievement. In structured immersion students were taught almost exclusively in English. A student beginning the program in kindergarten would exit by 2nd or 3rd grade. In an early-exit program, teachers used English about two-thirds of the time during the first 2 years of instruction, three-fourths of the time the next 2 years, and used English virtually all of the time during the fifth year. Late-exit teachers began by using English less than one-tenth of the time the first year, one-third of the time the next 2 years, and gradually increased to using English
about three-fourths of the time by the seventh year. The late-exit approach would have students remain in the program through at least 6th grade if they began it in kindergarten.

Using the California Test of Basic Skills (CTBS) to measure student achievement, the Ramirez et al. (1991) study found that LEP students in structured immersion strategy and early-exit programs had comparable skills in reading, language, and math when tested after 4 years. The early-exit students exhibited higher reading skills at the end of 1st grade, but the immersion students matched their skills by the end of 3rd grade. Furthermore, researchers reported that by the end of 3rd grade 67% of the structured immersion students and 72% of the early-exit students had been reclassified as fluent English-speaking. Only 50.8% of the late-exit students had been reclassified.

This study did not ultimately compare the achievement of immersion strategy and early-exit students to late-exit students; rather, a comparison was made among three late-exit sites. The researchers found that students who had more of their instruction in their first language learned reading, math, and English skills as fast, or faster than, the population on which the CTBS was normed. Researchers concluded that substantial amounts of first-language
instruction did not hinder acquisition of English academic skills.

Thomas and Collier, from 1996 to 2001, conducted a study that looked at the academic achievement of LEP students across content areas and across years. This study, built on previous research they conducted over a 14-year period, included the comparison of four programs: (a) two-way bilingual immersion, (b) one-way developmental bilingual education, (c) transitional bilingual education, and (d) ESL. Two-way bilingual education served both LEP students and native English speakers in a 5- or 6-year program that was intended to produce students who were bilingual and biliterate. A one-way developmental bilingual education program functioned similarly to the two-way program but served only language-minority students. Transitional bilingual education provided LEP students with 2 or 3 years of first-language instruction and then moved the students to an all-English setting.

The final program included in the Thomas and Collier study was ESL. In this type of program, LEP students were taught the English language and also studied their content area subjects in English. According to Teachers of English to Speakers of Other Languages, the goals of ESL programs were to enable students to communicate socially, achieve
academically, and use English in appropriate ways (Short, 2000). Thomas and Collier’s research involved the analysis of the effect of these four program models, as well as no program, on the achievement of LEP students and how closely their level of achievement approximated that of non-LEP students over a period of years.

In a study of LEP students in five school districts in four different parts of the United States, Thomas and Collier found that two-way bilingual immersion and one-way developmental bilingual education students were less likely to drop out of school than students in the other groups. Also, students in the two-way bilingual and one-way developmental programs were more likely to reach the 50th percentile on reading, math, English language arts, writing, science, and social studies achievement tests in both English and their native language (Spanish).

In their study of a large urban district in the south central United States, Thomas and Collier found that students whose parents chose English immersion in the mainstream over bilingual/ESL education showed decreases in reading achievement. By 4th grade English immersion students had a mean normal curve equivalent (NCE) score of 34 on the Stanford 9 reading test in English after having a mean NCE of 49 in 2nd grade. Students who were in
transitional bilingual education programs had a mean NCE of 51 in 4th grade, and ESL students had a mean NCE of 57 in 4th grade. (No 2nd grade scores were reported for the students in the latter two groups.)

More successful than English immersion students, but less successful than the bilingual program participants in the long term, were the ESL students. After exiting an ESL program during elementary school, short-term results for these students were better than those for bilingual students. By high school, however, the bilingual students outpaced the ESL students, as measured by the Stanford 9. By 11th grade the average reading NCE for transitional bilingual students was 47 while ESL students had an average reading NCE of 40.

Thomas and Collier concluded that formal schooling in the primary language is the strongest predictor of achievement in the second language and that a minimum of 4 years of primary language schooling is necessary for a LEP student to perform at grade level in their second language in 4 years.

An opposing view of the necessity of bilingual education stemmed from the implementation of Proposition 227 in California in 1998. In a report based on 3 years of test scores, Amselle and Allison (2000) reported that LEP
students had higher reading scores on the Stanford 9 following instruction in an English immersion setting than did LEP students in districts that did not comply with Proposition 227 and continued bilingual education. According to Amselle and Allison, the districts that made the best efforts to implement English immersion had the best results. For example, the average national percentile rank in reading for 3rd grade LEP students in the Oceanside City Unified School District in 2000 was the 22nd percentile. That was compared with an average 9th percentile score in Oceanside in 1998 before Proposition 227 was implemented. In the San Jose Unified School District where bilingual education was continued, the average 3rd grade score in reading rose from the 14th percentile in 1998 to the 15th percentile in 2000. From these and other districts analyzed, Amselle and Allison concluded that Proposition 227 was working.

Since the present study examined the achievement of students based on their preK program, research on the language and literacy development of Spanish-speaking 4-year-olds was reviewed. A study by Tabors, Paez, and Lopez (2003) sought to answer questions related to the Spanish and English language and literacy skills of Spanish-speaking preK students. Researchers found there was a
positive relationship between scores in English and Spanish on tests of early literacy skills such as phonological awareness ($r = .342$), symbolic learning and letter identification ($r = .512$), prewriting ($r = .500$), and language recalling ($r = .252$) had a positive relationship in English and Spanish. There was, however, a negative correlation ($r = -.284$) between the students’ scores on tests of English vocabulary and Spanish vocabulary. Thus, students with a larger vocabulary in one language tended to have a smaller vocabulary in the other, implying that the acquisition of a second language may diminish the child’s vocabulary in the first language.

Another study also examined the language development of bilingual preschool students. Rodriguez, Diaz, Duran, and Espinosa (1995) assessed and compared the English and Spanish proficiency of 30 children in a California bilingual preschool program and 20 children who stayed at home. Results indicated that the Spanish proficiency for the subjects in both groups was maintained and the children’s English proficiency was increasing. While the Spanish-speaking ability of children in both groups improved, only the children who attended the bilingual preschool classes were better able to speak English and use complex verb phrases in English.
English word production for the bilingual program students, as measured by the Language Assessment Scale, increased from a mean of 3.30 on the pretest to a mean of 7.30 on the posttest. For the nonprogram students, the change on the same measures showed an increase of 3.00 to 4.00. The researchers reported this as statistically significantly different ($F = 4.71, p < .05$). They also reported that the bilingual program group used more verbs than the control group and used more complex phrases ($F = 3.35, p < .05$).

In a 1998 study of Texas elementary LEP student academic performance, researchers included an examination of the effects of preK attendance (TEA, 1998). The Texas Legislature in 1984 established a preK program for 4-year-olds with limited English proficiency. Texas law also required that bilingual education be provided in the elementary grades if there were 20 or more students with the same language enrolled in the same grade. If there were too few students at the same grade to offer bilingual instruction, ESL programs were offered for LEP students.

In examining the performance of 5th grade students on the Texas Assessment of Academic Skills (TAAS) in 1996-1997, TEA researchers found that LEP students who attended preK had a slightly higher passing rate in reading (77%)
than LEP students who did not attend preK (75%). The difference in the math passing rate was similar, with 84% of the preK LEP students passing compared to 82% of LEP students who did not attend preK (TEA, 1998).

In addition to TAAS passing rates, the report also included findings related to retention. Students who attended preK were less likely to be retained before 5th grade, and this was especially true for LEP students (TEA, 1998).

Teaching Reading to Limited English Proficient Students

In Preventing Reading Difficulties in Young Children, the National Research Council (NRC) reported the findings of a major study intended to identify the effectiveness of interventions for children at-risk of experiencing reading problems (Snow, Burns, & Griffin, 1998). The stated goals of this study included comprehending a large research base and translating that research into advice and guidance that could be shared with an audience of parents, educators, and publishers. In the NRC’s report was the finding that children with less prior knowledge and skills as they began school were more likely to have difficulty in learning to read. Additionally, they found that poor children and LEP children were more likely to lack the requisite knowledge
and skills, thus placing them behind from the beginning. Researchers noted that low reading achievement was widespread among Hispanic students even when instruction and assessment were in Spanish, suggesting that linguistic difference was not the only factor contributing to the high risk faced by LEP students.

Recommendations from the NRC included ensuring high-quality preschools for students at risk of reading difficulties. Regarding LEP students, the NRC study stated that language-minority students should be taught how to read in their native language if they came to school with no English proficiency and if there were appropriate materials and proficient teachers to teach them in their native language. The students should then be taught to use their skills to read in English. The recommendations further suggested that LEP students for whom there were inadequate materials or unqualified teachers should not be given formal reading instruction until they were proficient in spoken English. These recommendations of the NRC indicated their acknowledgement that LEP students were in need of support and instruction in their primary language if at all possible. However, they also acknowledged that this may not be possible in all cases.
The Texas Education Agency Prekindergarten Curriculum Guidelines (1999) also supported the use of a student’s native language. These guidelines stated: “For students whose first language is other than English, the native language serves as the foundation for English language acquisition” (TEA, p. 1). In the Prekindergarten Curriculum Guidelines, examples for teaching skills such as speech production and speech discrimination, verbal expression, and phonological awareness were given in both English and Spanish. Since instruction in a student’s native language was not always feasible, the guidelines also stated that preK ESL program students should receive instruction at a level appropriate for their English proficiency.

Summary

Federal and state legislation required, and longitudinal studies indicated, that educators must focus attention on providing high-quality preK education for the nation’s youngest students. More specifically, those students who had little or no English proficiency were in need of preK programs that supported their acquisition of the English language and the academic skills necessary to be successful in school. While some educators favored long-term bilingual programs that provided native language instruction for 5 or more years (Thomas & Collier, 2002),
NCLB and Texas statute required students to be assessed in English after 3 years of enrollment in U.S. schools. Even if schools were inclined to offer long-term bilingual programs, laws and the availability of certified personnel warranted other strategies. Identifying the language support approach that would best prepare preK students to meet 21st century standards assumed importance in light of the growing LEP population and increasing accountability for public schools.

In conducting the review of related literature, an effort was made to support the contention that further research was needed in this area. The findings of the studies in the review pointed to the agreement among researchers regarding the importance of early educational opportunities. Major studies such as the High/Scope Perry Preschool Project and the Carolina Abecedarian Project showed the positive effects of early childhood education.

The findings among researchers regarding the type of language support program that best contributed to the reading achievement of LEP students suggested that in the early grades students from an English-only instructional environment would show higher achievement than students served in a bilingual setting. The Ramirez et al. (1991) study concluded that structured English immersion was as
effective as an early-exit bilingual program in helping LEP students acquire reading skills by 3rd grade. Thomas and Collier (2003) concluded that only LEP students who had at least 4 years of school in their first language could perform at grade level in 4 years. The present study aimed to contribute to the literature by providing further evidence of the impact of bilingual or ESL instruction on the reading achievement of LEP students.
CHAPTER III

METHODOLOGY

The study investigated the relationship between the preK language support program and limited English proficient (LEP) students’ reading achievement in 3rd grade. Scores from the reading component of the Iowa Tests of Basic Skills® (ITBS) Form A (Houghton Mifflin Company, Boston, MA, www.hmco.com) administered in September 2003 and the Texas Assessment of Knowledge and Skills (TAKS) test administered in March 2003 were used to measure student achievement.

Population

The population for the study was composed of four groups of Hispanic students. The first group was non-LEP students who were enrolled in English as a second language (ESL) prekindergarten (preK) in 1999-2000 and then enrolled in general education classes for kindergarten through 3rd grade. The second group was LEP students who were enrolled in a bilingual preK program during the 1999-2000 school year and remained in a bilingual program through 3rd grade. The third group was LEP students who were enrolled in an ESL preK program in 1999-2000 and continued to receive ESL instruction through 3rd grade. The fourth group included LEP students who were enrolled in ESL preK in 1999-2000 but
were enrolled in a bilingual program for kindergarten through 3rd grade (see Table 1).

Table 1

Groups by Program and Grade

<table>
<thead>
<tr>
<th>Group by Program</th>
<th>Grade</th>
<th>1 N=37</th>
<th>2 N=141</th>
<th>3 N=33</th>
<th>4 N=13</th>
</tr>
</thead>
<tbody>
<tr>
<td>PreK</td>
<td>ESL</td>
<td>Bilingual</td>
<td>ESL</td>
<td>ESL</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>General Ed</td>
<td>Bilingual</td>
<td>ESL</td>
<td>Bilingual</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>General Ed</td>
<td>Bilingual</td>
<td>ESL</td>
<td>Bilingual</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>General Ed</td>
<td>Bilingual</td>
<td>ESL</td>
<td>Bilingual</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>General Ed</td>
<td>Bilingual</td>
<td>ESL</td>
<td>Bilingual</td>
<td></td>
</tr>
</tbody>
</table>

Note. General Ed = General Education

Setting

The students were enrolled in a large suburban school district and had been in the district continuously since preK. The district was in north Texas and served three growing communities. The enrollment in fall 2003 was 55,200, with 21% of those students being classified as LEP. The first language of the majority of the LEP students was Spanish, and the bilingual program was limited to serving Spanish-speaking students.

Following state policy (Texas Education Code Chapter 29.153), the preK program in the district served students
who had limited English proficiency as well as students who were economically disadvantaged. Fifteen of the district’s 43 elementary schools had bilingual preK classes while 19 had ESL preK classes. Since the vast majority of the district’s preK students were LEP, the non-LEP economically disadvantaged students were served in ESL classes alongside LEP students. In some cases, students who qualified for bilingual classes were ultimately served through ESL classes due to an inadequate number of bilingual preK teachers and classrooms.

While the district offered both full-day and half-day preK classes in 2003-2004, in 1999-2000 only half-day preK classes were offered. Students attended either a morning or afternoon class that lasted 3 hours.

In December 1999 the Texas Education Agency (TEA) released the Prekindergarten Curriculum Guidelines. These guidelines included expected outcomes for preK students in the areas of language and early literacy, mathematics, science, social studies, fine arts, health and safety, personal and social development, physical 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; thus, bilingual classes were to function on this basis. Since bilingual instruction was not available for all non-English-speaking students, the preK guidelines included statements specific to ESL settings. For example, in the area of vocabulary, the guidelines called for students in ESL classrooms to begin to develop a vocabulary that included common phrases and object names in English. In the area of verbal expression, the student was expected to attempt to use the new vocabulary.

The students in the study were enrolled in either bilingual or ESL preK classes. The first language of the students in bilingual classes was Spanish. While the ESL programs served students whose first language was Spanish, English, or another language, the ESL students in the study were limited to native Spanish speakers. Following preK, students continued in a bilingual setting, continued in an ESL setting, moved from an ESL setting to a bilingual setting, or moved to a general education setting.
Instruments

The instruments used to measure student reading achievement in 3rd grade were the ITBS and the TAKS tests. According to The Iowa Tests Interpretive Guide for Teachers and Counselors (The University of Iowa, 2003), the ITBS is a standardized norm-referenced achievement test given for the purpose of providing information to improve instruction. The intended uses of scores include supporting instructional decisions, monitoring annual student growth, and examining the progress of groups as they move through the curriculum from one year to the next.

ITBS scores are referenced or compared to the scores of other students who have taken the tests, forming a nationally representative sample. Norms are the scores obtained from such a sample. Students in the study took Form A, the most recent form of the ITBS. The norms for Form A were established in 2000 through a national standardization program that included the testing of 149,831 public school students, 51,414 of which were 3rd graders. The sample was stratified by geographic region, district enrollment, and district socioeconomic status (The University of Iowa, 2001).

The reliability of the ITBS is reported in terms of the reliability coefficient, based on Kuder-Richardson
Formula 20 procedures, and the standard error of measurement (SEM). The reliability coefficient for the 3rd grade Form A survey battery reading test is .893, and the SEM is 7.10. In addition, the mean standard score for the national standardization sample is 186.20 with a standard deviation of 21.70 (The University of Iowa, 2001).

The students in the current study took the Form A, Level 9 survey battery in September of the 3rd grade year. The survey battery consisted of three sections: (a) reading, (b) language, and (c) math. Reading achievement was measured through a 55-minute timed test of vocabulary and comprehension. The vocabulary section measured students’ understanding of 10 general vocabulary words. To demonstrate comprehension, students read passages and answered 17 questions measuring skills related to factual understanding, inference and interpretation, and analysis and generalization.

There are several types of scores reported for the ITBS (The University of Iowa, 2001). The starting point for measuring student performance is the raw score, which is the number of correct answers obtained by a student. Raw scores alone, however, do not provide meaningful information. The raw score is converted into a developmental standard score which represents a student’s
place on a continuum, with the lowest skill level on one end and the highest skill level on the other. Standard scores can then be converted into grade-equivalent scores and national percentile ranks. The former represents a student’s position on a grade-level continuum. For example, a student may have a reading total grade-equivalent score of 3.1, meaning the student’s score is like that of an average student at the end of the first month of the 3rd grade. The national percentile rank expresses a student’s achievement relative to the national representative sample. If a student has a national percentile rank of 65, then 65 percent of the representative sample scored at or below that student’s score.

The second instrument used in the study, the English version of the TAKS 3rd grade reading test, was administered in March 2004. This assessment is a criterion-referenced test that measures student performance on four objectives: (a) the student will demonstrate basic understanding of culturally diverse texts, (b) the student will apply knowledge of literary elements to understand culturally diverse texts, (c) the student will use a variety of strategies to analyze culturally diverse written texts, (d) the student will apply critical-thinking skills to analyze culturally diverse written texts (TEA, 2002). To
demonstrate their knowledge and skills, students read three selections of 500 to 700 words each and answered 36 multiple-choice questions related to those selections. In March 2004 students were required to answer a minimum of 23 items correctly to meet the standards set by the Texas State Board of Education (TSBE) (TSBE, 2002). Results were reported as scale scores with 2064 being the minimum passing score for the 3rd grade reading test (TSBE, 2002).

The TAKS 3rd grade reading test, like all TAKS tests, was developed through a process involving Texas educators, TEA staff, and professional test item writers. The test items, which were developed by the professional item writers, were reviewed by TEA curriculum and assessment specialists and committees of Texas educators. Field-testing of the items was followed by analysis of the data for reliability, validity, and bias. After committees of educators reviewed each item and the associated data, selected items were placed in an item bank from which the TAKS tests were built (TEA, 2002).

Summary statistics for TAKS tests are not released until approximately a year following test administration; therefore, the reliability coefficients for the spring 2004 TAKS tests were not available at the time of the study. However, the Texas Student Assessment Program Technical
Digest for the Academic Year 2002-2003, released in March 2003, reported the reliability coefficients for the TAKS tests administered in the spring of 2003. The 3rd grade TAKS reading test had a reliability coefficient of 0.892 based on the Kuder-Richardson Formula 20 procedure and a standard error of measurement of 2.077 (TEA, 2003).

Variables

The first dependent variable in the study was the total reading standard score for the Form A, Level 9 ITBS reading test. The second dependent variable was the scale score for the 3rd grade TAKS reading test administered in the spring of 2004.

The independent variable was the students’ preK language support program coupled with the students’ program in kindergarten through 3rd grade; that is, ESL preK followed by general education, bilingual preK followed by bilingual kindergarten through 3rd grade, ESL preK followed by ESL kindergarten through 3rd grade, and ESL preK followed by bilingual kindergarten through 3rd grade. The first group consisted of non-LEP students served in an ESL preK setting since all preK classes were either bilingual or ESL classes. Following preK they moved into a general education setting since they were not classified as LEP. The last group represented students who qualified for, but
were not served by, bilingual services in preK. They received instruction through an ESL model in preK but were placed in a bilingual instructional setting for kindergarten through 3rd grade.

Research Method

The study examined the relationship between the preK language support program and 3rd grade reading level. Group differences on the reading achievement level of the students in the study were compared following the collection of existing data.

Data Analysis

The students’ preK program, also viewed as the group to which the students belonged, was used as the independent variable, and scores on the ITBS reading test and 3rd grade TAKS reading test were used as the dependent variables. Since there were multiple groups and since two dependent variables were used, multivariate analysis of variance (MANOVA) was employed to determine if the preK language support program had a relationship to students’ reading achievement in 3rd grade. Stevens (2002) cited the reasons that MANOVA is preferable to separate univariate analyses. He noted that MANOVA takes intercorrelations among variables into account. Furthermore, MANOVA maintains control of the overall alpha level. Finally, Stevens stated
that MANOVA is more sensitive to detecting differences in some situations.

As a follow-up to MANOVA, descriptive discriminate analysis (DDA) was used to describe major differences among the groups. According to Thompson (1998), DDA “describes the differences on intervally-scaled ‘response’ variables associated with nominally-scaled variable membership in different groups (p. 6).” In the study, the ITBS and TAKS served as the intervally scaled variables.

Summary

This chapter described the population and setting for the study. Methods were described for analysis of the reading achievement of currently enrolled 3rd grade students who participated in either a bilingual or ESL preK program. In addition, background on the instruments, the reading portion of Form A, Level 9 of the ITBS and the 3rd grade TAKS reading tests was provided.
CHAPTER IV
ANALYSIS OF DATA

Introduction

The purpose of the study was to examine the impact of the preK language support program on the reading achievement of 3rd grade limited English proficient (LEP) students. Reading achievement was measured by student performance on the Iowa Tests of Basic Skills® (ITBS) Form A (Houghton Mifflin Company, Boston, MA, www.hmco.com), Level 9 reading test and the 3rd grade Texas Assessment of Academic Skills (TAKS) reading test.

The population consisted of 224 students who were enrolled in prekindergarten (preK) during the 1999-2000 school year and in 3rd grade during the 2003-2004 school year. All students were Hispanic, and upon enrollment their home language was specified as Spanish.

Each student was categorized into one of four groups based on the preK program in which the student was enrolled and the program in which the student participated in subsequent years. Group one consisted of 37 non-LEP students who were served in an English as a second language (ESL) class in preK and were served in a general education setting in kindergarten through 3rd grade. Group two consisted of 141 LEP students who were instructed in a
bilingual setting from preK through 3rd grade. The 33 LEP students in group three were served in an ESL setting from preK through 3rd grade. Group four consisted of 13 LEP students who received instruction in an ESL classroom in preK but moved to a bilingual setting for kindergarten through 3rd grade. Despite the small size of this fourth group, it was determined that they would be included in the analysis due to the uniqueness of their preK through 3rd grade experience and the potential implications for future decisions regarding such an arrangement.

While the students in the study did not have a reading test at the beginning of their preK year, they were administered the IDEA Proficiency Tests® - English (Pre-IPT) for limited English proficient students (Ballard & Tighe, Brea, CA, www.ballard-tighe.com). The Pre-IPT measured the students’ oral proficiency in English, and students were categorized as fluent English speakers (F), limited English speakers (L), or non-English speakers (N) (Ballard & Tighe, 1988). Table 2 shows the Pre-IPT designation for the students in the study. One student’s designation was unknown. While the Pre-IPT was a measure of oral proficiency and not reading proficiency, the results indicated that, with the exception of non-LEP students who were all rated fluent English speakers, each group had
predominantly limited English and non-English speaking students when the students were in preK.

Table 2

**IDEA Oral Language Proficiency Tests – English Designations**

<table>
<thead>
<tr>
<th>Designation</th>
<th>F</th>
<th>L</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-LEP</td>
<td>37</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bil PreK-3</td>
<td>4</td>
<td>51</td>
<td>85</td>
</tr>
<tr>
<td>ESL PreK-3</td>
<td>1</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>ESL PreK, Bil K-3</td>
<td>0</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>69</td>
<td>112</td>
</tr>
</tbody>
</table>

*Note. F = fluent English speaker; L = limited English speaker; N = non-English speaker; Bil = bilingual.*

Results

The students were administered the ITBS in the fall of their 3rd grade year. For the purposes of the study, the reading total standard score was used as a measure of the students’ reading achievement. In addition, the students took the TAKS reading test in March 2004. The students’ TAKS reading scale score was used as a second measure of reading achievement. Only those students who took both the ITBS and TAKS tests were included in the study. Furthermore, only those students who took the English
version of the TAKS test were included. A Spanish version of TAKS was available only for those students served in bilingual classes and had different passing standards than the English version; thus, the decision was made to use results of the English TAKS exclusively.

Stevens (2002) noted that multivariate procedures are particularly sensitive to outliers. An inspection of the data for outliers revealed a student whose reading total standard score on the ITBS was more than 4 standard deviations above the mean for the group to which the student belonged, the non-LEP group. This score, coupled with the student’s perfect score on the TAKS test, indicated the student’s performance was not typical of the population in the study. Since the student’s score was determined to be an anomaly and did not model the bulk of the students, the outlier data were removed.

Standard scores on the ITBS for students remaining in the study ranged from 135 to 204. A standard score of 176 or higher placed students at or above grade level, and 36.2% of the population in the study had a standard score of 176 or higher. Figure 1 illustrates the distribution of ITBS scores. A scale score of 2064 was required of students to meet the passing standard on the 2004 TAKS 3rd grade reading test, and 89.7% of the students met that standard.
Figure 2 represents the distribution of TAKS scores. Table 3 follows with the percent of students in each group who scored at or above grade level on the ITBS and the percent meeting the minimum standard score on the TAKS test.

Figure 1. Distribution of ITBS reading total standard scores.
Figure 2. Distribution of TAKS reading scale scores.

Table 3

Percent of Students At or Above Grade Level on ITBS and Meeting Standard on TAKS

<table>
<thead>
<tr>
<th>Group</th>
<th>ITBS At or Above Grade Level</th>
<th>TAKS Met Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-LEP</td>
<td>51.35%</td>
<td>94.6%</td>
</tr>
<tr>
<td>Bilingual PreK-3</td>
<td>31.91%</td>
<td>88.7%</td>
</tr>
<tr>
<td>ESL PreK-3</td>
<td>45.45%</td>
<td>87.9%</td>
</tr>
<tr>
<td>ESL PreK, Bilingual K-3</td>
<td>15.38%</td>
<td>92.3%</td>
</tr>
</tbody>
</table>
While the percent of students in each group passing TAKS indicated better performance by students in the two bilingual groups than the ESL preK through 3rd grade group (see Table 3), group means gave a different impression of student achievement. An examination of the means on the two dependent variables showed the same rank order of means for the four groups (i.e., the non-LEP group had the highest mean on both tests, the ESL preK through 3rd grade group had the second highest mean on both tests, and so on).

Table 4 provides means and standard deviations for the two assessments used in the study.

Table 4

<table>
<thead>
<tr>
<th>Group</th>
<th>ITBS Standard Score</th>
<th>TAKS Scale Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>M</td>
</tr>
<tr>
<td>Non-LEP</td>
<td>37</td>
<td>173.78</td>
</tr>
<tr>
<td>Bil PreK-3</td>
<td>141</td>
<td>168.18</td>
</tr>
<tr>
<td>ESL PreK-3</td>
<td>33</td>
<td>173.27</td>
</tr>
<tr>
<td>ESL PreK, Bil K-3</td>
<td>13</td>
<td>161.92</td>
</tr>
</tbody>
</table>

Note. Bil = Bilingual.
Multivariate analysis of variance (MANOVA) was used to determine if the four groups in the study differed on the multiple dependent variables: the ITBS and TAKS reading tests. MANOVA procedures produced a linear combination of the two assessments into a single, synthetic dependent variable. This permitted the best possible discrimination among the groups.

A review of the MANOVA output using SPSS® software (SPSS, Inc., Chicago, IL, www.spss.com) revealed that the data met the assumption of homoscedasticity as measured by Box’s Test of Equality of Covariance Matrices (Box’s M), \( p = .485 \). A probability greater than .05 on Box’s M demonstrated that, within each group, the variance on each dependent variable was similar (Stevens, 2002).

To determine the statistical significance of the difference in group means on the dependent variables, Wilks’ lambda was examined. This test, at an alpha level of .05, yielded a value of .945 \( (F = 2.091, df = 6) \). The results were not statistically significant \( (p = .053) \). The variance accounted for statistic, eta squared, indicated an effect size of .055. Thus, membership in the groups can account for 5.5% of the variance in the single synthetic dependent variable representing the ITBS and TAKS tests.
According to Cohen (1988), “an amount not quite equal to 6% of variance may well not seem large enough to be called medium” (p. 26); however, Cohen contends that it is a medium effect. In providing an example of a medium effect, Cohen stated, “it represents the difference in mean IQ between clerical and semiskilled workers and between professionals and managers (about 8 points where 1 SD = 15)” (p. 26). Even though the MANOVA did not yield a statistically significant difference among the groups on the dependent variables, the decision was made to proceed with further analysis because of the effect size.

Following MANOVA, a descriptive discriminant analysis (DDA) was conducted. Whitaker stated, “When MANOVA results suggest that there are group differences, i.e., true effects, then DDA can be used as a post hoc method to assess the predictor variables that best explain this group separation” (1997, p. 6). According to Stevens (2002), the focus of DDA “is on revealing major differences among the groups. The major differences are revealed through the discriminant functions” (p. 285). In the present study, DDA was used to describe on which variable, the ITBS or TAKS, the four groups differed.

An examination of the summary of canonical discriminant functions in SPSS began with a review of the
eigenvalues, which indicated that two functions
differentiated the four groups in the study. As seen in
Table 5, the larger eigenvalue was associated with the
first function. The squared canonical correlations showed
that function 1 explained 5.2% of the variance in the
dependent variables while function 2 explained only .3% of
the variance in the dependent variables.

Table 5

<table>
<thead>
<tr>
<th>Function</th>
<th>Eigenvalue</th>
<th>% of Variance</th>
<th>Canonical Correlation</th>
<th>Squared Canonical Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.055</td>
<td>94.2</td>
<td>.227</td>
<td>.052</td>
</tr>
<tr>
<td>2</td>
<td>.003</td>
<td>5.8</td>
<td>.058</td>
<td>.003</td>
</tr>
</tbody>
</table>

Significance testing in DDA yielded a Wilks’ lambda
value of .945 ($p = .053$) on function 1 and a value of .997
($p = .690$) on function 2. In spite of the lack of
statistical significance indicated by Wilks’ lambda for
either function, the decision was made to examine the
discriminant function coefficients and structure
coefficients for function 1. Since the second function
explained only .3% of the variance in scores, it was deemed
too weak for further examination.
In the present study the MANOVA and DDA yielded identical Wilks’ lambda and $p$ values, but the DDA offered the advantage of yielding standardized weights and structure coefficients. The discriminant function coefficients on function 1 indicated that the ITBS made the larger contribution to group differences (.793) when compared to the contribution made by TAKS (.293). This suggested that the ITBS had a more important role in the analysis. The examination of these standardized weights, however, was not sufficient for understanding the results.

Thompson (1998) wrote that structure coefficients reveal the structure of synthetic variables and are, therefore, important. In the study the DDA structure matrix showed the ITBS had a structure coefficient of .973, which was consistent with the discriminant function coefficient. When squared, the structure coefficient revealed that 94.67% of the synthetic dependent variable variance was accounted for by the ITBS. The TAKS reading test had a structure coefficient of .778 on function 1, indicating that 60.53% of the synthetic variable variance could be accounted for by the TAKS test. The ITBS, therefore, was the larger contributor to the synthetic variable variance.

An additional value yielded by DDA was the functions at group centroids, which are mean values for each group on
the synthetic dependent variable for each function. As Table 6 indicates, the non-LEP group had the highest group mean on the synthetic dependent variable for function 1 while the ESL pre-K, bilingual kindergarten through 3rd grade group had the lowest. The distance between the group centroids showed the extent to which the dependent variable differentiated among the groups’ reading achievement levels.

Table 6

Functions at Group Centroids

<table>
<thead>
<tr>
<th>Group</th>
<th>Function 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-LEP</td>
<td>.337</td>
</tr>
<tr>
<td>Bilingual PreK-Grade 3</td>
<td>-.094</td>
</tr>
<tr>
<td>ESL PreK-Grade 3</td>
<td>.254</td>
</tr>
<tr>
<td>ESL PreK, Bilingual K-Grade 3</td>
<td>-.583</td>
</tr>
</tbody>
</table>

Summary

This chapter presented an analysis of the data which showed a difference in the 3rd grade reading achievement levels of students in the four groups in the study. The MANOVA did not indicate a statistically significant difference but did indicate a moderate level of practical significance due to the effect size.
The DDA, used as a follow-up to the MANOVA, indicated that the variance in group achievement was attributable to the difference in student performance on the ITBS reading test. Performance on the TAKS reading test explained little of the group differences.

Non-LEP students scored higher than the other groups on both the ITBS and TAKS tests. The LEP students who received instruction in an ESL setting from preK through 3rd grade scored at the second highest level on both tests. Performing at the third highest level on both the ITBS and TAKS tests were the LEP students served in a bilingual setting in preK followed by bilingual instruction in kindergarten through 3rd grade. LEP students who attended ESL preK and then moved to a bilingual instructional setting for kindergarten through 3rd grade had the lowest scores on both measures. These rankings were consistent when student performance was examined separately and when the tests were treated as a single dependent variable.
CHAPTER V
DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

The purpose of the study was to examine the impact of the preK language support program on the 3rd grade reading achievement of students served in bilingual and English as a second language (ESL) prekindergarten (preK) programs. Four groups of students from a large suburban district were included in the study. While the students in the first group were designated as non-limited English proficient (LEP), they were served in a preK ESL class and moved to a general education setting the following year. The students in the second group were served in a bilingual instructional setting from preK through 3rd grade. The third group consisted of students served in an ESL setting from preK through 3rd grade. The final group was a small group of students who attended an ESL preK class but moved to a bilingual setting for kindergarten through 3rd grade.

There is a lack of agreement regarding the issue of language support for LEP students. Advocates of bilingual instruction contend that students initially learn best in their first language, and that first-language instruction leads to a more successful acquisition of a second language and ultimately higher academic achievement (Thomas &
Collier, 2002). Others point to reports of success such as those from California, where students in English immersion classes made greater gains in reading after the elimination of bilingual classes under Proposition 227 (Amselle & Allison, 2000).

Research Question and Findings

In the study, student reading achievement was measured with the Iowa Tests of Basic Skills® (ITBS) Form A (Houghton Mifflin Company, Boston, MA, www.hmco.com) and Texas Assessment of Knowledge and Skills (TAKS) reading tests. Both tests were administered during the 3rd grade year. Since the scores of two dependent variables were used and since there were multiple groups of students, the decision was made to use multivariate analysis of variance (MANOVA) followed by a descriptive discriminant analysis (DDA). The results presented in Chapter IV are reviewed in this chapter in light of the research question posed in the study.

Research Question

What was the difference in 3rd grade ITBS and TAKS reading test results for non-LEP students who attended ESL preK, LEP students who attended bilingual preK, LEP students who attended ESL preK, and LEP students who
attended ESL preK followed by bilingual kindergarten through 3rd grade?

No statistically significant difference in 3rd grade reading achievement was found among the four groups in the study. There was, however, a small-to-moderate effect size. The MANOVA indicated that the group to which the students belonged accounted for 5.5% of the variance in their scores. On both measures used in the study, the students in the non-LEP group had the highest average scores, followed in order by the students in the ESL preK through 3rd grade group, the bilingual preK through 3rd grade group, and the ESL preK/bilingual kindergarten through 3rd grade group. The DDA indicated that the ITBS explained most of the difference in the groups.

The combination of the preK program and the instructional setting subsequent to preK was different for each group in the study. The non-LEP students who attended ESL preK moved to a general education setting for kindergarten through 3rd grade. One group of LEP students who attended ESL preK remained in ESL through the 3rd grade. Another group that attended ESL preK moved to a bilingual setting for kindergarten through 3rd grade. Finally, the students who attended bilingual preK remained in the bilingual program through the 3rd grade.
For the students who attended ESL preK, 51.35% of the non-LEP students who moved to general education classes read at or above grade level in the 3rd grade. The LEP ESL students who remained in ESL had an average ITBS score similar to the non-LEP ESL students, but a smaller number of students in the LEP ESL group (45.45%) read at or above grade level by the 3rd grade. Of the LEP ESL students who moved to bilingual kindergarten and remained in bilingual education through the 3rd grade, only 15.38% read at or above grade level by the end of the 3rd grade.

Of the students who remained in a bilingual setting for all five years, 31.91% scored at or above grade level on the 3rd grade ITBS reading test. A greater percentage of students in this group were successful, as measured by the ITBS, compared to students who did not move to bilingual education until after preK.

As performance of the students in each group is compared, it is worth noting that the LEP students in the study came to preK with varying degrees of English proficiency as reported in Chapter IV, and this may have had some bearing on the students’ acquisition of reading skills. In the bilingual preK group, 60.7% of the students were classified as non-English speaking in preK while 54.5% in the ESL preK through 3rd grade group were non-English
speaking. In the small group of LEP students who moved from ESL preK to bilingual kindergarten, 69.2% were non-English speaking in preK.

Implications

The study looked at the reading achievement of students served in bilingual and ESL preK classes. While there was no statistically significant difference among the groups when TAKS and ITBS scores were analyzed, there was some practical significance in the difference in student performance. Analysis indicated that the difference in group performance was explained by the ITBS reading test rather than the TAKS reading test. Based on the findings of the analysis and the answers to the research questions, several implications emerged.

Program placement does not have a marked impact on TAKS passing rates. Indeed, passing rates among the four groups were similar (see Table 2). This may be explained by the intensive classroom and extended-day instruction required by the Texas Essential Knowledge and Skills curriculum, which prepares students for the TAKS test. Students with poor reading skills were afforded small-group instruction specifically aimed at helping them pass the TAKS test. Additionally, the TAKS test was untimed while the ITBS test was timed. The tendency of students to pass
the TAKS reading test while scoring below grade level on the ITBS reading test contributes to the perception that Texas accountability standards are inadequate.

If the goal of educators is to have LEP students reading at grade level as measured by a norm-referenced test such as the ITBS, ESL preK is as effective as bilingual preK if it is followed by ESL instruction in kindergarten through 3rd grade.

LEP students who attended ESL preK through 3rd grade were more likely to meet the criteria for being reclassified as non-LEP students by 3rd grade. Scoring at the 40th percentile or higher on the ITBS reading test is one of the criteria for reclassifying students as non-LEP. Of the LEP ESL preK through 3rd grade students in the study, 64% met that requirement compared to 47% of the LEP bilingual preK through 3rd grade students.

Leaving LEP students in the same language support program for preK through 3rd grade is preferable to moving a student from an ESL preK setting to a bilingual setting for kindergarten through 3rd grade. Of the 13 LEP students who moved from ESL to bilingual, only 2 (15.38%) were reading at or above grade level as measured by the 3rd grade ITBS.
If statistical significance alone were considered in the study, it could be said that the preK language support program did not have an impact on student reading achievement in 3rd grade. In that case, it could be argued that ESL and bilingual preK instruction are comparable in their outcomes. The shortage of bilingual teachers faced by many school districts could become a less critical issue with the more numerous ESL teachers providing language support.

The findings of the study both support and refute the findings of studies cited in the review of related literature. The Ramirez study (1991) found that English-only instruction for LEP students through 3rd grade was as effective as a bilingual early-exit program for teaching reading skills. The findings of the present study similarly suggest that students who received instruction in English only in an ESL instructional program were as likely to read at grade level by 3rd grade as students in a bilingual program.

Thomas and Collier (2002) concluded that only LEP students with a minimum of 4 years of instruction in their first language could perform at grade level in 4 years. In the present study, students in the ESL group who had not received instruction in their first language achieved as
well as students served in a bilingual setting and on average had higher ITBS scores than students who had been instructed in their first language.

Recommendations

In light of the findings of the present study, several recommendations for further study can be made.

Since the group of students served in ESL preK followed by bilingual kindergarten through 3rd grade was small, an effort should be made to find similar students in other districts for an expanded study of the impact of this instructional decision for LEP students. The students in the study achieved at the lowest levels of the four groups. Similar findings in a larger study would support the recommendation that this instructional pattern not be followed.

Also, since a major study in the area of bilingual and ESL instruction (Thomas & Collier, 2002) found that ESL students outperformed bilingual students in the short term but not in the long term, a follow-up study of the students in the present study as they reach secondary grades might yield valuable information in this area of research.

A related study should be conducted to compare the reading achievement of non-LEP students served in an ESL preK setting and non-LEP students served in a general
education preK setting. The district in the study had only ESL and bilingual preK classes. Other districts or private schools that serve non-LEP students in general education preK classes would afford researchers the opportunity for such a study.

A related study involving non-Spanish speaking LEP students should be conducted. While Spanish-speaking LEP students far outnumber LEP students of other languages in the district used for the current study, there is a growing population of Asian students in the district. A study of the 3rd grade reading achievement of LEP students with various primary languages would contribute to the body of literature regarding the impact of the language support program.

Conclusion

The findings of the study suggest that educators have viable program placement options for their LEP preK students. The reading achievement of bilingual and ESL students suggests that students served in an ESL preK program are as likely to read at grade level, as measured by the ITBS test, when they reach 3rd grade unless they were moved from an ESL preK program to a bilingual program in subsequent years. As a result of these findings, and to address the issues of LEP student achievement and bilingual
teacher shortages, ESL instruction, rather than bilingual instruction, should be given careful consideration as the appropriate method of instruction for LEP preK students.
REFERENCES


Rossell, C. (2001). All that glitters is not gold. READ Perspectives, 8, 151-167.


Texas Education Agency. (2002). *TAKS information booklet: Grade 3 reading*.


University of Iowa. (2001). Iowa tests of basic skills survey battery fall/spring norms and score conversions with technical information. Itasca, IL: Riverside Publishing.

