

READING ACHIEVEMENT OF ENGLISH LANGUAGE LEARNERS IN 50/50 AND
90/10 TWO-WAY DUAL LANGUAGE PROGRAMS

A Dissertation

by

NANO KATHLEEN COX

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

DOCTOR OF PHILOSOPHY

May 2008

Major Subject: Curriculum and Instruction

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ABSTRACT

Reading Achievement of English Language Learners in 50/50 and 90/10

Two-Way Dual Language Programs. (May 2008)

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My study investigated the effects of two 50/50 and two 90/10 two-way dual language programs on the reading achievement of 76 English Language Learners (ELLs) from the end of third grade to the end of fourth grade. My study used both quantitative and qualitative data. Quantitative instruments included the Spanish Reading *Texas Assessment of Knowledge and Skills* (TAKS) and the *Reading Proficiency Test in English* (RPTE) scores. Qualitative instruments included structured interviews with the two-way dual language program coordinators/administrators.

The quantitative results of my study showed there were no statistically significant differences between the two groups on the Spanish Reading TAKS by the end of fourth grade. The 50/50 students did make statistically significant gain scores on the Spanish TAKS from the end of third grade to the end of fourth grade, but the 90/10 students did not make statistically significant gains. Both groups were performing above the State averages on scale score and passing rate on the Spanish Reading TAKS. On the RPTE, the results of my study showed there were no statistically significant differences between

the two groups by the end of fourth grade. Both the 50/50 and the 90/10 students made significant gain scores on the RPTE from third grade to fourth grade. The 50/50 students made a greater gain on the RPTE than the 90/10 students did. Both groups of dual language ELLs had higher percentages of students in the advanced high rating than the State on the RPTE.

The qualitative results showed that several elements were necessary to implement and maintain these two-way dual language programs. These elements included: planning, resources, parental support, qualified teachers, and supportive administrators.

DEDICATION

I dedicate this dissertation to my parents and my sisters, without whom all my accomplishments would not be possible. This dissertation is also dedicated to Melanie for reading all of my papers along the way and helping me to get through this process. Lastly, I dedicate this dissertation to Sadie, who was there to make me smile when things were difficult and who was very patient with me during my very busy times.

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CHAPTER I

INTRODUCTION

Problem Statement

Cummins (2000) stated that two of the most important issues in educational research are teaching English language learners (ELLs) to read and increasing their academic achievement. These two issues are closely associated with each other because reading readiness is the foundation of academic success (August & Shanahan, 2006). In my research study, I examined the effectiveness of four two-way dual language programs at increasing the reading achievement of ELLs in Spanish and English. Two-way dual language programs are a form of bilingual education in which native English speakers and ELLs are in the same classrooms and taught in both English and another language with dual goals of bilingualism and biliteracy (Freeman, Freeman, & Mercuri, 2005). Previous researchers on two-way dual language programs have demonstrated their success at increasing the academic achievement of ELLs (de Jong, 2002; Lopez & Tashakkori, 2004; Senesac, 2002; Thomas & Collier, 2002, 2003, 2004).

Thomas and Collier (2004) studied the effectiveness of one-way and two-way dual language programs in closing the achievement gap for ELLs in English achievement. Thomas and Collier (2004) examined dual language programs in Texas, Maine, and California. They found that both 50/50 and 90/10 one-way and two-way dual language programs were effective in closing the achievement gap.

This dissertation follows the style of the *Bilingual Research Journal*.

Using norm-referenced tests in English, Thomas and Collier (2004) demonstrated that 90/10 two-way dual language programs were expected to close the achievement gap by four to six Normal Curve Equivalencies (NCEs) annually. They also demonstrated that 90/10 one-way and 50/50 two-way dual language programs were expected to close the achievement gap by three to five NCEs annually, and 50/50 one-way dual language programs were expected to close the achievement gap by three NCEs annually. Thomas and Collier (2004) demonstrated that ELLs in dual language programs reached higher levels of academic achievement than ELLs in other bilingual programs. One major limitation of their study was that the researchers used archived data from tests scores and did not collect any new information about classroom practices in these different dual language programs. If research is going to improve the education of ELLs, more information is necessary to determine effective classroom practices in all programs.

Researchers have also investigated how the academic achievement of ELLs in dual language programs compared with the academic achievement of ELLs in other instructional programs. For example, Alanís (2000) and Calderón and Carreon (2000) researched the academic achievement of ELLs in 50/50 two-way dual language programs in Texas. Alanís compared the *Idea Proficiency Test* (IPT) (Ballard & Tighe, 1991) and *Texas Assessment of Academic Skills* (TAAS) (Texas Education Agency, 1994) scores of 85 fifth grade ELLs' in 50/50 two-way dual language programs with the scores of ELLs in English only programs. She found that by the end of fifth grade, ELLs in 50/50 two-way dual language programs made more progress in English than the ELLs in English only programs did, even though they had received less English instruction.

Calderón and Carreon (2000) examined the English TAAS scores of ELLs in 50/50 two-way dual language programs and ELLs in traditional bilingual programs. They discovered that the scores of the ELLs in the 50/50 two-way dual language programs were significantly better than the scores of the ELLs in traditional bilingual programs at the end of the third, fourth, and fifth grades.

Other researchers focused on comparing the academic achievement of ELLs in two-way dual language programs with the academic achievement of students in their district and their state (Howard, 2002; Lindholm-Leary, 2001). Lindholm-Leary (2001) investigated the academic achievement of ELLs in four 90/10 two-way dual language programs as measured by several norm-referenced achievement tests, including the Comprehensive Test of Basic Skills (CTB/McGraw-Hill, 1981), the Metropolitan Achievement Test (Harcourt, 1992), and the CAS2 (a test developed to align with the California curriculum frameworks in assessing basic skills). Lindholm-Leary (2001) examined end-of-fifth grade test scores for English reading and language and found that ELLs in these 90/10 two-way dual language programs were achieving as highly or higher than the State averages. Howard (2002) researched the academic achievement of ELLs in an 80/10/10 two-way dual language program over a seven-year period as measured by the English TAAS, and the results indicated that the ELLs in this dual language programs were achieving higher than their district and State peers did.

Previous researchers investigating dual language programs demonstrated that ELLs in dual language programs were reaching the same or higher levels of academic achievement as ELLs in other instructional programs and as ELLs in their district and

state (de Jong, 2002; Lopez & Tashakkori, 2004; Senesac, 2002; Thomas & Collier, 2002, 2003, 2004). Even with the previous research, Slavin and Cheung (2005) felt that further research on bilingual education including dual language programs was necessary to have a better understanding of why and how these programs were successful at increasing the academic achievement of ELLs. Although there had been some researchers that focused on reading achievement of ELLs in dual language programs, not enough researchers compared the reading achievement of ELLs in 50/50 and 90/10 two-way dual language programs (Christian, Howard, & Loeb, 2000). Thomas and Collier (2004) stated that future researchers should focus on evaluating dual language program models and finding out which models have been most effective at increasing the academic achievement of ELLs.

Significance and Research Questions

My research study focused on the reading achievement of ELLs in 50/50 and 90/10 two-way dual language programs models, because according to Cummins (2005) reading achievement is essential for the development of other academic skills. In my study, I compared the success of 50/50 and 90/10 two-way dual language programs at increasing the reading achievement of ELLs from the end of third grade to the end of fourth grade. Information from my research may assist administrators in making decisions about which type of dual language programs to implement in their schools or districts. My research may also be useful to parents of ELLs who want to enroll their children in dual language programs. Results from my research should provide useful information on the success of 50/50 and 90/10 two-way dual language programs at

increasing the Spanish and English reading achievement of ELLs in each two-way dual language program model.

Specifically, my study addressed the following three research questions:

1. To what extent do fourth grade ELLs who participated in 50/50 two-way dual language programs for two years differ in their performance on the Spanish *Texas Assessment of Knowledge and Skills* (TAKS) from fourth grade ELLs who participated in 90/10 two-way dual language programs for two years?

2. To what extent do fourth grade ELLs who participated in 50/50 two-way dual language programs for two years differ in their performance on the *Reading Proficiency Test in English* (RPTE) from fourth grade ELLs who participated in 90/10 two-way dual language programs for two years?

3. What was necessary to implement and maintain these two-way dual language programs, two of those being 50/50 schools and two being 90/10 schools, which were successful at increasing the reading of achievement of ELLs who participated in them?

Definition of Terms

The following terms are used throughout this paper:

English Language Learners (ELLs). ELLs are students who are in the process of acquiring English as an added language (Cloud, Genesee, & Hamayan, 2000, p. 205).

Because the term Limited English Proficient (LEP) is gradually being replaced with ELLs, the term ELLs will be used instead of “limited English proficient” (LEP) unless referring to the classification used by school districts or other governmental agencies.

Second Language Learners (SLLs). SLLs are students who are acquiring a language in

addition to their native language. This term refers to students acquiring English and students who are acquiring languages other than English (Cloud et al., 2000, p. 207).

Native English Speaker (NES). An NES is a student whose first or dominant language is English. In this study, language proficiency was determined by a home language survey (Freeman et al., 2005, p.40).

Native Spanish Speaker (NSS). An NSS is a student whose first or dominant language is Spanish. In this study, language proficiency was determined by a home language survey (Freeman et al., 2005, p. 45).

Limited English Proficient (LEP). LEP refers to students whose primary language is other than English and whose English language skills are such that the student has difficulty performing ordinary class work in English (Texas Education Code §29.052, 1995).

English Immersion. English language learners are placed in all English classrooms and not given special services (Freeman et al., 2005, p. 15).

Structured English Immersion. English language learners are placed in English only classrooms with teachers who are trained to teach second language learners (Freeman et al., 2005, p. 15).

ESL Pullout. English language learners are placed in English only classrooms but are pulled out for additional instruction using ESL methods (Freeman et al., 2005, p. 15).

Transitional Bilingual Education/Early Exit Bilingual Education. English language learners receive part of their instruction in their first/native language for one to three years, and then transition into English instruction (Freeman et al., 2005, p. 15).

Maintenance/Late Exit Bilingual Education. English language learners receive instruction in their first/native language and English for four to six years (Freeman et al., 2005, p. 15).

One-way Bilingual Immersion. English language learners receive instruction in their first/native language and English with the goals of bilingualism and biliteracy (Freeman et al., 2005, p. 15). One-way bilingual immersion and maintenance/late exit bilingual education are sometimes used interchangeably to describe programs.

Two-way Dual language/Two-way Bilingual Immersion (TWBI) program. English speakers and English Language Learners (ELLs) receive instruction in their first/native language and English with the goals of bilingualism and biliteracy (Freeman et al., 2005, p. 15). Two-way dual language programs are also known as two-way immersion or developmental bilingual programs (ERIC Clearinghouse on Languages and Linguistics, 1994).

50/50 Model Dual Language Program. Students in these dual language programs receive 50% of their instruction in English and 50% in a language other than English. For the present study, the other language is Spanish (Cloud et al., 2000, p. 38-39).

90/10 Model Dual Language Program. Students in these dual language programs receive up to 90% of their instruction in a language other than English. For the present study, Spanish was the first language of instruction, with an increasing amount of instruction in English as the students progressed through fifth grade. Kindergarten and first grade instruction is approximately 90% in Spanish and 10% in English. Second

grade instruction is 80/20, third grade is 70/30, fourth grade is 60-40, and fifth grade is approximately 50/50 (Cloud et al., 2000, p. 38-39).

Limitations

The quantitative portion of my case study investigated a limited number of ELLs in four two-way dual language programs; therefore, the results will not be generalizable to all ELLs in all dual language programs. The quantitative sample consisted of 76 ELLs from four two-way dual language programs in Texas, with approximately 20 students from each program. The students from each two-way dual language program had been in the program since kindergarten or first grade. In addition, my study only investigated the ELLs' Spanish and English reading achievement from the end of third grade to the end of fourth grade, providing information on the short-term effects of these dual language programs.

The qualitative portion of my case study included only interviews from the four two-way dual language program coordinators/administrators. The information from the interviews described an inside perspective on how to implement and maintain a two-way dual language program but going into actual classrooms to observe would have given a more detailed description of each two-way dual language program and why it was successful.

CHAPTER II

LITERATURE REVIEW

Introduction

I examined two issues in this literature review: (a) the theory behind second language and English language learning and educational programs for ELLS and (b) which programs researchers have shown to be the most effective at increasing the literacy and academic achievement of ELLs. In the first part of the literature review, I focused on previous research on the literacy achievement of ELLs in English as a second language (ESL), bilingual, and dual language programs. In the next part of the literature review, I summarized what is known about the literacy achievement of ELLs in different instructional programs and explained the need for more research in this area.

Theoretical Framework

Hispanic minorities are the fastest growing demographic group in America (U.S. Census Bureau News, 2007). The number of Hispanic students is increasing in schools, and schools need to have programs in place to meet the needs of these students, especially those who are English Language Learners (ELLs). Previous researchers in the United States demonstrated that language minority students, such as ELLs, performed better academically when they were given instruction in their native language (Greene, 1998; Thomas & Collier, 2002), and that language minority students with higher levels of academic and literacy skills in their native language reached higher levels of literacy and academic skills in English (Collier, 1992). Bilingual programs have been successful with ELLs because they provided ELLs with instruction in their native language as well

as instruction in English (Cummins, 2000). My research study investigated two forms of bilingual education, 50/50 and 90/10 two-way dual language programs, in order to see which model would be more effective at increasing the reading achievement of ELLs.

My research study grew out of Cummins' (1979) developmental interdependence hypothesis, which has also been used by previous researchers to understand bilingual education practices and what works with ELLs. The developmental interdependence hypothesis asserted that the development of proficiency in a second language is somewhat dependent on the level of proficiency already developed in the first language. Therefore, students learning a second language make better progress if they have a stronger foundation in their first language. Cummins (1979) argued that the negative effects of bilingualism and bilingual programs come from subtractive practices where the second language replaced the first language, and students were not able to use the foundation they had built in their first language. He argued that additive bilingual programs would allow students to develop high levels of competence and proficiency in both their first and second languages. Other researchers, such as Collier (1987), also investigated the affect of first language development on second language acquisition.

Collier's (1987) research on the age and rate of second language acquisition for academic purposes supported Cummins' developmental interdependence hypothesis that students needed a certain level of proficiency in their native language in order to be more successful in a second language. She studied how long it took ELLs to become proficient in English for academic purposes while receiving all of their academic instruction in English. Collier used data from 1977 to 1986 from a group of language minority students

who were all placed in beginning level ESL classes upon arrival into US schools. All of these students came from low- to middle-income families. Students spent part of their day with ESL teachers and the rest of the day in regular classrooms. Collier (1987) used standardized test scores of ESL graduates to determine when students had developed English proficiency for academic purposes.

Furthermore, Collier (1987) found several important factors concerning the rate of English language acquisition for academic purposes: length of residence, grade-level achievement, and age on arrival. For length of residence, students who had lived longer in the United States tended to score better on English tests than other ELLs. Length of residence also affected grade level achievement, and students in the same grade levels with longer length of residence tended to do better than did students with shorter length of residence. For example, an eleventh grader who had a length of residence of five years did better academically than one with a length of residence of two years. Collier also found that age on arrival also influenced students' English acquisition for academic purposes and ELLs in her study that arrived at an age where they had not received sufficient instruction in their native language did not achieve as highly as students who had received sufficient instruction in their native language. For example, students who arrived at ages five, six, and seven did not achieve as highly as students who arrived at the ages of eight, nine, ten, and eleven. Students who arrived between the ages of twelve and fifteen also did not achieve as well as the eight to eleven year old group. Collier (1987) believed students who arrived between the ages of twelve and fifteen were not able to achieve as highly because they had arrived at a time when they also faced more

cognitively and academically demanding tasks and they needed more time to develop their English proficiency. She argued that the optimal age to begin second language instruction was between eight and eleven years of age because these students had a strong enough foundation in their native language to reach high levels of academic achievement in English. Collier's (1987) research agreed with Cummins' (1979) developmental interdependence hypothesis because she also found that students' level of proficiency in their first language also affected their level of proficiency in their second language.

Collier (1989) conducted additional investigation of the influence of first language development on second language development in another study that investigated how long it took ELLs to attain the same levels of academic achievement in their second language as native English speakers. She again focused on age, native language cognitive development, and second language academic achievement. Her study on the best age to acquire a second language in relation to native language cognitive development revealed several important points:

1. Students who continued cognitive development in their native language through age twelve were more successful at second language acquisition,
2. Children who attained full cognitive development in their first and second language development had cognitive advantages over monolinguals,
3. At the beginning of second language acquisition older children and adults with stronger native language foundations mastered basic communicative skills better than children,

4. Older children (ages eight to twelve) who had several years of schooling in their native language were the most efficient acquirers of academic second language.

Both Cummins' and Collier's research demonstrated that ELLs who had a stronger foundation in their native language were more successful in their second language. This finding was important to my research study because I compared ELLs in two-way dual language programs who received different amounts of native language instruction in order to investigate if the ELLs who received more native language instruction would be more successful in Spanish and/or English reading.

Educational Programs for English Language Learners

Because two-way dual language programs were not the only educational programs for ELLs, next I discussed the different types of ESL and bilingual programs that were available for ELLs. These included English immersion, structured English immersion, ESL pullout, transitional bilingual education, maintenance bilingual education, one-way bilingual immersion, and two-way/dual language immersion. Each program has a different approach to helping ELLs increase their academic achievement while teaching them English (Freeman et al., 2005; Lara-Alecio, Galloway, Irby, Rodriguez, & Gomez, 2004). Some programs focused on building ELLs' foundation in their native language while other programs focused on transitioning them to English.

In English immersion, ELLs are placed in regular classrooms with native English speaking students where they are given no special services. In structured English immersion, ELLs are placed in regular classrooms with native English speakers, but the teachers in these classrooms are trained to teach ELLs using special methods. Thomas

and Collier (2002) found that ELLs in immersion programs did not make as much progress in reading and math as ELLs in other ESL or bilingual programs.

In ESL pullout programs, ELLs are given extra support to help them learn English and then slowly integrate them into all-English instruction. At the secondary level, ESL pullout programs can be class periods where ELLs receive English instruction according their English level, and they receive credit for this class like any other class.

In transitional bilingual education programs, ELLs are instructed in their first language for one to three years before transitioning them into all-English instruction. Thomas and Collier (2002) found that students in ESL pullout and transitional bilingual programs make more progress than immersion students do, but they do not catch up with native English speaking students.

In maintenance bilingual education programs, ELLs are instructed in their first language as well as English for four to six years. Maintenance bilingual programs are different from transitional bilingual programs, because ELLs in maintenance programs are able to maintain their first language while learning English. Thomas and Collier (2002) found that ELLs in maintenance bilingual programs have higher academic achievement than ELLs in English immersion, ESL pullout, and transitional bilingual programs. Maintenance bilingual programs allow ELLs to build a strong foundation in their native language that improves their academic achievement in English.

In one-way and two-way/dual language bilingual immersion programs, ELLs are instructed in their first language and English with the goals of bilingualism and biliteracy (Freeman et al., 2005). In one-way bilingual immersion, there are only ELLs in the

classroom; however, in two-way/dual language bilingual immersion there are ELLs and native English speaking students learning in both languages. Research has shown that these programs are the most effective programs for ELLs for increasing their academic achievement and helping them to learn English (Thomas & Collier, 2002, 2004). These programs are effective because they provide ELLs support in their first language while helping them to learn English. Like maintenance bilingual programs, one-way and two-way bilingual programs allow ELLs to build a strong foundation in their native language that improves their academic achievement in English. The curricula used in these programs is the same as mainstream curricula, and this helps ELLs make the same academic gains as native English speaking students (Thomas & Collier, 2003).

My study investigated the reading achievement of ELLs in two-way dual language programs, and next I discussed the previous research on the literacy achievement of second and English language learners in bilingual and dual language programs.

Literacy Achievement of Second and English Language Learners in Bilingual Programs

Previous researchers investigated the effectiveness of bilingual programs at increasing the academic achievement of second and English language learners. Some researchers examined how first language literacy achievement compared with second language literacy achievement (Garcia, 2000; Verhoeven, 1990). Other researchers investigated how second language learners' (SLLs) achievement in bilingual programs compared with SLLs' achievement in second language programs (Slavin & Cheung, 2005; Verhoeven, 1991).

Native Language and Second Language Programs

Both Verhoeven (1990) and Garcia (2000) compared the literacy acquisition of students learning to read in their first or native language with students learning to read in a second language. Verhoeven (1990) studied Turkish and Dutch students learning to read in Dutch and followed the students from the beginning of first grade until the end of second grade. The two groups of students were matched based on economic background, gender, and age. The purpose of Verhoeven's study was to understand the differences between children learning to read in their native language and children learning to read in a second language. Verhoeven (1990) found that students learning to read in a second language were not as efficient as students learning to read in their native language were. For example, the Turkish students had more difficulty reading longer and/or unfamiliar words. Verhoeven also found that students learning to read in a second language had lower achievement in reading comprehension than students learning to read in their native language. One limitation of Verhoeven's (1990) research study was that he looked at students learning Dutch in the Netherlands, and the results may not be generalized to all second language learners.

Similar to Verhoeven (1990), Garcia (2000) conducted a research study that investigated older bilingual children's reading and how bilingual student's second language reading achievement compared with native speakers' first language reading achievement. She reviewed research that compared the English reading achievement of bilingual students with the English reading achievement of English speaking students in monolingual programs from third grade through twelfth grade. Garcia found that

students learning to read in a second language did not achieve as highly as students learning to read in their native language did. She found that bilingual children knew less about the topics and less of the vocabulary in second language texts. One limitation of Garcia's (2000) research was that there was a limited amount of research on the instructional reading practices used with these bilingual students.

Both Verhoeven (1990) and Garcia (2000) found that students who learned to read in their native language attained higher levels of achievement than students who learned to read in their second language. These findings were important to my research study because the ELLs in my study all learned to read in their native language.

Bilingual Programs and Second Language Programs

Verhoeven (1991) and Slavin and Cheung (2005) compared SLLs in bilingual programs with SLLs in second language programs. Verhoeven investigated two groups of Turkish children learning to read in Dutch. One group was in second language submersion programs and the other group was in transitional literacy programs. In the submersion program, literacy instruction was done in the second language for the entire first year, and in the second year some literacy instruction was given in the native language for a couple of hours a week. In the transitional literacy programs, Turkish students were taught to read in their native language first, and then they were given simultaneous literacy instruction in Turkish and Dutch. Students were measured on oral proficiency in both languages, word reading tasks, word spelling tasks, and text reading tasks. He found that submersion programs were not as appropriate for students who were more proficient in their first language than in Dutch because there was a mismatch

between the children's background and their literacy instruction. The linguistic measures showed that native language instruction had no negative effect on second language literacy. Students who received native language literacy instruction actually did better in Dutch than students who did not receive native language literacy instruction. Students in the transitional programs also had more positive attitude toward both the native and second language literacy instruction. Similar to Verhoeven's previous research from 1990, one limitation of this research study was that he studied students learning Dutch and the results might not be generalizable to all SLLs.

Similar to Verhoeven (1991), Slavin and Cheung (2005) wanted to know if ELLs should receive reading instruction in their native language and if so, how this instruction should be structured. They examined research on the different types of programs for ELLs and each program's success with teaching ELLs to read in English. The studies that Slavin and Cheung reviewed were selected based on several criteria: the studies compared bilingual with English-only classrooms, students in the studies were randomly assigned to treatments or they were matched, the students were in elementary or secondary schools, the treatment lasted at least one year, and standardized tests were used as a measure of reading performance. Similar to Verhoeven's (1991) research, Slavin and Cheung (2005) found that teaching English language learners to read in their native language did not have a negative effect on their English reading abilities. Of the thirteen studies that focused on elementary bilingual programs, nine of these studies showed that bilingual programs were better at increasing English reading achievement of English language learners, while the other four of these studies showed no difference in

English only and bilingual programs on English reading achievement of ELLs. An important thing to note about Slavin and Cheung's (2005) research review was that because of their strict inclusion criteria, some of the studies they included were from more than ten years ago.

Both of these research studies supported Cummins' interdependence hypothesis because Verhoeven (1991) and Slavin and Cheung (2005) found that literacy skills developed in one language transferred and predicted literacy skills developed in another language later. In general, these studies supported the idea that biliteracy education had no negative effect on second language literacy acquisition and could actually benefit students in the end. These studies have implications for my research study because my research also examined the effects of biliteracy education.

Previous researchers who investigated the literacy achievement of SLLs and ELLs involved in bilingual and second language programs provided valuable information on the effectiveness of different models of literacy instruction. Although the previous researchers demonstrated that native language literacy instruction had no negative effects on second language literacy instruction, more research in this area is necessary to have additional evidence in favor of the effectiveness of bilingual programs.

In the next part of the review of the literature, I focused on the literacy achievement of ELLs in dual language programs because my study investigated ELLs in two-way dual language programs.

Literacy Achievement of English Language Learners in Dual Language Programs

Previous dual language researchers have investigated how dual language programs compared with other instructional programs at increasing the academic achievement of ELLs, and what made dual language programs successful. Similar to the research on ELLs in bilingual programs, some researchers compared the academic achievement of ELLs in dual language programs with the academic achievement of ELLs in English only programs (Alanís, 2000; Coy & Litherland, 2000). Other researchers compared the academic achievement of ELLs in dual language programs with that of ELLs in other bilingual programs (Calderón & Carreon, 2000; Cazabon, Lambert, & Hall, 1993; Cazabon, Nicoladis, & Lambert, 1998; de Jong, 2004; Lopez & Tashakkori, 2004, 2006; Reese, Goldenberg, & Saunders, 2006). Another group of researchers examined how the academic achievement of ELLs in dual language programs compared with the academic achievement of their district and state peers (Christian & Genesee, 2004; de Jong, 2002; Howard, 2002; Lindholm & Fairchild, 1988; Lindholm-Leary, 2001; Quintanar-Sarellana, 2004 Senesac, 2002). Gomez, Freeman, and Freeman (2005) investigated a successful dual language program, specifically what made it succeed.

Two-way Dual Language Programs Compared with English Only Programs

Similar to Slavin and Cheung (2005) who investigated the effectiveness of different bilingual reading programs, Alanís (2000) and Coy and Litherland (2000) compared the academic achievement of ELLs in dual language classrooms with the academic achievement of ELLs in English only classrooms.

Alanís (2000) examined the academic achievement of 85 fifth grade students who had been in a two-way bilingual program for at least three years. The students in Alanís' study came from two schools in West Texas with 76% Hispanic students. Each school's 50/50 two-way dual language program had been in existence for at least five years and the schools had similar program goals. Alanís used the English *Texas Assessment of Academic Skills* (TAAS) (Texas Education Agency, 1994) test results to measure academic achievement of students in the two-way programs, and then she compared dual language students' results to the results of students in all-English classrooms. On the English Reading TAAS, the two-way students scored equal to or better than students did in the all-English classrooms. They also made gains in reading from third to fifth grade. On the English math TAAS, two-way students scored equal to but not better than students did in all-English classrooms and they also made gains in math from third to fifth grade. The TAAS results indicated that the students who had been in the two-way program for the longest time made the most gains in English academic achievement. Alanís (2000) used a small sample of ELLs from 50/50 two-way dual language schools with a large percentage of Hispanic students and her results might not be generalizable to ELLs in all two-way dual language programs. Alanís's (2000) research was important to my research study because I also investigated ELLs in 50/50 two-way dual language programs but I studied their Spanish reading achievement as well.

Coy and Litherland (2000) compared the academic achievement of first grade 90/10 two-way dual language students with their monolingual peers in two inner city

high poverty elementary schools in Oklahoma City. The students in this study had been receiving dual language instruction for two years. Academic achievement was measured using the *Supera* (CTB/McGraw-Hill, n.d.), which is the Spanish equivalent of the *Terra Nova* (CTB/McGraw-Hill, n.d.) norm referenced achievement test. First grade dual language students' scores on the *Supera* were compared to monolingual students' scores on the *Terra Nova*. The dual language students outscored their monolingual peers in reading and language, and at one school, the dual language students also scored above the national average in reading and language. One limitation of the Coy and Litherland (2000) study was that they compared Spanish achievement to English achievement, and they were not able to examine the dual language students' English achievement.

The results of both these studies showed that students in two-way programs could reach the same or higher levels of academic achievement in English as students did in all-English classrooms. Neither of these studies investigated the both the Spanish and English achievement of the ELLs in the two-way dual language programs and this would have given more information on their academic achievement.

Two-way Dual Language Programs Compared with Other Bilingual Programs

Similar to the researchers that compared dual language and English only programs, several researchers (Calderón & Carreon, 2000; Cazabon et al., 1993; Cazabon et al., 1998; de Jong, 2004; Lopez & Tashakkori 2004, 2006; Reese et al., 2006) investigated how the academic achievement of ELLs in dual language programs compared with the academic achievement of ELLs in other bilingual programs.

Both Cazabon et al. (1993) and Cazabon et al. (1998) studied the Amigos two-way bilingual education program in Cambridge, Massachusetts. The Amigos 50/50 two-way dual language program was collaboration between the Public schools' departments of desegregation and transitional bilingual education. The program served 250 students, half of them native English speakers, and half of them native Spanish speakers. Two schools offered the program, the Maynard School for grades K-3 and the Kennedy School for grades 4-6. In 1993, Cazabon et al. compared the mathematics and language arts achievement of Amigos students with non-Amigos students of similar gender, intellectual ability, and socio-economic status. Native Spanish speaking Amigos students' scores were compared to students in transitional bilingual programs who received part of their instruction in Spanish for two to three years before transitioning to all English instruction. Native English speaking Amigos students' scores were compared to students in all English programs. First, second, and third grade students' scores were compared from 1989-1990 and 1990-1991 school years.

Cazabon et al. (1993) used the *California Achievement Test (CAT)* (CTB/McGraw-Hill, 1985) to measure English language and math achievement, and the *Language Assessment Scales (LAS)* (Duncan & deAvila, 1990) to measure English reading and writing proficiency. They measured Spanish achievement using the *California Test of Basic Skills, Español (CTBS Español)* (CTB/ McGraw-Hill, 1985), which was the Spanish equivalent of the English CAT. Cazabon et al. (1993) found that the English reading and math achievement of English Amigos was very similar to the English comparison students, but the English Amigos tended to score higher than the

comparison students did. Both groups were scoring at or above grade level by the end of the school year, except in first grade where both groups were a little below average. The researchers found that although English Amigos only received half their instruction in English they were able to attain the same or higher levels of achievement in English reading and math as students who received all of their instruction in English. In Spanish reading, the English Amigos made progress from year to year and in Spanish math, the English Amigos outperformed the Spanish Amigos.

Cazabon et al. (1993) compared the English reading and English math achievement of Spanish Amigos with transitional bilingual education students. The Spanish Amigos scored higher than the transitional bilingual students in both English reading and English math, even though the transitional bilingual students had received more of their instruction in English. The authors also compared the Spanish achievement of Spanish Amigos with transitional bilingual education students. The Spanish Amigos scored higher in Spanish reading than the transitional students in first and second grade, but not in third grade. In Spanish math, the Spanish Amigos scored higher than the transitional bilingual students did in all three grades.

Both English and Spanish Amigos attained high levels of academic achievement in their native language as well as their second language and they scored as well as or better than comparison students. One limitation of the Cazabon et al. (1993) study was that they did not provide longitudinal data. The next study of the Amigos program (Cazabon et al., 1998) provided more information because the study was a longitudinal study of the same 50/50 two-way dual language program over six school years.

Similar to the study of the Amigos program done in 1993, Cazabon et al. (1998) examined the English and Spanish achievement of the Amigos program in grades four to eight from six school years, 1990-1991 through 1996-1997. The researchers used the same comparison students as the previous study: English Amigos' scores were compared to students in all English classrooms and Spanish Amigos' scores were compared to transitional bilingual education students. English achievement was measured with the *California Achievement Test (CAT)* (CTB/McGraw-Hill, 1985) and Spanish achievement was measured with the *Spanish Achievement in Bilingual Education (SABE)* (Macmillan/McGraw-Hill, 1991).

In English reading and math achievement, Cazabon et al. (1998) found that both the English and Spanish Amigos outperformed the English comparison students in all grades except 7th grade. In 7th grade, there was no difference between the Spanish Amigos and English control students in English math. In addition, the English Amigos scored higher in both English reading and math than the Spanish Amigos across the grade levels. In Spanish reading, they found that both the Spanish and English Amigos outperformed the transitional bilingual students and the Spanish Amigos scored higher than the English Amigos. In Spanish math, the Spanish and English Amigos scored higher than the transitional bilingual education students did, and the English Amigos had the highest achievement in all grade levels except grade 8.

The results of the Cazabon et al. (1998) study demonstrated that although English Amigos received less English instruction than the comparison students did, they were still able to reach higher levels of English academic achievement than students in all

English classrooms were. The English Amigos were also able to reach high levels of Spanish achievement outperforming transitional bilingual students in Spanish reading and math. The Spanish Amigos reached higher levels of academic achievement in English reading than students in all English classrooms did, and they reached the same or higher levels of achievement in English math in grades 4-8. In Spanish Achievement, the Spanish Amigos outperformed the transitional bilingual students in both reading and math from grades 4-8. Two strengths of the Cazabon et al. (1998) study were following the same group of 50/50 two-way dual language students for six school years and providing a longitudinal picture of both their Spanish and English achievement. Another strength of that study was the investigation of both Native English and Native Spanish speakers' academic achievement in English and Spanish.

Similar to the research done on the Amigos programs, Calderón and Carreon (2000) studied how students in 50/50 two-way dual language programs compared to students in traditional bilingual programs in El Paso, Texas. They investigated what made these 50/50 two-way dual language programs successful and what challenges they faced during implementation. The four 50-50 two-way dual language programs were implemented in two phases, in the first phase there were two schools and in the second phase, two more schools were added. In these 50-50 two-way dual language schools, their language time was divided weekly instead of daily. In addition, all four of the schools used *Success for All* as part of their literacy instruction. Both quantitative and qualitative data were used in this study that included questionnaires, field notes, interviews, and student achievement data.

Calderón and Carreon (2000) compared the English *Texas Assessment of Academic Skills* (TAAS) (Texas Education Agency, 1994) scores of 250 students in the 50/50 two-way dual language classrooms to English TAAS scores of 250 students in traditional bilingual classrooms. The results of the study showed that after three years third, fourth, and fifth grade students in 50/50 two-way bilingual programs did significantly better on English TAAS than students in traditional bilingual classrooms. Two-way students' scores on the TAAS were closer to the district average than the scores of the students in traditional bilingual classrooms. One limitation of this study was that students in the two-way bilingual program were not intentionally matched with students in the traditional bilingual classrooms. Another limitation was that Calderón and Carreon (2000) did not examine the students' Spanish achievement. In the next research study, de Jong (2004) compared the English literacy development of ELLs in two-way dual language programs with ELLs in bilingual programs.

De Jong (2004) compared the English oral and literacy development of ELLs in two-way dual language programs with ELLs in developmental bilingual programs in a school district in the Northeastern United States. The ELLs in her study had been in the two-way dual language or developmental bilingual program since Kindergarten. She investigated three cohorts of students: students who had been in the programs K-3, students who had been in the programs K-4, and students who had been in the programs K-5. Both programs had students with similar countries of birth and gender but the two-way program was located in a school with a higher percentage of students on free and reduced lunch. The two-way dual language students received 90% of their instruction in

Spanish in Kindergarten, 70% in Spanish in 1st and 2nd grade, and 50% in Spanish from third grade on. The developmental bilingual students received 85% of their instruction in Spanish in Kindergarten and 1st grade, 75% in Spanish in 2nd grade, 60% in Spanish in third grade, and 30% in Spanish in fourth and fifth grade.

English oral language proficiency was measured using the *[State] English Language Assessment-Oral* ([S]ELA-O), an instrument developed specifically for the state in which the district was located. [S]ELA-O was a teacher-administered assessment that required teachers to observe and rate students individually on a scale of 0 to 5 for oral comprehension and production. The [S]ELA-O was administered to students in the bilingual programs each spring from Kindergarten through fifth grade. English reading and writing were measured using the *Language Assessments Scale Reading/Writing* (LAS R/W) (Duncan & de Avila, 1990). In English oral proficiency, there were only significant differences between two-way students and developmental bilingual students in Kindergarten. The developmental bilingual students' scores were significantly higher in each cohort. In English reading, third grade two-way dual language students' scores were higher in all three cohorts. In English writing, third, fourth, and fifth grade two-way dual language students' scores were higher than those of the developmental bilingual students were. De Jong (2004) found that ELLs in two-way dual language and developmental bilingual programs made similar gains in English oral proficiency, but two-way students did better on measures of English reading and writing. One limitation of this study was that de Jong did not investigate the ELLs' academic achievement in

Spanish. In the next study, the researchers also examined the English literacy development of two-way dual language students.

Lopez and Tashakkori (2004) investigated the English literacy development of kindergarten and first grade two-way dual language students. They studied four classes from kindergarten and four classes from first grade, two mainstream classrooms and two two-way dual language classes at each grade level. The experimental group consisted of students in dual language classrooms where students received 70% of their instruction English, while the control group consisted of students in the mainstream classrooms where students received 90% of their instruction in English. Both experimental and control group participants were selected from students who were classified as English Speakers of Other Languages (ESOL) level of 3, 4, or 5 and Native English speakers. Any student that was academically gifted or disabled was excluded from the study. One limitation of this study was that the assignment of participants to experimental and control groups was not random. Parents of students who qualified for dual language classrooms were invited to participate in the two-way dual language program, and then these students were selected to participate in the study based on their TESOL score of 3, 4, or 5.

Students were given a pre-test and a post-test to measure English literacy skills. The school district developed the instruments to measure skills covered in the language arts curriculum in kindergarten and first grade. First graders were also given the Scholastic Reading Inventory (SRI) (Scholastic, 2001) at the end of the year to measure their ability to read and comprehend passages. All students were measured using the

same instruments at the same time. The SRI was used as a second measure to double check the progress of students at the end of first grade. Lopez and Tashakkori (2004) examined the results on the tests to see how the students in the dual language classrooms compared to the students in the mainstream classrooms in their English literacy development at both the beginning and end of the year. They wanted to see if the achievement gap in English literacy that existed at the beginning of the year was decreased by the two-way dual language program at the end of the year. Lopez and Tashakkori (2004) found that after one year in the two-way dual language program, the achievement gap was significantly decreased between the experimental and control groups. The extra instruction in Spanish for the two-way dual language students did not have a significant negative effect on their English literacy achievement after one year. Although the researchers only examined two grade levels over a short period, they demonstrated that students in a two-way dual language program were not hindered by extra Spanish instruction. In another research study, Lopez and Tashakkori (2006) investigated the Spanish and English achievement of ELLs in three two-way dual language programs.

In 2006, Lopez and Tashakkori compared three two-way dual language programs with three transitional bilingual programs. They selected the three two-way dual language schools for the study, and then they selected the three transitional schools to match the two-way schools on demographic characteristics such as ethnic composition, percent of students receiving free and reduced lunch, percent of students identified as ELLs, and school size when possible. The two-way schools followed the 60-40 model,

and students received 60% of their instruction in English and 40% in Spanish while students in the transitional bilingual program stopped receiving instruction in their native language after reaching a certain level of English proficiency.

Lopez and Tashakkori (2006) measured academic achievement using the Florida Comprehensive Assessment Test (FCAT) (Florida Department of Education, 2002), which measures the state's academic standards. They measured Spanish reading skills with the *Evaluación del Desarrollo de la Lectura* (EDL) (Ruiz & Cuesta, 2000), which is the Spanish version of the Developmental Reading Assessment (DRA). The results of the FCAT indicated that there was no significant difference in English achievement between the students in the dual language program and the students in transitional bilingual programs. However, the students in the two-way dual language programs did acquire oral English proficiency at a faster rate and did better on measures of Spanish reading than students in the transitional programs. In another research study, Reese et al. (2006) also investigated both the English and Spanish reading achievement of ELLs in two-way dual language programs.

Reese et al. (2006) studied the reading achievement of ELLs in three different language programs for Spanish-speaking ELL students in California. There were 183 students in this study from three schools: one school with an English immersion program, one school with an English immersion program and a dual language program, and one school with a developmental bilingual program.

Reese et al. (2006) used student achievement data from the Woodcock Language Proficiency Battery-Revised (WLPB-R) (Woodcock, 1991). Reading achievement

results across the three schools and their different programs were consistent: students in programs that focused on Spanish scored higher in Spanish, while students in programs that focused on English scored higher in English. The transitional bilingual program and the dual language programs' students scored higher in Spanish than did the English immersion students. One strength of the research study by Reese et al. (2006) was the use of both English and Spanish achievement data. This study was important to my study because I also used both English and Spanish reading achievement data.

Cazabon et al. (1993), Cazabon et al. (1998), Calderón and Carreon (2000), de Jong (2004), Lopez and Tashakkori (2004, 2006), and Reese et al. (2006) found that ELLs in dual language programs were attaining the same or higher levels of academic achievement as ELLs in other bilingual programs. In order to see which instructional program, if any, was most effective at increasing ELLs' academic achievement, more researchers needed to compare students in dual language programs with students in other bilingual programs.

*ELLs in Two-way Dual Language Programs Compared to ELLs in the District, State,
and Nation*

Lindholm and Fairchild (1988), Lindholm-Leary (2001), Senesac (2002), Howard (2002), de Jong (2002), Quintanar-Sarellana (2004), and Christian and Genesee (2004) studied how the academic achievement of ELLs in dual language programs compared with the academic achievement of ELLs in the district, state, and nation. Lindholm and Fairchild (1988) investigated the effectiveness of a two-way dual language program in San Diego, California. They examined the academic achievement

of 78 students, both native English and native Spanish speakers, in grades two through six from six schools. The students had been in the two-way dual language programs since pre-school, kindergarten, or first grade. In these two-way dual language programs all students in second and third grade received only 60 minutes of English instruction, but in grades four through six the amount of English instruction increased to 50% of the day. The Comprehensive Tests of Basic Skills, (CTB/McGraw-Hill, 1981) and the Comprehensive Tests of Basic Skills- Español (CTBS-Español) (CTB/McGraw-Hill, 1985) were used to measure academic achievement. The CTBS was a norm-referenced test of achievement in reading, spelling, math, reference skills, science, and social studies. Students were tested at the end of each school year and all scores were converted to NCEs.

Lindholm and Fairchild (1988) found that in English reading, native English speakers were performing above the norm from second through sixth grade even though they had received a limited amount of English instruction. The native Spanish speakers performed slightly below the norm from second through sixth grade in English reading but they made gradual improvements each year. In English math, native English speakers performed above the norm from second through sixth grade while native Spanish speakers performed above the norm only in fifth and sixth grades. In Spanish reading and Spanish math, both the native English speakers and the native Spanish speakers performed above the norm from second through sixth grade. These results indicated that students in these two-way dual language programs were reaching high levels of academic achievement in both reading and math in English and Spanish

although native Spanish speakers' achievement in English was sometimes below the norm. Lindholm and Fairchild (1988) provided valuable longitudinal information on both English and Spanish academic achievement of two-way dual language students. One limitation of their study was the small sample size of only 78 students. Lindholm-Leary (2002) studied a larger sample of 149 students in two-way dual language programs.

Lindholm-Leary (2001) investigated the academic outcomes of four 90/10 two-way dual language programs. In one part of her study, she examined the reading achievement data by grade level. She used longitudinal data from 149 students that were from four 90/10 two-way dual language schools, and all of the students studied had been in the program since kindergarten or first grade. Students in these programs were not given English reading instruction until third grade.

Lindholm-Leary (2001) used three different norm-referenced achievement tests in this study. They were the Comprehensive Test of Basic Skills (CTB/McGraw-Hill, 1981), the Metropolitan Achievement Test (Harcourt, 1992), and the CAS2, which is aligned with the California curriculum. Students' scores on these tests were compared with the states averages using NCEs. The author found that by the end of fifth grade, all students participating in these 90-10 two-way dual language programs had achieved scores equal or better than state averages in English reading and language. Students in these 90/10 two-way dual language programs attained high levels of proficiency in English even though their English instruction was kept to a minimum until third grade. One limitation of this study was that Lindholm-Leary did not include Spanish

achievement measures; Senesac (2002) examined both the English and Spanish achievement of the dual language students in his study.

Senesac (2002) studied the Inter-American Magnet School, which had an 80/20 Spanish/English model from pre-school through third grade. In the fourth and fifth grades, the program was 60/40, and by the sixth grade, the program was 50/50. Senesac found that students in this dual language program were achieving academically at the same or higher levels as their peers in the both the district and state. The measures of students' achievement included the *Illinois Standards Achievement Test* (ISAT) (Illinois State Board of Education, 1999), the *Iowa Test of Basic Skills* (ITBS) (Riverside Publishing, 2001), and *La Prueba Riverside de Realización en Español* (Cote, 1984). The ISAT and ITBS measured the students' academic achievement in English, and *La Prueba* measured their academic achievement in Spanish. On the ISAT, students in the Inter-American Magnet school performed better than other students in the district and the state in reading, writing, math, science, and social studies from 1998-2000. The ITBS scores showed that students at the Inter-American Magnet school were performing at grade level in both reading and math, and that they continued to stay on grade level from third through eighth grade. On *La Prueba Riverside de Realización en Español* students at the Inter-American Magnet school were performing above the national norm in reading and writing from 1998-2000. These results indicated that the dual language students at this school were making academic progress in both languages and achieving at the same or higher levels as their peers in the district and state in both English and Spanish. A limitation of this study was that Senesac (2002) only examined achievement

scores from 1998-2000 and was not longitudinal. Howard (2002) conducted a case study of a two-way dual language program that followed the 80/10/10 model.

Howard (2002) studied the Alicia Chacón International School, which used the 80/10/10 model for instruction. In this 80/10/10 model of dual language instruction, in kindergarten through second grade 80% of instruction was in Spanish, 10% in English, and 10% in a language of the students' choice. In third through fifth grade, the instruction was 45% English, 45% Spanish, and 10% of the language of the students' choice.

Howard compared *Texas Assessment of Academic Skills* (TAAS) (Texas Education Agency, 1994) scores of the students at the Alicia Chacón International School to the scores of other students in the district and in the state during the 1999-2000 school year. In English reading, 97% of the students at the school met or exceeded the minimum expectations on the TAAS, while at the district level, 91% met or exceeded the expectations, and at the state level, 87% met or exceeded the expectations. The results demonstrated that students participating in the two-way immersion program at the Alicia Chacón International School attained higher levels of academic achievement on the TAAS than did other students in the district or state did, even while they were attending a school where three languages were used for instruction. One limitation of this study was that Howard examined only one year of test scores to determine the success of the students in this program. In another study, de Jong (2002) investigated dual language students' academic achievement over five years.

De Jong (2002) studied the Barbieri Two-way Bilingual Education Program in Framingham, Massachusetts, which had been in existence for ten years. The Barbieri Program had its own unique model of instruction. Native Spanish Speakers (NSS) received about 70% of their instruction in Spanish until the third grade. Native English speakers (NES) received about 40% of their instruction in Spanish until third grade. In third grade, the two-way program began to follow the 50/50 model of instruction. Students in this two-way dual language program were given initial literacy instruction in their native language. De Jong (2002) examined student achievement data that included both norm and criterion referenced tests from 1995-2000. The norm-referenced tests were the *Stanford Achievement Test* (SAT) (Harcourt Assessment, 1996) and the *Aprenda* (Harcourt Assessment, 1996) for Spanish. The criterion-referenced test was the *Massachusetts Comprehensive Assessment Systems* (MCAS) (Massachusetts Department of Education, 1998). De Jong also compared two-way bilingual students' scores to the national norm on the SAT and *Aprenda* tests. Two-way students performed above the national norms by the end of fifth grade on both *Stanford* and *Aprenda*. On the MCAS, two-way students' scores were compared to district and state averages. From 1998 to 2000, the two-way students scored above the state average and as well as or better than other students in the district. De Jong (2002) found that students in the Barbieri program were reaching high levels of academic achievement as compared to national norms and as compared to district and state averages. One limitation of de Jong's data was that the sample size was very small, less than 20 students per year. In another research study, Quintanar-Sarellana (2004) investigated 500 two-way dual language students.

Quintanar-Sarellana (2004) examined the effectiveness of the Monteverde School, a 90/10 two-way dual language program in Northern California. Monteverde's two-way dual language program started as a strand with-in a school and eventually became its own school from kindergarten through eighth grade. The school had about 500 students from a wide range of socio-economic and ethnic backgrounds and 40% of the students were native Spanish speakers. The school followed the 90/10 model: 90% of instruction in Spanish in kindergarten and first grade, 80% in Spanish in second grade, 70% in Spanish in third grade, and 60% in Spanish in fourth grade, and 50% in Spanish in fifth grade. Academic achievement was measured with the *Stanford Achievement Test*, (SAT) (Harcourt, 1996) and the *Spanish Assessment of Basic Education* (SABE) (CTB/McGraw-Hill, 1991). Data were collected from grades two through eight from four school years, 1998-2001.

Quintanar-Sarellana (2004) found that in English reading and English math the percentage of students scoring above the 50th percentile increased as the students progressed from grade to grade. In Spanish reading and Spanish math more than 60% of students scored above the 50th percentile in all grades in 1999 through 2001. The students in this two-way program were reaching higher levels of academic achievement in Spanish than in English because more students were scoring above the 50th percentile on the SABE than on the SAT. Students in this 90/10 two-way dual language were reaching high levels of academic achievement in both English and Spanish. One limitation in Quintanar-Sarellana's (2004) study was that students' scores were not broken down into native English speakers and native Spanish speakers. In another

research study, Christian and Genesee (2004) investigated the academic achievement of students in three different two-way dual language programs.

In their report on two-way immersion/dual language programs, Christian and Genesee (2004) compared three two-way dual language programs' standardized achievement test scores to district and state averages on the percentage of students who met the minimum expectations. The first dual language program they studied was a 90/10 two-way dual language program in the Southwest where the majority of the students were from low-income Latino families. The authors examined fifth grade dual language students' academic achievement and found that these students outperformed both their district and their state peers in reading and in math. The second dual language program they studied was also a 90/10 two-way dual language program, but it was in the Midwest and had greater racial/ethnic and socioeconomic diversity. Christian and Genesee (2004) examined the achievement scores of this school's third grade dual language students, and found that these dual language students outperformed their district and state peers in reading, writing, and math. The third school they studied had a 50/50 two-way dual language program and was located in the Northeast. Like the second school, it had students from diverse racial/ethnic and socioeconomic backgrounds. This two-way dual language program was a strand within the school and dual language students' scores were compared to their peers not in dual language classrooms in the same school. The fifth grade dual language students outperformed their peers in the school. Christian and Genesee (2004) found that all three of these dual language programs' students were outperforming their peers in the district and state.

Several researchers (Christian & Genesee, 2004; de Jong, 2002; Howard, 2002; Lindholm & Fairchild, 1988; Lindholm-Leary, 2001; Quintanar-Sarellana, 2004; Senesac, 2002) found that ELLs in dual language programs were attaining the same or higher levels of academic achievement as their district and state peers and that learning in two or more languages did not have a negative effect on their academic achievement.

Next, I discussed the study of an effective dual language model and the literacy achievement of the ELLs in this model.

Gomez et al. (2005) conducted a case study of a successful dual language program, called the “Gomez and Gomez” model or the “50-50 content” model. Unlike Senesac (2002) and Howard (2002), Gomez and Gomez (2005) did not compare the academic achievement of students in this program with that of other students, but instead they gave a description of what made this program both unique and successful at increasing the academic achievement of ELLs in the schools where it was implemented. They found this model to be most successful in areas where there were high numbers of ELLs, and in the programs studied in this research, 95% of the students were Latino students. The researchers investigated 240 students from five schools across two school districts.

Gomez et al. (2005) described the academic achievement of students in these programs using the *Texas Assessment of Knowledge and Skills* (TAKS) (Texas Education Agency, 2001) test results. In the year the study was conducted, 2003, 173 students were tested, and 89% of the third grade students in this program passed the Reading TAKS test (88% in Spanish and 91% in English). In math, 159 students were

tested and 89% passed the third grade math TAKS (86% in Spanish and 95% in English). At fifth grade, all students took the TAKS in English, and 68 took the reading test and 73 took the math test. Ninety per cent of the fifth grade students passed both reading and math with 14% commended performance on reading and 18% commended performance on math. The TAKS results demonstrated that students in this two-way model were reaching high levels of academic achievement. One limitation of the Gomez et al. (2005) study was that the authors did not compare these results with the results of other ELLs in order to show that ELLs in these dual language programs were doing as well as or better than their peers.

Gap in Research

Previous researchers who studied ELLs' literacy achievement have shown that teaching ELLs to read in their native language did not hinder their second language literacy achievement. Researchers also have shown that ELLs in bilingual and dual language programs did as well as or better than their peers in English only programs and as well as or better than their district and state peers. Previous researchers on ELLs in dual language programs have focused on comparisons with English only and other bilingual programs. Only two studies (Lindholm-Leary, 2001; Thomas & Collier, 2004) have focused on comparing ELLs in different models of two-way dual language programs and therefore, my study examined different models of two-way dual language programs, two of those being 50/50 and two being 90/10, and I investigated their effectiveness at increasing the reading achievement of ELLs.

CHAPTER III

METHODOLOGY

Introduction

The purpose of my research study was to investigate the effectiveness of 50/50 and 90/10 two-way dual language programs at increasing the reading achievement of ELLs. In this chapter, I restated the research questions, and then I described the research design, the setting, the sample, instrumentation, data collection, variables, and the data analysis. I end with a summary.

Research Questions

1. To what extent do fourth grade ELLs who participated in 50/50 two-way dual language programs for two years differ in their performance on the Spanish *Texas Assessment of Knowledge and Skills* (TAKS) from fourth grade ELLs who participated in 90/10 two-way dual language programs for two years?

2. To what extent do fourth grade ELLs who participated in 50/50 two-way dual language programs for two years differ in their performance on the *Reading Proficiency Test in English* (RPTE) from fourth grade ELLs who participated in 90/10 two-way dual language programs for two years?

3. What was necessary to implement and maintain these two-way dual language programs, two of those being 50/50 schools and two being 90/10 schools, which were successful at increasing the reading of achievement of ELLs who participated in them?

Research Design

My study was a multi-case study with ex post facto research, also called causal comparative, and qualitative research. In ex post facto research, the researcher makes observations of a current condition and looks to the past to try to find possible causes of that condition (Patten, 2005). Because the independent variable has already occurred, ex post facto research is non-experimental. Ex post facto research can provide valuable information on important issues in the sciences when it is applied properly (Patten, 2005).

In my study, I used a mixed methodology that included both quantitative and qualitative data to investigate two different models of two-way dual language programs: 50/50 and 90/10. I examined the effectiveness of four two-way dual language programs at increasing the reading achievement of ELLs in Spanish and English as measured by two standardized tests: the *Spanish Texas Assessment of Knowledge and Skills* (TAKS) (Texas Education Agency, 2001) and the *Reading Proficiency Test in English* (RPTE) (Texas Education Agency, 2000). Student test scores were gathered from the end of third grade, 2005, and the end of fourth grade, 2006, in order to compare the reading achievement of ELLs in each dual language program model over the course of a year. All students in the sample had been in the dual language program since kindergarten or first grade. I conducted interviews with the four dual language program coordinators/administrators in order to gather information about each two-way dual language program. I used the information gathered in the interviews to explain what was necessary to implement and maintain these dual language programs.

Setting

Four two-way dual language programs were selected for this study using the *Texas Two-Way Directory* (2006) link found on the Texas Two-Way Dual Language Education website. These four two-way dual language programs were selected based on their program models, two of those being 50/50 programs and two being 90/10 programs, and their similar demographic characteristics. Each dual language program was located in Texas around the area of Houston; two schools were in the Houston area and one was in an area northeast of Houston and one in an area northwest of Houston. First, I described each school district below.

Case (A) Smith Elementary (names have been changed to protect privacy) was a 90/10 two-way dual language magnet school in the Houston area. According to the Magnet Schools of Texas website (2007), “magnet schools offer dynamic and innovative customized educational environments.” District (A), where Smith Elementary was located, was the seventh largest school district in the nation and the largest school district in Texas. There were approximately 210, 000 students in this district. The ethnic composition of the district was 29.9% African American, 58.3% Hispanic, 8.5% White, and 3.2% other. In district (A), 28% of the students were ELLs, 26.3% of the students were in bilingual or ESL programs, and 81.8% of its students were economically disadvantaged. The percent of economically disadvantaged students was calculated as the sum of the students who were eligible for free/reduced lunch or other public assistance, divided by the total number of students (Texas Education Agency, 2006e). Under the Texas Education Agency’s (TEA) accountability system, district (A) was

rated academically acceptable for the 2004-2005 and 2005-2006 school years. In 2005, academically acceptable meant that 50% of students passed the reading and writing TAKS, 35% passed the math TAKS, and 25% passed the science TAKS (Texas Education Agency, 2005). In 2006, academically acceptable meant that 60% of students passed the reading and writing TAKS, 40% passed the math TAKS, and 35% passed the science TAKS (Texas Education Agency, 2005).

Case (B) Brady Academy was also a magnet school in the Houston area and it had a 90/10 two-way dual language program. School district (B), where Brady Academy was located, had approximately 56, 000 students and was the twelfth largest district in the state of Texas. The ethnic composition of the district was 32% African American, 61% Hispanic, and 4.8% White. In district (B), 27.2% of the students were ELLs, 25.2% of the students were in bilingual or ESL programs, and 78.3% of its students were economically disadvantaged. According to the TEA, district (B) was rated an academically acceptable school district for the 2004-2005 and 2005-2006 school years.

Case (C) Pecan Elementary had a 50/50 two-way dual language program and was located in an area Northwest of Houston. School district (C), Pecan Elementary's district, had approximately 13,000 students. The ethnic composition of the district was 25% African American, 40% Hispanic, and 34% White. In district (C), 14% of the students were ELLs, 13% of the students were in bilingual or ESL programs, and 14% of the students were economically disadvantaged. For the 2004-2005 and 2005-2006 school years, TEA rated district (C) academically acceptable. I provided more information on Case (C) Pecan Elementary in the sample section.

Case (D) Bluebonnet Elementary, which was located in a district in an area northeast of Houston, also had a 50/50 two-way dual language program. District (D), where Pecan Elementary was located, had approximately 18,000 students and was the largest district in Northeast Texas. The ethnic composition of the district was 34% African American, 34% Hispanic, and 31% White. In district (D), 17% of the students were ELLs, 15.5% of the students were in bilingual or ESL programs, 57.6% of the students were economically disadvantaged. TEA rated district (D) academically acceptable for the 2004-2005 and 2005-2006 school years.

Sample Schools

I selected four Texas schools with two-way dual language programs, which had similar demographic characteristics. Two schools had 90/10 programs and two had 50/50 programs. My sample was a purposive convenience sample because it was available to me and would give valuable information based on the topic of my research, two-way dual language programs. The quantitative sample consisted of 76 English Language learners (ELLs), 37 ELLs from the two 50/50 programs, Case (C) Pecan

Elementary and Case (D) Bluebonnet Elementary, and 39 ELLs from the 90/10 programs, Case (A) Smith Elementary and Case (B) Brady Academy. The students in the sample had completed the fourth grade in 2006 and I examined their test scores from the end of third grade and the end of fourth grade. The qualitative sample consisted of four dual language coordinators/administrators. I contacted and interviewed the dual language coordinators/administrators from each school in order to gather specific information on each school's two-way dual language program. Next, I described the four schools: Case (A) Smith Elementary, Case (B) Brady Academy, Case (C) Pecan Elementary, and Case (D) Bluebonnet Elementary. Demographic information for each school is shown in Table 1, followed by a description of each school.

Case (A) Smith Elementary

Case (A) Smith Elementary was a Dual Language Magnet school with a 90/10 two-way dual language program in pre-kindergarten through sixth grade. There were approximately 370 students in the school; all students participated in the two-way dual language program.

Table 1

School Demographic Information

School Name and Location	Case (A) Smith Elementary Houston	Case (B) Brady Academy Houston	Case (C) Pecan Elementary Northwest of Houston	Case (D) Bluebonnet Elementary Northeast of Houston
Type of Dual Language Program	90/10	90/10	50/50	50/50
Ethnic Breakdown from TEA for 2004-2005	19.7% AA 73.8% H 4.6% W	16% AA 79.1% H 4.1% W	20.8% AA 76.6% H 2.5% W	28.5% AA 59.5% H 11% W 1% O
Ethnic Breakdown from TEA for 2005-2006	18% AA 76.3% H 4% W	13.4% AA 82.2% H 3.6% W	20.4% AA 75.7% H 3.7% W	32.1% AA 58.7% H 8.9% W
% LEP and % Economically Disadvantaged for 2004-2005	56.5% LEP 85.4% ED	63% LEP 85.2% ED	43.8% LEP 94.7% ED	53% LEP 75.6% ED
% LEP and % Economically Disadvantaged for 2005-2006	56.2% LEP 80.9% ED	65% LEP 82.6% ED	45.6% LEP 93.6% ED	52.1% LEP 74.8% ED
Accountability Rating 2004-2005	Academically Acceptable	Recognized	Academically Acceptable	Academically Acceptable
Accountability Rating 2005-2006	Recognized	Recognized	Academically Acceptable	Academically Acceptable

Note: Adapted from Texas Education Agency (2006a). *Academic Excellency Indicator System*. Retrieved July 10, 2007, from <http://www.tea.state.tx.us/perfreport/aeis/>.

The school had 18% African American students, 76% Hispanic students, and 4% White students. There were 56.2% ELLs and 80.9% economically disadvantaged students. The TEA rated Smith Elementary as academically acceptable for the 2004-2005 school year and recognized for 2005-2006 school year. In 2005 and 2006, recognized meant that 70% of the students passed the reading, writing, math, and science TAKS (Texas Education Agency, 2005).

The dual language program at Case (A) Smith had two to three classes from kindergarten to fifth grade, and one class at sixth grade. The dual language program had existed for six years. Students in this dual language program applied to the program by filling out a magnet application, and students were selected for the program by lottery. There was a waiting list for this dual language program. Initial literacy instruction in this program was done in Spanish for all students. The sample from Smith included the dual language coordinator/administrator and 25 ELLs who had been in the dual language program since kindergarten or first grade and who had completed the fourth grade in 2006.

Case (B) Brady Academy

Case (B) Brady Academy was also a magnet school with a 90/10 two-way dual language program. Brady Academy had kindergarten through fourth grade and had approximately 995 students. The ethnic composition was 13.4% African American, 82.2% Hispanic, and 3.6% White. There were 65% ELLs and 82.6% economically disadvantaged students. The TEA rated Brady Academy recognized for the 2004-2005 and 2005-2006 school years.

The dual language program at Brady Academy had one classroom per grade level. The program had been in existence for 9 years. Students applied to be in the dual language program by filling out a magnet application and then they were selected by lottery. There was a waiting list for this dual language program. Initial literacy instruction in this program was done in Spanish for all students. The sample from Brady Academy consisted of the dual language coordinator/administrator and 14 ELLs that had been in the dual language program since kindergarten and who completed the fourth grade in 2006.

Case (C) Pecan Elementary

Case (C) Pecan Elementary had a 50/50 dual language program and the school had first through fifth grades. There were approximately 430 students in the school. The school had 20.4% African American students, 75.7% Hispanic students, and 3.7% White students. Pecan Elementary had 45.6% ELLs and 93.6% economically disadvantaged students. For the 2004-2005 and 2005-2006 school years, Pecan Elementary was rated academically acceptable by the TEA.

The dual language program at Pecan Elementary had two classrooms at each grade level with approximately 20 students in each class. The program had been in existence for five years. This dual language program was a choice program for which students applied. Potential students and their parents were interviewed and given the Language Assessment Scale (LAS) test. Only students who were fluent in their native language with a score of 4 or 5 qualified for the program. There was also a waiting list for this dual language program. Initial literacy instruction in this program was done in

the students' native language; ELLs' initial literacy instruction was done in Spanish. The sample from this school included the dual language coordinator/administrator and 18 ELLs who had been in the dual language program since kindergarten or first grade and who had completed the fourth grade in 2006.

Case (D) Bluebonnet Elementary

Case (D) Bluebonnet Elementary had a 50/50 dual language program. The school had kindergarten through fifth grade with approximately 500 students. There were 32% African American students, 58.7% Hispanic students, and 8.9% White students. Bluebonnet had 52.1% ELLs and 74.8% economically disadvantaged students. The TEA rated this school academically acceptable for the 2004-2005 and 2005-2006 school years.

The dual language program in this school went from kindergarten through fifth grade. There were two dual language classes at each grade level: one Spanish teacher and one English teacher. This dual language program had existed for six years. The students were selected for the dual language program based on an oral language proficiency test. To qualify students had to be fluent Spanish speakers or fluent English speakers. There was a waiting list for this dual language program. Initial literacy instruction in this program was done in the student's native language, ELLs were taught to read in Spanish first. The sample from Bluebonnet consisted of the dual language coordinator/administrator and 19 ELLs who entered the dual language program in kindergarten or first grade and who had completed the fourth grade in 2006.

Instrumentation

Texas Assessment of Knowledge and Skills (TAKS)

The first instrument was the Spanish *Texas Assessment of Knowledge and Skills* (TAKS) (Texas Education Agency, 2001). The TAKS test was a criterion-referenced test mandated by the state for grades 3-12 (TEA, 2006c). The Spanish TAKS was offered in grades 3-6 for ELLs. The TAKS test was aligned with the Texas Essential Knowledge and Skills (TEKS), the state curriculum.

Texas Assessment of Knowledge and Skills (TAKS) reliability

Reliability demonstrates the consistency of measurement of a test. According to the TEA (2006d), TAKS reliabilities were based on internal consistency measures, specifically the Kuder-Richardson Formula 20, which involved dichotomously scored (multiple-choice) items. The TAKS internal consistency reliabilities range from .81 to .93.

Texas Assessment of Knowledge and Skills (TAKS) validity

Validity involves collecting evidence to support the conclusions made from the scoring results of a test. There are two types of validity: content validity and construct validity. Content validity explains whether a test clearly represents what children should know and do and if the test item objectives actually measure their intended responses. Construct validity is the amount to which a test is said to sufficiently measure a theoretical construct or trait. When looking over achievement test validity, distinctions between content and construct validity become somewhat ambiguous (TEA, 2006d).

In order to ensure the validity of the TAKS test and its alignment with the state curriculum, numerous committees of Texas educators were formed and consulted. When assessing the validity of TAKS, the test developers, as well as the reviewers of the stages of development, confirmed that the test items were aligned with the test objectives. This guaranteed that items were measured appropriately. Input for the TAKS test was gathered from recent and former Texas educators as well as representatives from different states. Texas educators were given many opportunities to suggest improvements or eliminate test items on the TAKS and to give their interpretations of the statewide curriculum (TEA, 2006d).

The TEA web site explained criterion validity as “Another way to provide validity evidence is by analyzing the relationship between test performance and performance on some other measure. This other measure could be evaluated concurrently or in the future and then be correlated with the test score. In this way, the test score was compared with a criterion that was thought to be a reasonable estimate of the same construct the original test purports to measure” (TEA, 2006d, p. 143).

Reading Proficiency Test in English (RPTE)

The second measure was the *Reading Proficiency Test in English* (RPTE) (Texas Education Agency, 2000), which measures reading ability using levels of English language proficiency. The RPTE is one part of the state assessment system for ELLs called *Texas English Language Proficiency Assessment System* (TELPAS) (Texas Education Agency, 2004). The RPTE measures the annual progress that ELLs make in learning to read in English. The RPTE test is made of reading selections and questions

that covered a wide range of reading abilities in English. Students are rated on their level of performance as beginning, intermediate, advanced, or advanced high. All ELLs in Texas take the RPTE test until they reach the advanced high level (TEA, 2006b).

Reading Proficiency Test in English (RPTE) reliability

Reliability demonstrates the consistency of measurement of a test. According to the TEA (2006d), RPTE reliabilities are based on internal consistency measures, specifically the Kuder-Richardson Formula 20, which involves dichotomously scored (multiple-choice) items. The RPTE internal consistency reliabilities range from .93 to .94.

Reading Proficiency Test in English (RPTE) validity

In order to ensure the validity of the RPTE test and its alignment with the state reading curriculum, numerous committees of Texas educators were formed and consulted. In order to assess the validity of RPTE, the test developers, as well as the reviewers, made sure that the test items were aligned with the test objectives. This alignment guarantees that items were measured appropriately. Input for the RPTE test was gathered from recent and former Texas educators as well as representatives from different states. Texas educators were given many opportunities to suggest improvements or eliminate test items on the RPTE (TEA, 2006d).

As stated on the TEA web site criterion validity is “Another way to provide validity evidence is by analyzing the relationship between test performance and performance on some other measure. This other measure could be evaluated concurrently or in the future and then be correlated with the test score. In this way, the

test score was compared with a criterion that is thought to be a reasonable estimate of the same construct the original test purports to measure” (TEA, 2006d, p. 143). In order to assess the construct validity of the RPTE, students’ proficiency performance on the RPTE was related to their performance on TAKS reading/language arts tests. The percentage of students meeting the progress standard on the RPTE and the percentage of students passing the TAKS were very similar. Because both tests measured students’ knowledge of the state reading curriculum, this was one way to ensure to construct validity of the RPTE (TEA, 2006d).

Structured Interviews

My study also included structured interviews with dual language program coordinators or school administrators to gather more information about each two-way dual language program. The structured interviews were conducted before the quantitative data were collected and analyzed because fourth grade scores were not yet available.

Data Collection

I collected the data for my study in two phases. In the first phase of data collection, I gathered qualitative data by contacting each school to obtain general information about the two-way dual language program. At each school, I asked the two-way dual language program coordinator/administrator general questions about the dual language program and what he or she thought was necessary to implement and maintain a successful dual language program.

Interviews were conducted at a location of the participant's choice or questions were sent through e-mail. A semi-structured interview technique was used and a list of questions was prepared ahead of time to guide the interview and to ensure that information on the same topics would be gathered from each participant (Merriam, 1998). The interview questions are shown in the Appendix. The face-to-face interviews were audio taped, and notes were taken during each interview. The interviews focused on the participants' experiences working in two-way dual language programs. Demographic information was collected about each participant's experiences in education, experience as a dual language teacher, and/or experience as a dual language coordinator. Information was gathered on how each program was set up in the school, how students were selected for the program, how long English and Spanish reading were taught in third and fourth grade in each program, and what materials were used to teach English and Spanish reading in third and fourth grade in each program. Each participant was asked why he or she believed his or her dual language program was successful, and what advice he or she would give to other dual language programs.

In the second phase of data collection, I gathered quantitative information, including the standardized test scores for all the students in the sample. Each school was contacted and the TAKS and RPTE test scores for each student in the sample were collected from the end of third grade and the end of the fourth grade. For the TAKS, I examined each student's scale score, which determines whether a student met the passing standard and takes into account differences in test form difficulty (Texas Education Agency, 2006d). For the RPTE, I examined each student's proficiency level-

beginning, intermediate, high, advanced high, and each student's scale score, which can be used to evaluate performance within a proficiency level (Texas Education Agency, 2006d). After all the test scores had been collected, the scores were entered into a *Statistical Package for the Social Sciences 13* (SPSS) database by school and then by either the 50/50 or 90/10 dual language program model.

Variables

The dependent variable in my study was the ELLs' reading achievement in Spanish and English. The independent variable in my study was the type of two-way dual language program, 50/50 or 90/10.

Data Analysis

Quantitative Data

In the quantitative portion of my study, I used a pretest/posttest method. The pretest was the Spanish TAKS and RPTE scores of the students when they were in third grade, and the posttest was the Spanish TAKS and RPTE scores of the students when they were in fourth grade. I examined the mean scores and the pattern of growth the students made from third grade to fourth grade on Spanish TAKS. I also investigated how these students' Spanish TAKS scores compared to State scores of students in the same grade levels. On the RPTE, I examined the percentage of students in beginning, intermediate, high, and advanced high, as well as scale scores and the growth students made from the end of third grade to the end of fourth grade. The dual language programs percentage levels were also compared with State percentage levels.

Statistical analysis of quantitative data

The statistical analysis was conducted using the following steps as outlined from Gall, Gall, and Borg (2003). All statistical analysis was completed using the SPSS 13 computer program. First, descriptive statistics were calculated for each group on each test to see the mean and standard deviations of each group. Then, an Analysis of Covariance (ANCOVA) was run, in which the fourth grade mean of the 90/10 two-way dual language students was compared with the fourth grade mean of the 50/50 two-way dual language students with the third grade scores used as a covariate for each test, Spanish TAKS and RPTE. According to Gall et al. (2003), ANCOVA is used to control for preliminary differences between the groups and to make the two groups equivalent on the pretest. Next, a paired sample t test was run on each group's TAKS and RPTE scores from third and fourth grade to see if there was statistically significant growth from third to fourth grade. According to Glass and Hopkins (1996), a paired sample t test determines whether there is a statistically significant difference between the means of two matched or paired samples. Next, each program's average third grade and fourth grade TAKS scores and RPTE ratings were compared to State averages. I have given one information on the data analysis in Chapter IV in the results section.

Qualitative Data

I examined the qualitative data and information gathered through the structured interviews of the four two-way dual language coordinators/administrators to see what was necessary to implement and maintain these two-way dual language programs.

Analysis of qualitative data

After interviewing each participant and recording the face-to-face interviews, each interview was transcribed. The grounded theory approach was used to analyze the data gathered in the interviews. According to Patten (2005), grounded theory begins by looking at the data and then generating theories based on the data. The data analysis began with open coding in which the researcher read the transcripts and made a concept map of all the recurring ideas and themes. These categories included (a) demographic information about the program, (b) planning, (c) resources, (d) parents, (e) teachers, (f) administrators, and (g) reading instruction. Next, axial coding was completed using the concept map. During axial coding, each interview transcript was read again, to identify important ideas and themes in order to find relationships between the categories. Finally, these ideas were examined to see how they could be used to explain what was needed to implement and maintain these two-way dual language programs.

Summary

In this chapter, I explained the research methodology I used in my study to investigate the affect of two different two-way dual language program models on the reading achievement of ELLs from the end of third grade to the end of fourth grade. Both quantitative and qualitative data collection and data analysis methods were discussed. The quantitative data came from standardized test scores from the Spanish TAKS and the RPTE that were collected and analyzed to measure the ELLs' reading achievement over a year's time. ANCOVA and t-tests were used to compare the differences between ELLs' Spanish and English reading achievement in 50/50 and 90/10

two-way dual language programs. Students' Spanish TAKS and RPTE scores were compared to State averages. SPSS 13 was utilized to complete all the statistical analysis. Qualitative data was collected from structured interviews of the dual language coordinators/administrators in order to gather information on each dual program and its implementation in the school. The interviews were coded and analyzed to investigate what was necessary to implement and maintain these dual language programs. In the next chapter, I presented the findings from my study.

CHAPTER IV

RESULTS

Introduction

My research study compared the reading achievement of ELLs in 50/50 and 90/10 two-way dual language programs from the end of third grade to the end of fourth grade. The sample consisted of 76 ELLs and four dual language program coordinators/administrators from four two-way dual language programs in Texas, two of those being 50/50 programs and two being 90/10 programs. All of the students in the sample had been enrolled in dual language programs since kindergarten or first grade. Both quantitative and qualitative data were collected. Quantitative data included Spanish TAKS scores and English RPTE scores from the end of third grade in 2005 and the end of fourth grade in 2006. Qualitative data consisted of four interviews with the four dual language program coordinators/administrators from each school.

In this chapter, I presented the analyzed data. First, I examined the quantitative results which yielded answers to the first two research questions. Next, I examined the qualitative data gathered from the interviews which related to the third research question.

Quantitative Data

Spanish Texas Assessment of Knowledge and Skills (TAKS)

Research question 1. To what extent do fourth grade ELLs who participated in 50/50 two-way dual language programs for two years differ in their performance on the Spanish *Texas Assessment of Knowledge and Skills (TAKS)* from fourth grade ELLs who participated in 90/10 two-way dual language programs for two years?

The purpose of the first research question was to investigate the two groups of two-way dual language students' (students who participated in 50/50 and those who participated in 90/10 programs) Spanish reading achievement as measured by the Spanish TAKS from the end of third grade in 2005 to the end of fourth grade in 2006. ELLs' Spanish TAKS scale scores were collected and entered into an SPSS database. I examined the descriptive statistics, the results of the ANCOVA, the results of the paired sample t-tests, and then examined how the two groups' mean scale scores and passing rates compared to State averages. The ANCOVA and t-tests were run with a significance level of alpha set at .05.

First, descriptive statistics for each group were calculated. The mean and standard deviations for the third grade Spanish TAKS scale scores from 2005 are presented in Table 2, and the means and standard deviations for the fourth grade Spanish TAKS scale scores from 2006 are presented in Table 3. At the end of third grade, the ELLs in the 50/50 two-way dual language program had a higher mean scale score, 2330, on the Spanish TAKS, but by the end of fourth grade, the ELLs in the 90/10 two-way dual language program had a higher mean scale score, 2274.

Table 2

Third Grade Spanish TAKS

Program	N	Mean	Standard Deviation
50/50	37	2330.27	166.79
90/10	39	2314.38	197.57
Total	76	2322.12	182.19

Table 3

Fourth Grade Spanish TAKS

Program	N	Mean	Standard Deviation
50/50	37	2260.00	198.52
90/10	39	2274.33	180.38
Total	76	2267.36	188.30

In order to control for initial differences in the two programs, an Analysis of Covariance (ANCOVA) was performed on the two groups Spanish TAKS scores with the pretest, third grade Spanish TAKS scores, used as the covariate. In order to use ANCOVA, two assumptions must be met: homogeneity of variance and homogeneity of regression coefficients between the two groups. The assumption of homogeneity of variance was met because the Levene's Test was not found to be significant, $p = .103$. The assumption for homogeneity of regression coefficients was also met because the interaction between the independent variable and the pretest was not significant, $p = .612$.

The results of the Spanish TAKS ANCOVA showed that there was no statistically significant difference between the 50/50 and the 90/10 ELLs' Spanish TAKS scores at the end of fourth grade. The 90/10 dual language students did numerically better on the Spanish TAKS at the end of fourth grade.

Next, a paired sample t-test was conducted on each group's TAKS scores to investigate if there was a statistically significant difference between the third grade and fourth grade TAKS scores of each group. The 90/10 students' TAKS scores were analyzed first to investigate their gain score from third to fourth grade. The 90/10 students had a lower mean score in fourth grade, 2274, than in third grade, 2314. There was a strong positive correlation between the 90/10 students' third and fourth grade TAKS scores of .75. The results of the paired sample t-test for the 90/10 students and gain score are shown in Table 4 and there was no statistically significant difference between their third and fourth grade scores with a p value larger than .05. The gain score for the 90/10 ELLs TAKS scores was 40.051 from third to fourth grade.

Table 4

Paired Sample t-Test and Gain Score for 90/10 ELLs TAKS Scores

Test	Paired Differences					t	df	Sig. (2-tailed)
	Gain Score	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
90/103rd TAKS - 4th TAKS	40.051	133.712	21.411	-3.293	83.396	1.871	38	.069

Next, a paired sample t-test was conducted on the 50/50 students' TAKS scores to investigate if there was a statistically significant difference between the third and fourth grade TAKS scores. For the 50/50 students, the TAKS mean fourth grade score, 2260, was also lower than the third grade mean score, 2330. There was a positive correlation between third and fourth grade TAKS scores of .65. The results of the 50/50 student's TAKS scores paired sample t-test and gain score are shown in Table 5. The results indicated a statistically significant difference between the 50/50 students' third and fourth grade TAKS scores $t(1,36)=2.762, p=.009$, with a modest Cohen's d effect size of .383. The gain score for the 50/50 ELLs' Spanish TAKS scores was 70.270 from third to fourth grade, which was larger than the 90/10 ELLs' Spanish TAKS gain score.

Table 5

Paired Sample t-Test and Gain Score for 50/50 ELLs TAKS Scores

Test	Paired Differences					t	df	Sig. (2-tailed)
	Gain Score	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
50/50 3rd TAKS - 4th TAKS	70.270	154.762	25.443	18.670	121.870	2.762	36	.009

In the next part of the data analysis, I compared both groups' mean scores and passing rates with the State averages on TAKS for third and fourth grade. The mean score results are shown in Figure 1. Both groups had higher mean scores than did their

state peers in third grade in 2005 and in fourth grade in 2006. The passing rate results are shown in Figure 2. Both groups of dual language students had higher passing rates than the State average in third grade in 2005 and fourth grade in 2006.

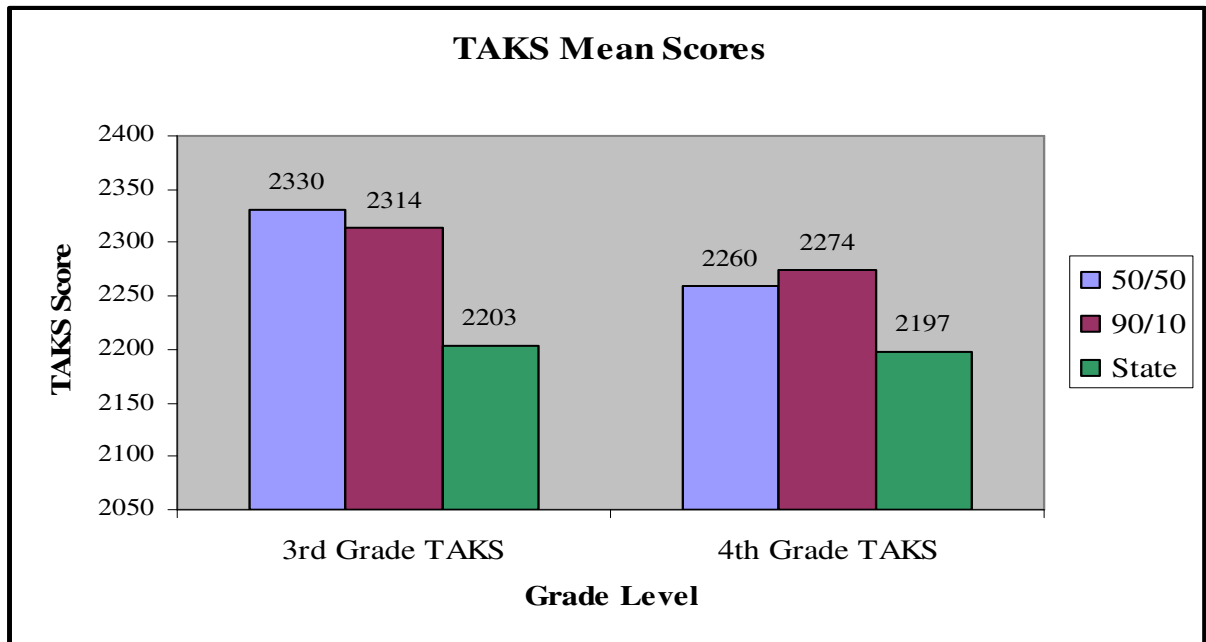


Figure 1. TAKS Mean Scores

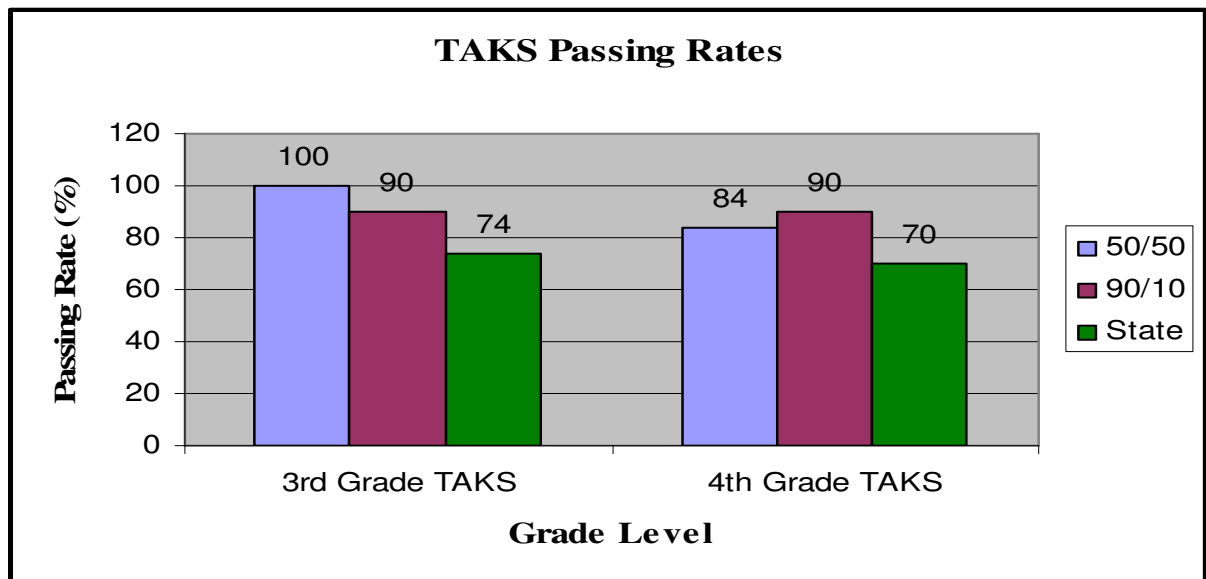


Figure 2. TAKS Passing Rates

Reading Proficiency Test in English (RPTE)

Research question 2. To what extent do fourth grade ELLs who participated in 50/50 two-way dual language programs for two years differ in their performance on the *Reading Proficiency Test in English (RPTE)* from fourth grade ELLs who participated in 90/10 two-way dual language programs for two years?

The purpose of this research question was to measure the English language proficiency of ELLs in dual language programs from the end of third grade to the end of fourth grade. ELLs' RPTE scores were collected from the end of third and the end of fourth grade and their scale scores and ratings were entered into an SPSS database. For the fourth grade RPTE scores, 13 cases were missing in the 90/10 model and one in the 50/50 model; these missing scores are discussed in Chapter V. In the data analysis, I examined the descriptive statistics, the results of the ANCOVA, and the results of the

paired sample t-tests, and then I compared the percentage of ratings with district and State averages.

Tables 6 and 7 present descriptive statistics for each group's RPTE scale scores from the end of third grade in 2005 and fourth grade in 2006, respectively. The 50/50 dual language program had a higher mean RPTE scale score at the end of third grade and the end of fourth grade.

Table 6

Third Grade RPTE Scale Scores

Program	N	Mean	Standard Deviation
50/50	37	751.00	69.12
90/10	39	745.18	63.90
Total	76	748.01	66.11

Table 7

Fourth Grade RPTE Scale Scores

Program	N	Mean	Standard Deviation
50/50	36	797.36	57.99
90/10	26	793.23	63.32
Total	62	795.63	59.81

In order to control for initial differences, an ANCOVA was conducted on the RPTE scale scores using the pretest, third grade RPTE scale scores as the covariate. The first ANCOVA assumption of homogeneity of variance was met because the Levene's Test was not found to be significant, $p = .760$. The assumption for homogeneity of regression coefficient was also met because the interaction between the group and the pretest was not significant, $p = .554$.

The results of the RPTE scale scores ANCOVA showed that there was no statistically significant difference between the 50/50 and the 90/10 RPTE scale scores at the end of fourth grade. The 50/50 dual language students did numerically better on the RPTE scale score at the end of fourth grade.

Next, a paired sample t-test was conducted on each group's RPTE scale scores to investigate if there was a statistically significant difference between their third grade and fourth grade RPTE scale scores and to examine their gain scores. The 90/10 students' RPTE scale scores were analyzed first to investigate the difference between their third and fourth grade RPTE scale scores and to examine their gain score. The 90/10 students had a higher mean score in fourth grade, 793, than in third grade, 747. There was a strong positive correlation between 90/10 students' third and fourth grade RPTE scale scores of .71. The results of the paired sample t-test and the gain score for the 90/10 students are shown in Table 8. There was a statistically significant difference between their third and fourth grade RPTE scale scores $t(1,25) = -4.818$, $p = .000$, with a large Cohen's d effect size of .755. The gain score for the 90/10 ELLs RPTE was -45.731.

Table 8

Paired Sample t-Test and Gain Score for 90/10 ELLs RPTE Scores

Test	Paired Differences					T	df	Sig. (2-tailed)
	Gain Score	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
90/103rd RPTE - 4th RPTE	-45.731	48.398	9.492	-65.279	-26.182	-4.818	25	.000

Next, the 50/50 students' RPTE scale scores were analyzed to investigate the difference between their third and fourth grade RPTE scale scores and to examine their gain score. For the 50/50 students, the fourth grade mean RPTE scale score, 797, was also higher than the third grade mean score, 747. There was a positive correlation between third and fourth grade RPTE scale scores of .68. The results of the 50/50 student's RPTE scale scores paired sample t-test and the gain score are shown in Table 9. The results showed that there was a statistically significant difference between the 50/50 students' third and fourth grade RPTE scale scores $t(1,35)=-50.167$, $p=.000$, with a large Cohen's d effect size of .726. The 50/50 ELLs RPTE gain score was -50.167, which was larger than the 90/10 ELLs RPTE gain score.

Table 9

Paired Sample t-Test and Gain Score for 50/50 ELLs RPTE Scores

Test	Paired Differences					t	df	Sig. (2-tailed)
	Gain Score	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
50/503rd RPTE - 4th RPTE	-50.167	50.289	8.381	-67.182	-33.151	-5.985	35	.000

In the last part of the data analysis, I compared the RPTE ratings of both groups of students to State percentages by grade level. Figure 3 shows the results for third grade RPTE ratings. For the beginning rating, the State had the highest percentage of students, 14%. For the advanced high rating, both groups of two-way dual language students had higher percentages than the State.

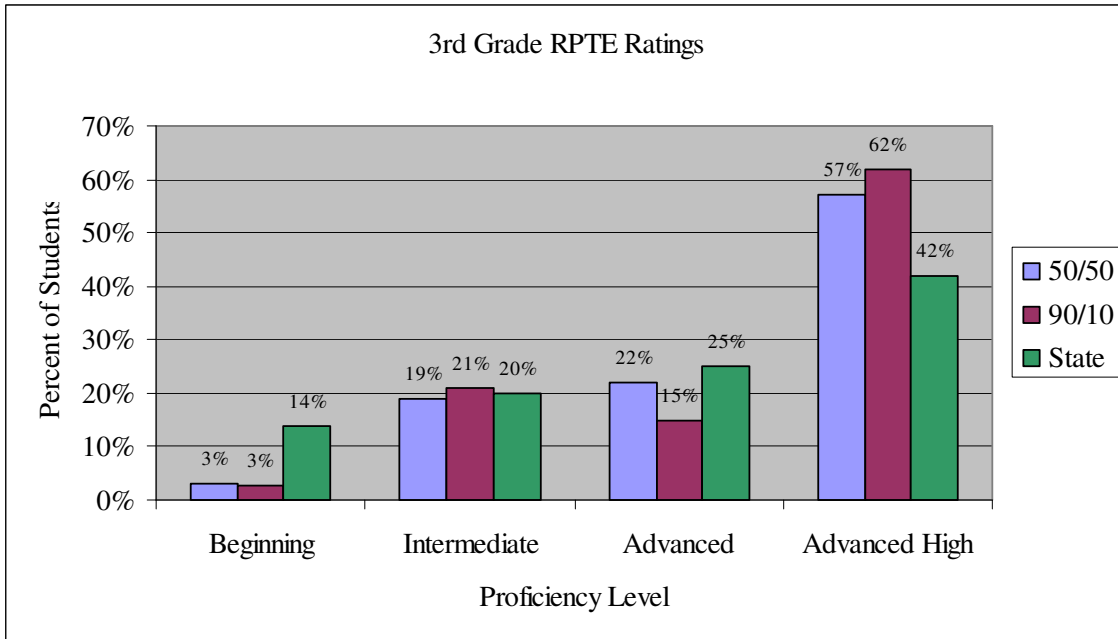


Figure 3. Third Grade RPTE Ratings

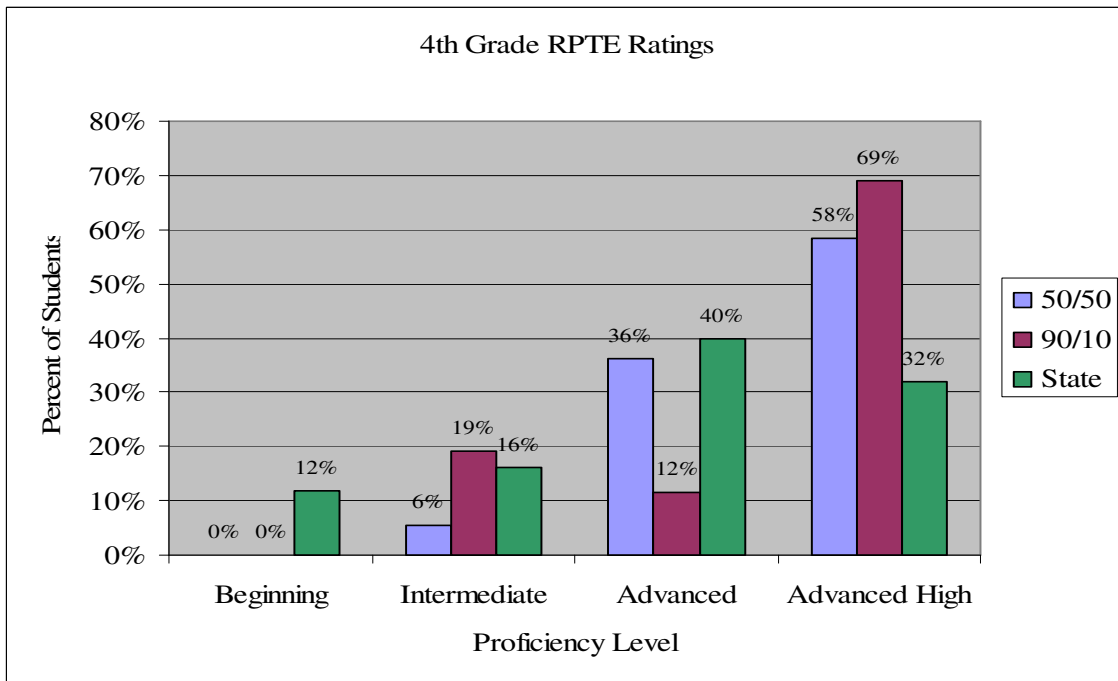


Figure 4. Fourth Grade RPTE Ratings

Figure 4 shows the results for the fourth grade RPTE ratings. Similar to the third grade results, the State had the highest percentage for the beginning rating, and the dual language programs have the highest percentages for the advanced high rating.

Qualitative Data

Interview Data

Research question 3. What was necessary to implement and maintain these two-way dual language programs, two of those being 50/50 schools and two being 90/10 schools, which were successful at increasing the reading of achievement of ELLs who participated in them?

The data analysis began with open coding in which the researcher read the transcripts and made a concept map of all the recurring ideas and themes as shown in Figure 5. Several themes emerged about each program: (a) demographic information, (b) planning, (c) resources, (d) parents, (e) teachers, (f) administrators, and (g) reading instruction. The information on each theme follows Figure 5.

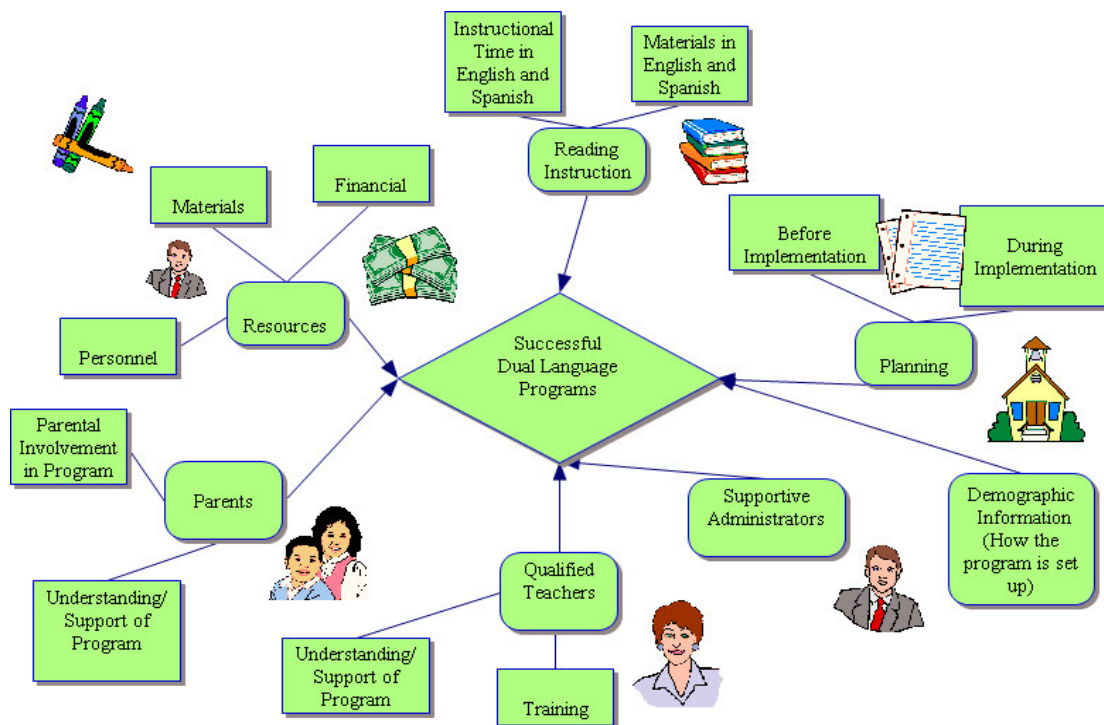


Figure 5. Concept Map of Interview Findings

Demographic information

When I interviewed the four coordinators/administrators, I asked them how long they had worked with the two-way dual language program. In the two 90/10 two-way schools, the Case (A) Smith Elementary coordinator, Bob, had been the dual language coordinator for five years, and the Case (B) Brady Academy coordinator, Jan, had been the dual language coordinator for one year. In the two 50/50 schools, the Case (C) Pecan Elementary coordinator, Mary, had been the dual language coordinator for two years, and the Case (D) Bluebonnet Elementary administrator, Diane, had been the principal for nine years.

The first thing I discussed with all the participants was demographic information about how the dual language programs were set up in their schools. Bob's program, case (A), was a 90/10 dual language magnet program in which parents could choose to put their children. Parents filled out a magnet application and if the student qualified and the parents agreed to the magnet program requirements, their children could be enrolled in the dual language program. In Bob's program, no test was required to enter the program, but students could only enter in kindergarten and first grade. Bob said that children were not accepted in second grade and beyond and explained, "The child will have a lot of struggles, and quite honestly it will be very difficult for them." Bob indicated there was always a waiting list for his program. Every classroom in his school was dual language, except prekindergarten. In Bob's program, the percentage of time taught in each language was divided by time. In fourth grade Bob's program was taught 50% in Spanish and 50% in English.

Jan's dual language program, case (B) was also 90/10 and part of a magnet school. After attending an informational meeting on the program, parents filled out a magnet application and applied for the dual language program. The students in this program were selected by lottery and there was a waiting list for the program. Unlike Bob's programs, students could only enter this program in kindergarten. This dual language program went from kindergarten through fourth grade. In Jan's school, there was one dual language classroom at each grade level and eight to nine non-dual language classrooms. Percentage of time taught in each language was divided by minutes.

In Mary's 50/50 dual language program, case (C), children also applied to be in dual language, but they were given an oral language test as part of the application process. They had to have a certain level of language ability in their native language in order to be accepted into the program. Occasionally, there was a waiting list for her program. The program included kindergarten through fifth grade. There were two dual language classrooms and six to seven non-dual language classrooms at each grade level. Fifth grade had only one dual language classroom because of student attrition. Like the programs administered by Bob and Jan, the percentage of time taught in each language was divided by minutes.

Diane's dual language program, case (D), was a 50/50 program where students were selected for the program after taking an oral language proficiency test. In order to qualify for the dual language program, a student had to be either a fluent Spanish speaker or a fluent English speaker. There was a waiting list for this program. The dual language program went from kindergarten through fifth grade. There were two dual language classrooms and two to three non-dual language classrooms at each grade level. Similar to the programs administered by Bob and Mary, the percentage of time taught in each language was divided by minutes.

Planning

All four participants discussed the importance of planning both before and during the implementation of dual language programs. They talked about taking the time to learn as much as possible about dual language programs in order to make informed decisions during the implementation process. Bob said he would advise other dual

language program coordinators to “plan carefully.” He said it was especially important to plan how teachers are trained and how to get parents and administrators “on board” with the program. Jan also said to plan carefully and “do your homework;” she even suggested visiting other successful dual language program schools. Calderón and Minaya-Rowe (2003) discussed the importance of planning for training of teachers as one of the conditions for successful dual language programs. Both Bob and Jan emphasized the importance of planning how to promote not only the dual language program but also the school as a whole.

Mary included planning in her advice for other dual language program coordinators. She believed that planning for the program should include: “knowing whether or not the community would support the program, planning visits to other dual language schools for teachers and administrators, planning for the future of the program and who would oversee it and recruit students and staff for the program, and planning and designing a program that suited the needs of the campus.” Mary and Diane both indicated it was important to be aware of what was going on and what needed to be changed in the program. Diane said that her dual language team met frequently to discuss students’ progress. She said they made changes based on “teacher input, test data, benchmark testing, and TAKS.” Calderón and Minaya Rowe (2003) agreed that part of a successful dual language program was planning for evaluation and refinement. Mary also mentioned that it was important to provide time for the teachers to meet on a regular basis with each other and with administrators to ensure the consistency and continuity of the program. Diane said teacher planning was an essential component of

success because “the both dual language teachers at each grade level had to do the exact same lesson in math, science, and social studies every day.”

All four dual language coordinators/administrators agreed that planning was a very important part of having a successful dual language program. Planning was needed before and during the implementation process so that changes could be made to meet the needs of the students and the school community.

Resources

The interview participants stressed that resources were another important factor to a successful dual language program, including personnel, money, and materials. Bob talked about his role as coordinator and why having a coordinator helped the program stay on track and be successful. Because Bob was not in the classroom, he had time to assist teachers and advise them “on a moment’s notice.” He also had time to support the parents and recruit students for the program. Bob was able to oversee dual language curriculum implementation and classroom organization. He was able to make sure teachers had the materials they needed to be successful dual language teachers. He mentioned that it was important to know where the money would come from to fund the program. Dual language classrooms need more materials than regular classrooms, and schools with dual language programs need to have money to buy these materials. Bob worked closely with his principal to find the funds and make the resources available to the teachers. Freeman et al. (2005) considered administrators who are willing to find the resources for their dual language programs essential to the program’s success.

Jan mentioned the importance of resources such as supportive administrators and training materials in her dual language program. Like Bob, she saw herself as a resource to the teachers because she was there to provide them with answers when they had questions. She said, “Any time a teacher may feel that she is in the gray area, not quite confident or sure, if she can’t come to her administrator and get some answers she is going to put the whole class at risk.” Jan and Diane both mentioned the importance of having resources for parent training and support. Jan’s dual language program was able to buy videos about successful dual language programs and share them with parents during fall and spring training, which helped the parents feel more comfortable about putting their children in the program and keeping them there. Diane’s dual language program provided special training for the parents in order for them to be able to help their children at home with the second language.

When Mary talked about the importance of resources for a successful dual language program she said, “The teachers and parents need to see that administrators are willing to provide personnel and resources to make the program successful. If they do not feel supported, then the program will be not productive.” She also gave advice to other dual language coordinators about providing Spanish resources to teachers, especially to those teaching TAKS grade levels. Freeman et al. (2005) said that providing materials in both languages for all the content areas was an essential part of successful dual language programs.

Parents

Parental support and involvement was another important factor in successful dual language programs mentioned by the coordinators/administrators. In the dual language programs administered by Bob and Mary, parental involvement was a requirement for parents who wanted their children to be part of the program. Parental involvement requirements allowed parents to see and know what was going on in the program and to be a part of the program. In Bob's program, parents were required to be involved in at least four school functions each year such as fundraisers, school activities, or meetings throughout the year. He said, "They do pretty well, and they do attend."

In Mary's program, parents had to attend two meetings prior to their child's acceptance into the dual language program. After that, parents were required to meet with their child's teacher at least once a semester to discuss the child's progress. However, Mary indicated that the parental involvement requirement would be changing the next year and that parents would be expected to complete four hours of parental involvement with their child every month. This parental involvement will include activities such as trips to the library, volunteering at the school, use of the second language at home, and other activities that will be marked on a monthly calendar. There will be no prizes or consequences for the parental involvement; it is just a way to work with the parents to help their children and help the program to be successful. Teachers in Mary's program also sent home weekly newsletters about what was going on in the classrooms and ways parents could help their children. These newsletters were another way of keeping parents informed and involved. Mary said that dedicated parents had

helped to make the program the success it was. She said, “We had strong parent advocates who organized their own dual language parent group.” Freeman et al. (2005) said that collaboration between the school and the parents was very important for successful dual language programs.

Although parental involvement was not a requirement in Jan’s and Diane’s dual language programs, both mentioned the importance of keeping parents informed and involved. Jan talked about parents’ meetings held each fall and spring. She said that in the fall parent meeting, highlights of the dual language program were shared and any concerns the parents might have were addressed. She said these meetings were especially important for creating “buy-in” from the parents because the parents needed to understand that their children were going to be immersed in Spanish, especially in kindergarten. Diane also talked about having special training for the dual language parents in order for them to be able to help their children at home with the second language. Both Jan and Diane mentioned that dual language parents were like the other parents in their schools and they came to parent nights and parent conferences for their children.

Lindholm-Leary (2000) described parental involvement and collaboration in dual language programs as essential to the success of such programs, and all four of these dual language coordinators/administrators recognized that parental involvement in some form was necessary for a successful dual language program. Some made it a requirement while others just encouraged it, but these schools’ teachers and administrators were

always available to answer questions from dual language parents and keep them informed.

Teachers

All four participants talked about the importance of having qualified teachers in a successful dual language program. Training for qualified teachers included talking to other dual language program administrators and staff, book studies on dual language, attending bilingual education conferences, visiting schools with dual language programs, and new dual language teacher training in order to be effective dual language teachers. Bob, the dual language coordinator/administrator for case (A), said that when he looked for teachers for his program he wanted them to have “buy-in” to the dual language program. He said he liked to hire new teachers because “the brand new teachers work out great, because they do not bring old experiences from the bilingual classrooms, and I really enjoy working with them.” He said it sometimes took experienced teachers longer to understand the program and fully buy into it. He also said that training allows teachers to “come around and work better with their students.” He provided training for his teachers on dual language as well as training on working with second language learners. Montague (1997) stated that teacher training in bilingual education was an integral part of having a successful dual language program.

Jan, the dual language coordinator/administrator for case (B), said she thought that dual language teachers should be experienced, bilingual teachers. She believed that her dual language teachers should be “very patient and very pleasant because children that are learning in a second language can get frustrated very easily.” She believed it

took a special person to be a dual language teacher. Jan also mentioned that her dual language program was successful because “the teachers were committed and the teachers believed in it.”

The dual language coordinator at case (C), Mary, also understood the value of having qualified teachers and advised other dual language coordinators to provide teachers with the opportunity to visit other dual language programs and to attend training on dual language methodologies. Teachers in Mary’s program were encouraged to attend state and national bilingual education conferences. Calderón and Minaya-Rowe (2003) said that professional development for teachers was another essential element of successful dual language programs.

When Diane, the dual language administrator at case (D), talked about her teachers, she said she told her dual language teachers they teach the TEKS just like other bilingual and English teachers. However, she also talked about how they had to be a team and plan together because they had to teach the exact same lesson every day in math, science, and social studies. Diane said this took a team effort and people who were willing to work together to stay on the same page.

All four coordinators agreed with Jan that it took a special person to be a dual language teacher. The teachers needed to have “buy-in” to the program in order to make it successful and quality teachers made a quality program.

Administrators

The next idea that emerged among the participants about successful dual language programs was having a supportive administrator. Administrators provided

resources in the form of money, materials, and personnel, as discussed earlier. Bob said that having a supportive administrator made his job easier, because they worked together to make the program successful. His administrator helped him find funding for materials for the teachers, provide professional development opportunities for teachers, and was an advocate for the program with the school community. Bob listed a strong, supportive administrator as one of his key ingredients to a successful dual language program.

Jan said that as an administrator and coordinator she was an important resource for her dual language teachers and parents. She was there to help them when they had doubts or concerns about the program. She also said it was important to have an administrative plan in place when beginning a dual language program so that if problems came about, they could be addressed as a team. She said it was important that all program administrators be on the same page, especially if working with a magnet office.

Mary agreed with Bob that a supportive administrator was especially helpful in finding funds for the program and providing teachers with professional development opportunities. Mary said, "Administrative support during the five year implementation of the program was very important to its success." She talked about how the administrator provided time for teachers to meet, plan, and to discuss the program, and stated that this planning time was important to the program's success.

Diane was the administrator for her dual language program. She talked about being a “team” and working together with teachers to ensure students’ success in the dual language program. Diane mentioned that it was important to be flexible and be willing to make changes, and to have a team in place to look at teacher input and test scores to see what needed to be done. In her dual language program, she was the team leader that made sure things were done.

All four of these two-way dual language coordinators/administrators agreed with Montague (1997) that having a supportive administrator in a dual language program that was willing to work to solve problems and provide resources was extremely valuable.

Reading instruction

The last idea discussed with the four dual language coordinators/administrators was the English and Spanish reading instruction in third and fourth grade two-way dual language classrooms at their schools. It was important to find out how long reading was taught in each language at each grade level and what materials the teachers used. The information on reading instruction is shown in Table 10, followed by a description of each school’s reading instruction.

Table 10

Reading Instruction

	Case (A) Smith Elementary 90/10	Case (B) Brady Academy 90/10	Case (C) Pecan Elementary 50/50	Case (D) Bluebonnet Elementary 50/50
Number of Years in Existence	6 years	9 years	5 years	6 years
Criteria for Participation	Magnet Application/Lottery	Magnet Application/Lottery	Student/Parent Interview Native Language Proficiency (LAS)	Oral Language Proficiency Test
Accountability Rating (2006)	Recognized	Recognized	Academically Acceptable	Academically Acceptable
Language of Initial Reading Instruction	Spanish	Spanish	Spanish	Spanish
3 rd Grade Spanish Instruction	90 Minutes Reading <i>Lectura</i>	90 Minutes Reading Harcourt	90 Minutes Reading <i>Lectura</i>	90 Minutes Reading Harcourt
3 rd Grade English Instruction	90 Minutes: ESL, Science, Social Studies	60 Minutes Reading Harcourt	90 Minutes Reading McGraw-Hill	60 Minutes Reading Harcourt and <i>Avenues</i>
4 th Grade Spanish Instruction	50% of the Time Reading and Math	2-3 Days Reading and Social Studies	120 Minutes Reading McGraw-Hill	90 Minutes Reading Harcourt and <i>Avenues</i>
4 th Grade English Instruction	50% of the Time Science and Social Studies	2-3 Days Math, Science, and Social Studies	120 Minutes Reading McGraw-Hill	60 Minutes Reading Harcourt and <i>Avenues</i>

In Bob's school, Case (A) Smith Elementary, students received 90 minutes of English and 90 minutes of Spanish reading daily in third grade. In this program, the third grade dual language teacher taught English reading through ESL, science, and social studies. The ESL textbook was *Avenues* by Hampton Brown (2004), the science textbook was McGraw-Hill *Science* (Moyer et al., 2000), and the social studies textbook was Macmillan/McGraw-Hill *Our Communities* (Banks et al., 2003b). Third grade Spanish reading was taught using Scott Foresman's *Lectura* (Blanco et al., 2000) reading series. In fourth grade at Bob's school, instruction was 50% in English and 50% in Spanish: reading and math were taught in Spanish, and science and social studies were taught in English. Fourth grade Spanish reading was taught with Scott Foresman's *Lectura* (Blanco et al., 2001) English science was taught with McGraw-Hill *Science* (Moyer et al., 2000), and English social studies was with Macmillan/McGraw-Hill *Texas, Our Texas* (Banks et al., 2003a).

At Jan's school, Case (B) Brady Academy, third grade dual language students received 60 minutes of English reading instruction and 90 minutes of Spanish reading instruction daily. Both English and Spanish reading were taught using the Harcourt (2000) reading textbooks and other trade books. Fourth grade dual language students at Jan's school were taught ESL, science, and math in English and reading and social studies in Spanish. Students were given all English instruction for 2-3 days and then they were given all Spanish instruction for 2-3 days. ESL was taught using trade books and science was taught using the Harcourt *Science* (Slavick et al., 2000). Spanish reading

was taught with chapter books and social studies were taught using the Scott Foresman *Texas* (Berson, 2003).

Similar to Bob's school, third grade dual language students at Mary's school, Case (C) Pecan Elementary, received 90 minutes of English and 90 minutes of Spanish reading daily. English reading was taught with the McGraw-Hill *Reading* (Flood, Hasbrouck, et al., 2001). Spanish reading was taught using Scott Foresman's *Lectura* (Blanco et al., 2000). Fourth grade dual language students received 120 minutes of English reading instruction daily for one week and then they received 120 minutes of Spanish reading instruction daily for one week. English reading was taught with McGraw-Hill *Reading* (Flood, Medearis, et al., 2001). Spanish reading was taught with McGraw-Hill *Lectura* (Acosta et al., 2001).

Third and fourth grade dual language students at Diane's school, Case (D) Bluebonnet Elementary, received 90 minutes of Spanish reading instruction daily and 60 minutes of English reading instruction daily. Spanish reading was taught using Harcourt *Vamos de Fiesta* (Ada, Campoy, & Solis, 2000). English reading was taught with Harcourt *Collections* (Farr et al., 2000) and *Avenues* by Hampton Brown (2004).

Summary of the interviews

The interview data indicated that several elements were necessary to implement and maintain a successful dual language program. The elements discussed with the four coordinators/administrators included planning, resources, parental support, qualified teachers, supportive administrators, and reading instruction.

Summary

In this chapter, I presented the quantitative and qualitative results of my study, comparing the Spanish and English reading achievement of ELLs in 50/50 and 90/10 two-way dual language programs. On the Spanish TAKS, the ANCOVA showed no statistically significant difference between the two groups at the end of fourth grade, but the 90/10 students did numerically better with an effect size (Cohen's d) of .073. The Spanish TAKS paired sample t -tests showed that 90/10 students did not make statistically significant progress from third grade to fourth grade, but 50/50 students did. When compared to State averages on the Spanish TAKS, both groups outperformed their State peers in third and fourth grade. On the RPTE, the ANCOVA showed no statistically significant difference between the two groups at the end of fourth grade but the 50/50 students did numerically better with a Cohen's d effect size of .067. The paired sample t -tests showed that both groups made significant progress on the RPTE from third grade to fourth grade. Both the 50/50 and 90/10 two-way dual language programs had more students in the advanced high rating on RPTE in third and fourth grade as compared to their State peers. The results of interviews showed that several elements were necessary to implement and maintain a successful dual language program: planning, resources, parental support, qualified teachers, supportive administrators, and reading instruction.

In chapter V, I presented the discussion of the results and conclusions of my study.

CHAPTER V

DISCUSSION AND CONCLUSIONS

In this final chapter, I reviewed the purpose of my study. Next, I discussed and summarized the results, and then I presented the conclusions. In the last sections, I discussed the limitations of the study and gave recommendations for using the findings in the education of ELLs. I also made suggestions for future research.

Purpose of the Study

Because minorities are the fastest growing demographic group in America (US Census Bureau News, 2006), schools need to have programs in place to meet the needs of these students, especially English Language Learners (ELLs). Cummins (2000) argued that bilingual education, if implemented correctly, could help to meet the needs of these students. Dual language programs are a form of bilingual education that is increasing in number; as of July 2007, there were 339 dual language programs in 29 states (Center for Applied Linguistics, 2007). My study compared the success of 50/50 and 90/10 two-way dual language programs at increasing the reading achievement of ELLs from the end of third grade to the end of fourth grade.

Previous researchers on dual language programs found them to be effective at increasing the academic achievement of ELLs (Alanís, 2000; Lindholm-Leary, 2001; Thomas & Collier, 2002, 2003, 2004). Thomas and Collier (2004) studied 50/50 and 90/10 dual language programs in Texas, Maine, and California and found that ELLs in these dual language programs were reaching higher levels of academic achievement than ELLs in other bilingual programs. Alanís (2000) examined the English achievement of

ELLs in 50/50 two-way dual language programs in Texas, and she found that ELLs in dual language programs made more progress in English than ELLs in English only programs by the end of fifth grade. Lindholm-Leary (2001) investigated the academic achievement of ELLs in four 90/10 dual language programs, and she found that by the end of fifth grade these ELLs were achieving as highly or higher than State averages on tests such as the Comprehensive Test of Basic Skills (CTBS) (CTB/McGraw-Hill, 1981) and the Metropolitan Achievement Test (MAT) (Harcourt, 1992).

Previous dual language researchers have shown that ELLs in dual language programs reached the same or higher levels of academic achievement as compared to ELLs in other instructional programs. Although some previous researchers have focused on literacy and biliteracy achievement of ELLs in dual language programs, there is a lack of researchers that compared the reading achievement of ELLs in different models of two-way dual language programs. Thomas and Collier (2004) believed that future researchers should focus on evaluating dual language program models and finding out which specific models were most effective at increasing the academic achievement of ELLs. My study provided information on how 50/50 and 90/10 two-way dual language programs affected the Spanish and English reading achievement of ELLs from the end of third grade through the end of fourth grade.

Summary and Discussion of the Results

In this section, I presented and discussed the results of my study. I presented and discussed the results of research question one in the section called Spanish reading achievement. Next, I presented and discussed the results of research question two in the

section called English reading achievement. Finally, I presented and discussed the results from the structured interviews and research question three in the section called interview findings.

Spanish Reading Achievement

In this section, I presented and discussed the results of research question one. The purpose of research question one was to investigate the difference between ELLs who participated in 50/50 and 90/10 two-way dual language programs for two years on the Spanish *Texas Assessment of Knowledge and Skills* (TAKS). ELLs who participated in the 90/10 two-way dual language programs had received more instruction in Spanish than ELLs who participated in the 50/50 two-way dual language programs. On the third grade Spanish TAKS in 2005, the 50/50 two-way dual language students had a numerically higher mean score even though they were receiving less Spanish instruction. One explanation for the 50/50 students' numerically higher mean score in third grade was that these students had to take an oral language proficiency test before entering the two-way dual language program. However, by fourth grade the 90/10 two-way dual language students had a numerically higher mean scale score on Spanish TAKS (see Tables 2 and 3, Chapter IV), which could have been a result of receiving more Spanish instruction. The ANCOVA showed that there was no statistically significant difference between the two groups by the end of fourth grade. The paired sample t-tests showed that 50/50 students made significant progress and had significant gain scores on the Spanish TAKS from third grade to fourth grade (see Table 5, Chapter IV), but the 90/10 students did not (see Table 4, Chapter IV). The 90/10 students actually had a lower mean

score on the fourth grade Spanish TAKS than on the third grade Spanish TAKS. The ELLs who participated in 50/50 dual language programs had a greater gain score on the Spanish TAKS than the ELLs who participated in the 90/10 dual language programs. Therefore, the ELLs who participated in the 50/50 programs made more progress on the Spanish TAKS than the ELLs who participated in the 90/10 programs from the end of third grade to the end of fourth grade. When compared to the State average mean scores on TAKS, both groups outperformed their state peers (see Figure 2, Chapter IV). When compared to the State passing rates, both groups had higher passing rates than their State peers in both third grade and fourth grade (see Figure 3, Chapter IV). The 50/50 students had the highest passing rate in third grade, but 90/10 students had the highest passing rate in fourth grade.

Both groups performed above the State averages on mean score and passing rates in both third and fourth grade. The results of my study were similar to previous research on ELLs' Spanish literacy achievement in dual language programs. De Jong (2002) found that ELLs in dual language programs reached high levels of achievement in Spanish literacy by the end of fifth grade on the norm referenced *Aprenda* (Harcourt, 1996). Similar to the students in my study, the ELLs in de Jong's study performed above national averages.

In my research study, by the end of fourth grade the 90/10 students had a numerically higher mean scale score and passing rate on the Spanish TAKS than the 50/50 students. According to previous research, one possible reason the 90/10 students' Spanish reading achievement was numerically higher than the 50/50 students by the end

of fourth grade was because they had received more Spanish instruction than the 50/50 students had. Both Lopez and Tashakkori (2006) and Reese et al. (2006) found that ELLs who received more instruction in Spanish attained higher levels of achievement in Spanish. Lopez and Tashakkori (2006) compared dual language students to transitional bilingual education students and found that the dual language students did better in Spanish. Reese et al. (2006) investigated the Spanish literacy achievement of ELLs in three schools. Reading achievement results across the three schools and their different programs were consistent: students in programs that focused on Spanish scored higher in Spanish, while students in programs that focused on English scored higher in English. Transitional bilingual program students and the dual language program students scored higher in Spanish than did the English immersion students.

Fourth grade 90/10 two-way dual language students had a lower mean score on the fourth grade Spanish TAKS than on the third grade Spanish TAKS. One possible explanation for the lower score in fourth grade was that in both of the 90/10 two-way dual language programs studied, the fourth grade instruction was 50/50 and students began to receive 50% of their instruction in English.

In my study, ELLs in both the 50/50 and the 90/10 two-way dual language programs attained high levels of Spanish reading achievement by the end of fourth grade. In the book *Designing and Implementing Two-way Bilingual Programs*, Calderón and Minaya-Rowe (2003) stated that one critical feature of successful dual language programs was that students reached high levels of academic achievement from year to

year, and both these groups of ELLs reached a high level of academic achievement in Spanish reading.

English Reading Achievement

In this section, I presented and discussed the answers to research question two. The purpose of research question two was to investigate the difference between ELLs who participated in 50/50 two-way dual language programs and ELLs who participated in 90/10 two-way dual language programs in English reading as measured by the RPTE from the end of third grade to the end of fourth grade. When collecting the RPTE scores from each school, one case was missing from the 50/50 group and thirteen cases were missing from the 90/10 group. The 50/50 student whose score was missing was absent on the day of the test. During the interview with the dual language coordinator from the school where the thirteen 90/10 students' scores were missing, he explained that these students were probably exited from being LEP. He was not able to find any paperwork stating that they were exited; however, that was his best guess as to why they were not given the RPTE in fourth grade but they still took the Spanish TAKS.

On both the third and fourth grade RPTE, the 50/50 students had a numerically higher mean scale score (see Tables 6 and 7, Chapter IV). One possible reason for their higher mean scale score is that these ELLs had received more English instruction than the ELLs in the 90/10 programs and previous researchers (Reese et al., 2006) found that ELLs who received more instruction in English achieved higher in English. The ANCOVA results showed that there was no statistically significant difference between the two groups at the end of fourth grade. The paired sample t-test showed that both

groups made statistically significant progress and had significant gain scores on the RPTE from the end of third grade to the end of fourth grade (see Tables 8 and 9, Chapter IV). The 50/50 dual language program's ELLs' gain score on the RPTE was greater than the 90/10 dual language program's ELLs' gain score on the RPTE, which means the 50/50 ELLs made greater progress on the RPTE from third grade to fourth grade. One possible explanation for the greater progress of the ELLs who participated in the 50/50 programs on the RPTE is that they had received more instruction in English. When compared to State averages on RPTE ratings, both groups had higher percentages of students in the advanced high category than the State (see Figures 4 and 5, Chapter IV). The 90/10 programs had a slightly higher percentage of advanced high students in both third grade and fourth grade than the 50/50 programs.

In my study, ELLs in both the 50/50 and the 90/10 two-way dual language programs attained high levels of academic achievement in English reading as measured by the RPTE at the end of third grade and the end of fourth grade. My findings were similar to previous researchers' findings on the English academic achievement of ELLs. Collier (1992) found that language minority students with higher levels of academic and literacy skills in their native language reached higher levels of literacy and academic skills in English. August and Shanahan (2006) found that bilingual instruction did not have a negative effect on ELLs' English achievement. My findings were also similar to the findings of previous research on ELLs' English language literacy achievement in both 50/50 and 90/10 two-way dual language programs. Alanís (2000) investigated fifth grade 50/50 dual language students' English literacy achievement. In her study, she

found that two-way students scored equal or better on the English reading TAAS than students in all-English classrooms did, and they made gains in English reading from third to fifth grade. Christian and Genesee (2004) examined the English reading achievement of ELLs in two different 90/10 two-way dual language programs and compared their achievement to the district and State averages. Both groups of 90/10 two-way dual language students outperformed their district and State peers on English reading achievement-tests in fifth grade.

Although my study found no statistically significant difference between the two groups' English reading achievement by the end of fourth grade on the RPTE, the 50/50 students had a numerically higher mean scale score in both third and fourth grade. Similar to the results on the Spanish TAKS, these finding could be attributed to the amount of time that each group received English instruction. In their research, Reese et al. (2006) found that students in programs that spent more time on English instruction reached higher levels of English achievement. Students in the English immersion and dual language programs outperformed students in the developmental programs, because they had received more English instruction than the students did in the developmental programs.

ELLs in both the 50/50 and the 90/10 two-way dual language programs in my study attained high levels of English reading achievement by the end of fourth grade. Calderón and Minaya-Rowe (2003) stated that high academic achievement was a critical feature of successful dual language programs.

Interview Findings

Next, I presented and discussed the findings from the structured interviews. The purpose of the structured interviews was to get an inside perspective on each dual language program and gather information about how each program was set up in the school, how students were selected for the program, and what each coordinator/administrator thought it took to have a successful dual language program. Several important characteristics of the dual language programs emerged from the interview data. The two 90/10 programs were in magnet schools, and students applied to be part of the dual language program. For the two 50/50 programs, students had to take a language proficiency test and be rated a fluent speaker in their native language in order to qualify for the dual language program. All students in my study entered the dual language programs in kindergarten or first grade. All ELLs in these four two-way dual language programs were initially taught to read in Spanish. Instructional time in third grade in these dual language programs was divided by minutes and not by content areas. In fourth grade, Smith Elementary and Brady Academy divided instruction by content area, as mentioned in the previous chapter.

The interview findings also indicated that the four dual language program coordinator/administrators believed that several elements were necessary to implement and maintain a successful dual language program. These elements included planning, resources, parental support, qualified teachers, and supportive administrators.

The participants mentioned that planning should include planning for training of all stakeholders as well as planning for making changes in the program as needed. In

their book on dual language programs, Calderón and Minaya-Rowe (2003) also emphasized the importance of planning as one of the conditions for a successful dual language program.

The participants mentioned resources as an essential part of having a successful dual language program. The resources they mentioned included money for teacher and parent training, curriculum materials in both Spanish and English, and an administrator to answer questions about the program. Freeman et al. (2005) agreed with the participants that resources such as money and materials are an essential part of successful dual language programs.

All four participants also recognized that parental support and involvement was necessary for a successful dual language program. Two of the dual language programs made it a requirement while the other two just encouraged it, but all four schools were there to answer any questions from dual language parents and keep them informed. Freeman et al. (2005) and Lindholm-Leary (2000) stated that collaboration between the school and the parents was essential for successful dual language programs.

The participants also mentioned how important it was to have qualified teachers with specific training on dual language programs. They believed dual language teachers should be given the opportunity to visit other successful dual language schools, attend educational conferences and training on dual language education, and be given time to meet and plan with administrators for their dual language programs. Like Calderón and Minaya-Rowe (2003), Montague (1997), and Howard and Christian (2002) these

coordinators/administrators believed that professional development for teachers was necessary for successful dual language programs.

Another idea that the participants talked about was having a supportive administrator to provide resources in the form of money, materials, and personnel. Administrators helped to make sure that these dual language programs were implemented and maintained successfully. The interview findings supported the previous research done by Calderón and Minaya-Rowe (2003); Freeman et al. (2005); Lindholm-Leary (2000); and Montague (1997) on what is necessary to implement and maintain a successful dual language program.

Conclusions

From the quantitative results of my study, I determined several important things. Although there was not a statistically significant difference in the Spanish or English reading achievement of the ELLs in my study, by the end of fourth grade, in Spanish the 90/10 students did better numerically on mean scale score and passing rate on the Spanish TAKS. In English, the 50/50 students had a numerically higher mean scale score on the RPTE in both third and fourth grade. These findings were similar to previous researchers' (Lopez & Tashakkori, 2006; Reese et al., 2006) findings on dual language programs in that students who received more instruction in one language achieved higher levels of achievement in that language. Conclusively from my study, after two years in two-way dual language programs ELLs who received more instruction in Spanish would achieve higher in Spanish and ELLs who received more instruction in English would achieve higher in English.

On the RPTE, the ELLs who participated in the 90/10 programs had a higher percentage of students in the advanced high rating in both third and fourth grade even though these ELLs were receiving less instruction in English. From my study, I determined that the extra Spanish instruction the ELLs received in the 90/10 two-way dual language programs did not have a negative effect on their English reading achievement.

Both the 50/50 and the 90/10 dual language students in my study outperformed State averages on the Spanish TAKS and the English RPTE at the end of third grade and the end of fourth grade. Conclusively from the results of my study, ELLs who participated in two-way dual language programs for two years reached high levels of reading achievement in both English and Spanish. Based on the results from my research study, administrators interested in starting a two-way dual language program at their campus could see that both 50/50 and 90/10 two-way dual language programs could increase the Spanish and English reading achievement of ELLs.

I determined several conclusions based on the qualitative finding of my study. In the interview data, the four dual language coordinators/administrators discussed what it took to implement and maintain these two-way dual language programs. The critical elements they mentioned were planning, resources, parental support, qualified teachers, and supportive administrators. These elements were similar to elements mentioned in previous research on how to implement and maintain successful dual language programs (Montague, 1997; Lindholm-Leary, 2000). Administrators who want to implement and

maintain successful two-way dual language programs need to plan very carefully and make sure they have all the resources mentioned above.

Based on both the quantitative and qualitative findings from my study, I determined that ELLs who participated in carefully implemented and maintained two-way dual language programs for two years reached high levels of reading achievement in Spanish and English regardless of which program they participated in, 50/50 or 90/10.

Summarily, I conclude

1. ELLs who participated for two years in 90/10 two-way dual language programs where they received more Spanish instruction achieved numerically higher scale scores on the Spanish reading TAKS than ELLs who participated for two years in 50/50 two-way dual language programs.

2. ELLs who participated for two years in 50/50 two-way dual language programs were able to make significant gain scores on the Spanish reading TAKS from the end of third grade to the end of fourth grade.

3. ELLs who participated for two years in 90/10 two-way dual language programs were outperforming the State averages for mean scale score and passing rate on the Spanish reading TAKS at the end of third and the end of fourth grade.

4. ELLs who participated for two years in 50/50 two-way dual language programs were outperforming the State averages for mean scale score and passing rate on the Spanish reading TAKS at the end of third and the end of fourth grade.

5. ELLs who participated for two years in 50/50 two-way dual language programs where they received more English instruction achieved numerically higher

scale scores on the RPTE than ELLs who participated for two years in 90/10 two-way dual language programs.

6. ELLs who participated for two years in 50/50 two-way dual language programs made statistically significant progress and had significant gain scores on the RPTE from the end of third grade to the end of fourth grade.

7. ELLs who participated for two years in 90/10 two-way dual language programs made statistically significant progress and had significant gain scores on the RPTE from the end of third grade to the end of fourth grade.

8. ELLs who participated for two years in 90/10 two-way dual language programs had higher percentages of students in the advanced high rating than the State on the RPTE at the end of third and fourth grade.

9. ELLs who participated for two years in 50/50 two-way dual language programs had higher percentages of students in the advanced high rating than the State on the RPTE at the end of third and fourth grade.

10. ELLs who participated for two years in 50/50 and 90/10 two-way dual language programs reached high levels of reading achievement in Spanish and English.

11. Administrators who want to implement and maintain two-way dual language programs in their school need to focus on planning, resources, parental support, qualified teachers, and supportive administrators.

Limitations

The quantitative portion of my case study investigated 76 ELLs from four two-way dual language programs; therefore, the results of my study will not be generalizable

to all ELLs in all dual language programs. There were 39 ELLs from 90/10 two-way dual language programs and 37 ELLs from 50/50 two-way dual language programs. In addition, my case study only investigated the ELLs' Spanish and English reading achievement from the end of third grade to the end of fourth grade, providing information on the short-term effects of these two-way dual language programs on reading achievement. Another limitation of my study was that I only looked at the ELLs and two-way dual language programs serve both ELLs and native English speaking students.

The qualitative portion of my case study included interviews from the four two-way dual language program coordinators/administrators. The information from the interviews described an inside perspective on how to implement and maintain a two-way dual language program, but my study was missing information that described effective classroom practices and highly qualified teachers in these successful two-way dual language programs. My study was also missing information on why each school chose to implement a 50/50 or a 90/10 two-way dual language program and this information would have been useful for administrators who want to implement two-way dual language programs in their schools.

Recommendations

Because dual language programs are growing in number every year in schools (Center for Applied Linguistics, 2007), future research needs to continue investigating their effectiveness at increasing the academic achievement of ELLs. Previous researchers have shown that individual dual language programs have been successful at

increasing the academic achievement of ELLs (de Jong, 2002; Lopez and Tashakkori, 2004; Senesac, 2002; Thomas & Collier, 2002, 2003, 2004). My case study examined only four dual language programs for two academic school years. Future research studies should be larger in scale, longitudinal, and focus on classroom practice so that we know what it really takes to increase the academic achievement of ELLs. Future research studies should also use standardized tests in English that allow comparisons to be made between the English proficiency of ELLs in dual language programs with the English proficiency of native English speakers in regular classrooms. In addition, there needs to be more qualitative research on dual language programs in the future to gather information from people with firsthand experience working in dual language programs and gather information on effective classroom practices and effective dual language teachers.

Based on my research, I would also recommend that administrators who want to implement two-way dual language programs in their schools consider all the stakeholders involved when making the decision about whether to use the 50/50 or the 90/10 two-way dual language model. They need to consider the school community, the students, the parents, the teachers, and the resources involved. Administrators should examine the research on ELLs in dual language programs as well as the research on native English speakers in dual language programs.

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APPENDIX

Interview Questions

Date _____

School: _____

Type of Dual Language Program: _____

Program Information

How long has the program been in existence?

How many students are in the program?

How many students are in the school?

What percentage of the students are Native English Speakers (NES)?

What percentage of the students are Native Spanish Speakers (NSS)?

What grade levels are part of the program?

How many dual language classrooms are there at each grade level? How many non-dual language classrooms are there at each grade level?

How do you choose your dual language teachers? Are these teachers selected differently from other bilingual teachers?

How much training are your dual language teachers given? What kind of training are they given?

How are students selected for the program? (NES and NSS)

Is there a waiting list for the program?

Is parental involvement a requirement of the program? (for example attending a certain number of meetings each school year)

Instructional Information

How is the percentage of time divided- by minutes or by content area?

What subjects are taught in each language? Is this consistent across grade levels or does it change over time?

What language do students take TAKS in (both NES and NSS)? How is this decision made?

What does a third grade schedule look like?

What does a fourth grade schedule look like?

Extra Information

Why do you think your dual language program is successful?

What advice would you give other dual language programs?

What advice would you give administrators wanting to start a dual language program in their school?

Why do you think other dual language programs struggle?

What are some of the obstacles you face with your dual language program?

VITA

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