

A TALE OF TWO CITIES: EXPLORING THE DUAL LANGUAGE PROGRAM
IMPLEMENTATION AND BILITERACY TRAJECTORIES

AT TWO SCHOOLS

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With the increase in emergent bilinguals and higher standards for all, the challenge for educational stakeholders is to fully utilize dual language programs as a prominent means toward meeting and surpassing rigorous state and national standards. Part of maximizing dual language programs' impact, and the purpose of this study, was to provide detailed analyses of program models and student biliteracy development.

Thus, the research questions sought to explore the level of understanding and implementation of dual language programs in general and the biliteracy component in particular at each campus, before documenting the second through fifth grade English and Spanish reading biliteracy trajectories of students at each school. Both campuses experienced more challenges in the implementation of the program structure, staff quality, and professional development rather than in curriculum and instruction. Furthermore, although both campuses' students experienced positive trajectories towards biliteracy by the end of fifth grade, each campus was characterized by different rates and correlation between English and Spanish reading growth in each grade. Finally, the researcher conducted a split plot MANOVA to examine how much variance in the biliteracy trajectories was explained by school attendance, gender, initial English oral language and initial Spanish oral language; only school of attendance and initial English oral language levels explained the variance in biliteracy trajectories for students at these campuses.

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SAME PROGRAM, DISTINCTIVE DEVELOPMENT: EXPLORING THE BILITERACY TRAJECTORIES AT TWO DUAL LANGUAGE SCHOOLS

Introduction

Literacy development is a complex process (Tracey & Morrow, 2012). It is doubly complex when one considers learning to read and write effectively in a second language (Escamilla, 2006; Grosjean 1989; Garcia, Makar, Starcevic, Terry, 2011). Its complexity exponentially grows when considering other factors like low socioeconomic status, increased academic standards, and high-stakes testing (August & Shanahan, 2006; Flores, Batalova, & Fix, 2012; Menken, 2008).

Yet it is under this assortment of complexities that English language learners (ELLs) must learn their languages and literacies. Research confirms that development of an individual's native language provides a strong base for the development of a second language (Cummins, 1981; Thomas & Collier, 2002). Nevertheless, many bilingual and ESL programs do not adequately take this into consideration, as they do not develop the native language (Collier & Thomas, 2009) or continue to provide instruction in both languages long-term (Center for Applied Linguistics, 2013).

Furthermore, few language instructional academic programs, as defined by No Child Left Behind (2001), utilize the full-range of instructional strategies specific to ELLs' linguistic, academic and cognitive needs (August & Shanahan, 2006; Collier & Thomas, 2009; Gersten & Baker, 2000). Simply put, ELLs—or more appropriately termed—*emergent bilingual* students are in serious need of dynamic language instructional academic programs that provide sufficient time to develop both languages through high quality, research-based instructional practices for robust literacy development and

academic success (Cummins, 2000; Escamilla, Hopewell, Butvilofsky, Sparrow, Soltero-Gonzalez, Ruiz-Figueroa, & Escamilla, 2014; Slavin & Cheung, 2003).

The purpose of this study was to explore the biliteracy trajectories of fifth grade dual language students at two dual language campuses. These biliteracy trajectories are the second through fifth grade English and Spanish informal reading scores of students used to track biliteracy progress and make instructional decisions in the classroom. By studying the student biliteracy trajectories at each campus, I aimed to look for patterns in students' reading biliteracy growth within and between languages over time. By doing so, a second aim of the study was to compare students' biliteracy trajectories to each campus as well as contemporary theories of biliteracy development in a way that has been seldom studied (but see Escamilla & Hopewell, 2009; Hopewell & Escamilla, 2013; Sparrow, Butvilofsky, Escamilla, Hopewell, & Tolento, 2014).

Research Questions

1. What are the second through fifth grade English and Spanish reading biliteracy trajectories for fifth grade dual language students at each school? Specifically,
 - a. What are students' reading trajectories in English?
 - b. What are their reading trajectories in Spanish?
 - c. What is the correlation between the English and Spanish reading levels in each grade?
 - d. What percentage of students are in the biliteracy zone at each grade?
2. How do the schools differ in relation to their biliteracy trajectories? Specifically, how much variance in student biliteracy trajectories is explained by school of attendance, gender, initial oral language in English, and initial oral language in Spanish?

Theoretical Framework

For the purposes of this work, I took a holistic view of bilingualism that views the bilingual's language proficiency as an integrated whole that "cannot easily be decomposed into two separate parts" (Grosjean, 2008). Instead, a bilingual's language proficiencies are dynamic, multidimensional, and fluid constructs that are qualitatively different from a monolingual of Language A and a monolingual of Language B (Garcia, 2009; 2011; Garcia, Makar, Starcevic, Terry, 2011). That is, a bilingual's linguistic configuration will be different from that of the corresponding monolinguals of the languages involved, resulting in mixed language competence and different language processing and production (Escamilla et al., 2014; Grosjean, 2008). Consequently, Grosjean (1998) duly advises researchers to be weary of comparing different types of bilingual students to monolingual students. Table 1, adapted from Escamilla and colleagues (2014), highlights the central differences in the holistic bilingual and parallel monolingual paradigms.

According to this holistic view of bilingualism, there are six academic implications for biliteracy classrooms including: how bilinguals' languages are treated; how assessments are administered and analyzed; how assessments are developed; expectations for the bilinguals' language proficiencies; how bilingual strategies are treated; and more globally, how bilinguals' growth is compared. These six implications display how a holistic view of bilingualism is applied to the biliteracy context.

First, as explained by Grosjean (2008) bilinguals' languages are not two separate developing parts; they exist and develop in a unique relationship. Part of this unique relationship includes linguistic strategies unique to bilinguals such as code-switching,

lexical borrowing and bidirectional transfer. Subsequently, bilinguals' development should not be compared to the monolinguals of either language (Gathercole, 2013a, 2013b; Grosjean, 2008), but rather to other emerging bilinguals.

Table 1

Comparing Paradigms

Academic Implication	Holistic Bilingualism	Parallel Monolingualism
1. Treatment of Languages	Languages are viewed as mutually reinforcing with bidirectional transfer	Languages are strictly separated, as they develop independently.
2. Administering and Analyzing Assessments	Assessments are administered separately but analyzed concurrently.	Assessments are administered and analyzed separately.
3. Literacy Instruments	Are authentic, taking the unique linguistic features of each language into account.	Assessments are a translation of English literacy skills and strategies, rather than specific to the language assessed.
4. Expectations of Proficiency	Students are expected to have different strengths of tasks in each language.	Students are expected to perform all tasks equally well in both languages.
5. Treatment of Bilingual Strategies	Bilingual strategies are viewed as part of the normal developmental process of both languages.	Bilingual strategies are discouraged, viewed as indicators of low proficiency in one's languages.
6. Point of Comparison	Students' development is measured against the unique standards of other emerging bilinguals.	Students' development is compared to the development of monolingual speakers of bilinguals' respective languages.

Furthermore, since emergent bilinguals' biliteracy development is distinct from the monolinguals of their corresponding languages, it is imperative that proficiency expectations in and between languages reflect a dynamic, multidimensional, fluid understanding of biliteracy development. To have a slight dominance in one language over another or even having mixed dominance (showing strengths in sub-categories of each language) is a normal phenomenon. Understanding that mixed dominance is a typical part of biliteracy development will then allow bilingual educators to develop,

administer and analyze the results of biliteracy assessments that reflect a holistic view of bilingualism.

As an extension of a holistic view of bilingualism, Escamilla and colleagues (2014) created grade level benchmark ranges for emergent bilingual students' reading after numerous pilot studies (Butvilofsky & Escamilla, 2011; 2012; 2013a; 2013b) with students who participated in Literacy Squared®, a comprehensive biliteracy program that maximizes the development of oracy, reading, writing and metalanguage. Students whose English and Spanish reading levels fall within this grade level range for each language are in what they call the *biliteracy zone*. The biliteracy zone refers to the range in reading scores on the Developmental Reading Assessment (DRA) and Evaluación del desarrollo de lecto-escritura (EDL), informal reading inventories originally normed on monolingual speakers of each language, that are considered grade-level scores for emergent bilinguals (Celebration Press, 2007a; 2007b). According to the researchers, this range in reading scores reflects the unique development of students who develop their language at different rates in a paired literacy model, shown in Table 2.

Table 2

Biliteracy Zone Grade Level Benchmarks

Grade	EDL2 Level (Spanish)	DRA2 Level (English)
k	A-6	A-2
1	12--16	8--10
2	18-28	12--16
3	30-38	18-28
4	40	30-38
5	50-60	40+

In particular, this biliteracy zone operates under the assumption that students' reading scores in Spanish may be slightly higher than their corresponding English

scores. As such, instead of providing one cut-off score normed on a monolingual of English or Spanish, the biliteracy zone provides a range of scores in each language and each grade that is considered “on target” for students who will become biliterate over time.

This holistic view of bilingualism extends to the terms used to describe these students. The term *ELL* can inherently suggest a subtractive view of the child, defining him or her in terms of what he/she is lacking in the second language (Baker, 2011; Garcia, Kleifgen, & Falchi, 2008). Grosjean (1998), on the other hand, describes these same students in terms of different types of bilinguals (e.g. early, late, sequential, simultaneous), suggesting a more additive view of the person; that is, they are described from what they know and are learning as opposed to what they do not know.

In light of these definitions, I use the term *emergent bilinguals* (Dworin, 2003; Escamilla, 2006; Thomas & Collier, 2012), to refer to young students (3 to 11 years) “who speak a native language other than English and are in the dynamic process of developing bilingual and biliterate competencies [in this case in English and Spanish], with the support of their communities” (Reyes, 2006, p. 268). However, when I address researchers who study the sub-population of emerging bilinguals in the process of English that qualify as limited English Proficient (LEP) or ELL, I use those terms to limit the confounding of research conclusions.

Methods

This study was part of a larger mixed methods comparative case study that explored two campuses’ understanding and implementation of their dual language programs (see Appendix C for expanded results). Thus, the cases in this study were

the dual language programs at two different dual language campuses, including its dual language students ($n = 93$ for César Chávez and $n = 37$ for Memorial). (School names are pseudonyms.) The study was mixed, according to Mertens' (2005) mixed methods criteria, because it included both qualitative and quantitative methods with a total of two phases in the study. As such, it is considered a mixed methods multistrand design (Teddlie & Tashakkori, 2009). There was a qualitative emphasis placed in the first stage (QUAL (quan)) and a quantitative emphasis placed on the second stage (QUAN) (Morse, 1991, 2003).

The purposes for this mixed methods design were several. In Phase 1, the use of mixed methods was for triangulation, in order to corroborate and expand findings generated through key informant interviews, teacher surveys, teacher focus groups, and trend data from the state education agency to create profiles for each of the cases. A second purpose was to expand the quantitative findings of both schools. In the second quantitatively focused phase, descriptive statistics and Pearson R were used to examine the second through fifth grade English and Spanish reading trajectories for students at both schools. A split plot MANOVA was used to assess the variance of students' biliteracy trajectories due to school of attendance, gender, initial English oral language, and initial Spanish oral language.

Instruments

Phase 1

The following four methods were used to create the school profiles in the first phase of the study.

Key informant interviews. These semi-structured interviews consisted of three parts: professional background of the informant, general description of each school, and successes and challenges of each school in regards to its dual language program.

State education agency data. I collected and analyzed the demographic and performance data of each school over the 2007-2013 school years, the six years of program implementation that include the 2012-2013 student cohort at each campus. These reports included demographic data on each school's staff including years of experience, ethnicity, positions, and student data including ethnicity and scores on standardized tests.

Teacher surveys. This electronic survey consisted of four parts: general teaching and dual language teaching background, general dual language program questions, professional development, and instruction. The general teaching background and dual language program sections consisted of short answer and extended answer questions, while the sections on professional development and instruction included short answer, extended answer, 5-point likert scale, and multiple-choice questions.

Teacher focus groups. A semi-structured focus group protocol was created based on the major findings from the key informant interviews, dual language implementation ratings (used as part of the large study), and teacher surveys. It consisted of two sections: general dual language program information and an open ended discussion based on the following emerging themes: management of classroom materials with coordinating teacher, professional development, support with resources, overall workload, and teacher retention.

Phase 2

The following three instruments were used in the second phase of the study, designed to assess the biliteracy trajectories of students and possible reasons for variance in students' trajectories.

DRA and EDL. The Developmental Reading Assessment (DRA) (Celebration Press, 2007a) and Evaluación del desarrollo de lecto-escritura (EDL) (Celebration Press, 2007b) are informal reading inventories given to all bilingual students in the district at the beginning, middle, and end of each school year. They are parallel English and Spanish instruments that show valid and reliable measures of reading in each language (Weber, 2001). Each grade level score represents students' end of year reading level for that year.

Woodcock Munoz Language Survey—Revised. This norm-referenced test given assesses bilingual students' oral language development in English and Spanish upon entering school and then at the end of each school year (Woodcock, Muñoz-Sandoval, Ruef, & Alvarado, 2005). It is used to determine eligibility for bilingual services as well as monitor progress for students in bilingual programs. Initial oral English and initial oral Spanish levels are determined based on this instrument for the split plot MANOVA.

Data Analysis

To create the school profiles, I used a combination of theoretical propositions (Yin, 2013) and grounded theory (Corbin & Strauss, 2008) as my general analytic strategies to code each campus' descriptions of each school through key informant interviews (3), teacher surveys (33), and teacher focus groups (2). Then, I created a

chain of evidence from multiple sources (Yin, 1994), resulting in a narrative for each campus.

For the second phase of the study that sought to answer the second research question, I solely used quantitative methods. I conducted descriptive statistics for each language (English and Spanish) for each grade (second through fifth) for each campus (César Chávez and Memorial). Then, I ran a correlation coefficient (Pearson R) in order to assess the relationship between English and Spanish reading development for each grade level. Afterwards, I gathered descriptive statistics for the percent of students in each grade at each school that are in the biliteracy zone, as defined by Escamilla and colleagues (2014). Lastly, I examined the variance for students' biliteracy trajectories by conducting a split plot MANOVA for the following variables: school attended, initial oral language level and gender.

Findings

District Profile

The study took place in a suburban school district in the southwest region of the United States. Covering over thirteen municipalities and seventy campuses, the district is large and diverse. As part of a pilot program, the district chose to implement a 50/50, one-way dual language program with a one-teacher one-language model. That is, students received literacy and content area instruction from kinder to fifth grade in both languages, with one teacher for Spanish instruction and another teacher for English instruction. The frequency in which students switched languages and teachers depended on their grade level. In kindergarten and first grade, students switched languages every day; in second grade, students switched every 2 days and in third

through fifth grades, students switched languages (and teachers) every week. The district's simultaneous balanced biliteracy model includes the following components in daily instruction: shared reading (10 minutes); interactive read aloud (45 minutes); guided reading/literacy workstations (45 minutes); instruction in language structure (10 minutes); word work (10 minutes); independent reading (10-15); and writer's workshop (30 minutes). By implementing this balanced biliteracy model, the district aimed for students to be at or above grade level in each language by the end of fifth grade.

Campus Profile: César Chávez

César Chávez Elementary is the oldest, largest, and poorest school in its area. According to the state education agency's academic performance reports (2007-2013), over the past six years, César Chávez has served between 892 and 1,122 students, with an average of 93% Hispanic students; additionally, an average of 85% of the school population pre-k-fifth grade are classified as limited English proficient (LEP) and an average of 91% qualify for the free and reduced lunch program. As such, César Chávez serves a relatively homogenous population. Most students are first generation immigrants from Mexico who live in two major area trailer parks and two apartment complexes.

Teachers and administrators noted the uniqueness of the campus through interviews, surveys, and focus groups. This sentiment emerged as a theme in discussions regarding instruction and professional development as well as general descriptions of the campus. Key informant Viviana Gómez (pseudonym), who has worked at César Chávez and currently works at Memorial, states that César Chávez "is a very special place." Key informant Margarita De los Santos, who previously worked at

Memorial and currently works at César Chávez further explains, “We are a very unique campus. There is no one like us in our district and I would dare say [in the region]. The school is like a celebration of culture. You immediately feel that walking in the door”

In addition to being large and unique, the staff at César Chávez more closely approximates the student demographics of the school with an average of 40% Hispanic and 60% white teachers and administrators than other schools in the district. Staff demographics are shown in Table 3 for six years of instruction for the cohort of student biliteracy trajectories explored in this study.

Table 3

César Chávez Staff Demographics

Cohort Group's Grade Levels by Year	2007 - 2008	2008- 2009	2009- 2010	2010- 2011	2011- 2012	2012- 2013
	Kinder	First	Second	Third	Fourth	Fifth
# Staff	107	97.1	79.7	91.3	86.8	89.7
# Teachers	80.2	71.2	70.2	66.3	63.8	63.6
# Paras	17	16	1.5	16	13	16
# Admin	4	4	3	4	3	3
#Hispanic	32 (39.9%)	30 (42.1%)	27.3 (38.9%)	26 (39.2%)	26 (40.7%)	26 (40.9%)
#White	43.2 (53.9%)	35.2 (49.4%)	38.9 (55.4%)	38.3 (57.8%)	35.8 (56.1%)	36.4 (57.3%)
# beginning	6 (7.5%)	6 (8.4%)	7 (10%)	4 (6%)	1 (1.6%)	3.1 (4.9%)
# 1-5 yrs.	22 (27.4%)	19 (26.7%)	21 (29.9%)	32 (48.3%)	32.4 (50.8%)	32.2 (50.7%)
# 6-10 yrs.	19 (23.7%)	21 (29.5%)	18.5 (26.4%)	12.6 (19%)	13 (20.4%)	12.1 (19.1%)
#11-20	22 (27.4%)	17 (23.9%)	15.3 (21.8%)	11 (16.6%)	11.4 (17.9%)	8 (12.6%)
# 20+	11.2 (14%)	8.2 (11.5%)	8.4 (12%)	6.7 (10.1%)	6 (9.4%)	8.1 (12.7%)
Average Yrs of Experience	10.6	9.5	9.1	7.5	8.1	8.5
Mean English	N/A	N/A	20	30	40	60

Reading Level (DRA)

Mean	N/A	N/A	24	34	40	60
Spanish Reading Level (EDL)						

Moreover, the staff is also a relatively new one, with about 30% of its total faculty in its first five years of the profession. While the staff demographics show between 20-39% of staff have eleven or more years of experience, the vast majority of staff with this experience are paraprofessionals, administrators, specials, and specialists that are not assigned an academic content area for instruction. Both teachers and administrators note that there is also a high level of turnover for both teachers and administrators.

Campus Profile: Memorial

Memorial Elementary, located on the other side of the district, serves as the sole bilingual school for students in its area. As such, it has a large English-Spanish, Hispanic bilingual population. According to the state education agency's academic performance reports (2007-2013), over the past six years Memorial has served between 617 and 792 students, with an average of 70% that are Hispanic; additionally, an average of 55% of the school population pre-k-fifth grade are classified as limited English proficient (LEP) and an average of 70% qualify for the free and reduced lunch program.

While Memorial shares many similar demographic features with César Chávez, a closer analysis through interviews, surveys and focus groups reveal that this campus is more heterogeneous than César Chávez. Most of the Hispanic families at Memorial are of Mexican heritage, yet there are more students from other Spanish-speaking countries as well. Another difference between the two campuses, according to key informant,

Margarita De los Santos, who has worked at Memorial and currently works at César Chávez, is “a cultural piece...where as there [referring to Memorial} the kids are more Americanized than at César Chávez.” Key informant Viviana goes on to explain that the students at Memorial tend to be second and third generation Hispanics, as opposed to the first generation Mexican Americans at César Chávez. In describing the school environment, key informant Donna Pierce says Memorial is “extremely engaging but it’s also very...orderly. Her [speaking of Robin Wright, campus principal] campus classrooms are not chaotic; they are very respectful. Teachers are very respectful of students; students are very respectful of teachers. [...] A typical classroom has tons of student work in it. It has...so many resources and it’s all about the kids.”

Furthermore, while Memorial represents a heterogeneous mix of staff, there are approximately 10% less Hispanic teachers at Memorial than César Chávez up until the 2012-2013 school year. Staff demographics are shown below in Table 4 for six years of instruction.

Table 4
Memorial’s Staff Demographics

Cohort Group's Grade Levels by Year	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
	Kinder	First	Second	Third	Fourth	Fifth
# Staff	67	69.4	67	71	68	77
# Teachers	49	51.3	48	54	53	56
# Paras	3	10.5	12	11	10	12
# Admin	3	3	2	3	2	3
#Hispanic	14 (28.5%)	15 (29.2%)	15 (31.2%)	15 (27.8%)	16 (30.2%)	21 (37.5%)
#White	32 (65.4%)	34.3 (66.9%)	31 (64.6%)	36 (66.7%)	35 (66%)	33 (58.9%)
# beginning	3 (6%)	3 (5.8%)	1 (2.1%)	3 (5.6%)	1 (1.9%)	2 (3.6%)

# 1-5 years	14 (28.6%)	12 (23.4%)	11 (22.9%)	15 (27.8%)	16 (30.2%)	14 (25%)
# 6-10 years	11 (22.5%)	11.4 (22.3%)	10 (20.8%)	11 (20.4%)	11 (20.8%)	14 (25%)
#11-20	15 (30%)	16.9 (32.9%)	18 (37.5%)	18 (33.3%)	18 (34%)	23 (41%)
# 20+	6 (12.2%)	8 (15.7%)	8 (16.7%)	7 (13%)	7 (13.2%)	3 (5.4%)
Average Years of Experience	10.4	11.7	11.8	11	11.4	10.3
Mean English Reading Level (DRA)	N/A	N/A	30	38	50	60
Mean Spanish Reading Level (EDL)	N/A	N/A	30	38	50	60

This difference in staff demographics may be partially due to the change in dual language program at Memorial. In the early years, the dual language program began as a strand within the school, with only several sections of dual languages classes per grade level. In the 2011-2013 school year, Memorial opened one cohort (consisting of two classrooms of students) of two-way dual language students. Then, by the 2012-2013 school year, the dual language program expanded to include more sections within each grade level, creating a greater need for Spanish-speaking (and many times), Hispanic teachers. What's more, all three key informants who have worked intimately on both campuses, note that until the past several years, Memorial has experienced a mostly stable staff with little turn over and high teacher retention. Memorial also has more staff with six or more years of experience than César Chávez does. Additionally, the principal has served the staff for over twenty years as both a teacher and campus principal.

Question 1

Research Question 1 examined the biliteracy trajectories of each campus, including students' second to fifth grade English and Spanish reading scores. This question also examined the correlation between English and Spanish reading scores at each grade, before ascertaining the percent of students in the biliteracy zone, according to Escamilla and colleagues' (2014) biliteracy zone benchmarks by grade.

César Chávez's Biliteracy Trajectory

Figure 1 displays the mean English and Spanish biliteracy trajectories for César Chávez Elementary from second to fifth grade.

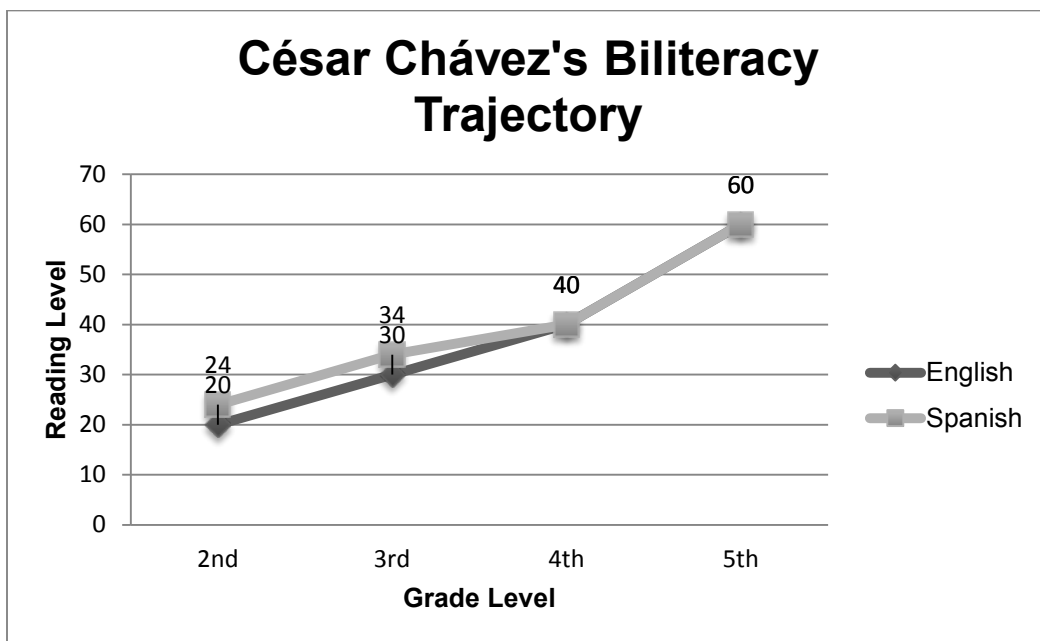


Figure 1. César Chávez's biliteracy trajectory

*Note: it is district policy to only assess to level 60 in fifth grade; thus if a student scores a 60, a teacher is not able to assess the student at a higher level to see if he/she has made further growth.

Overall, the mean biliteracy trajectory at César Chávez shows higher Spanish reading scores in second and third grade, with identical mean reading scores in English

and Spanish by the fourth and fifth grades. The mean English (DRA) reading score for the end of second grade is a level 20 (equivalent to the middle of second grade), followed by a mean score of 30 (equivalent to beginning of third grade), 40 (equivalent to the end of third grade) and 60 (equivalent to the end of fifth grade) at the end of third, fourth and fifth grades. According to Escamilla and colleagues' (2014) grade level benchmarks with a holistic view of emergent bilinguals, César Chavez's biliteracy scores are on or above target in each grade level. Moreover, mean Spanish (EDL) reading scores for second grade students at César Chávez elementary are slightly higher than English reading scores, but still fall within the grade level targets set by the biliteracy zone in second and third grade with Spanish EDL scores of 24 and 34 respectively.

Mean fourth and fifth grade Spanish scores are identical to fourth and fifth grade English scores (40 and 60 respectively), with mean student reading scores being on level by fifth grade. Thus, the mean biliteracy trajectory at César Chávez confirms the assumption undergirding Escamilla and colleagues' (2014) biliteracy zone with the DRA and EDL: Students' reading scores in Spanish will be slightly higher than their English scores in the lower grades.

Furthermore, when looking at the variance in student reading scores by grade, second grade English shows the greatest range in reading scores, as students fall into 11 different reading levels. English reading in third grade also shows a greater range in scores, as students' reading span 12 reading levels; in fourth grade, English reading scores span 11 reading levels. Fifth grade English reading scores, show the least variance, as students' reading scores span 7 reading levels, with the majority of

students reading at a level 50 (equivalent to the beginning of fifth grade) and 60 (equivalent to the end of fifth grade) at the end of fifth grade ($n = 79$).

Though there is still a range of reading scores that span each grade, there is significantly less variation in the Spanish reading scores when compared to English reading scores for César Chávez. Still, like with the English reading scores, second grade shows the greatest range in reading scores, with students' Spanish scores spanning 7 reading levels (as opposed to eleven English reading levels), with higher concentration around three reading levels (24, 28 and 30) ($n = 69$). In third grade, students' Spanish reading scores span 8 reading levels, with higher concentration of scores around three reading levels (34, 38 and 40) ($n = 70$).

Fourth and fifth grade Spanish reading scores also span nine and eight reading levels respectively, with higher concentrations of students at two reading levels (40 and 50) ($n = 63$) in fourth grade and one reading level in fifth grade (60) ($n = 79$) (equivalent to the end of fifth grade). In general, there is wide variation in students' reading scores in both languages at each grade level with even greater variation in students' reading in English than in Spanish; yet, the range in reading scores in both languages decreases by fourth and fifth grade for students at César Chávez Elementary.

Memorial's biliteracy trajectory

Overall, the biliteracy trajectory at Memorial show identical means in English and Spanish reading scores second through fifth grade (see Figure 2). Mean English (DRA) and Spanish (EDL) reading scores for second grade are a level 30 (equivalent to the end of second grade or beginning of third grade), followed by reading scores of 38, 50 and 60 at the end of third, fourth and fifth grades (equivalencies are the end of third

grade, end of fourth grade and the end of fifth grade reading levels respectively).

According to Escamilla's Biliteracy Zone chart, Memorial's biliteracy scores are at or above grade level in both English and Spanish as seen in Figure 2. Subsequently, the mean biliteracy trajectory at Memorial Elementary does not follow the assumption underlying the biliteracy zone chart, with Spanish reading scores being slightly higher than English reading scores. Instead, there is no mean difference in scores.

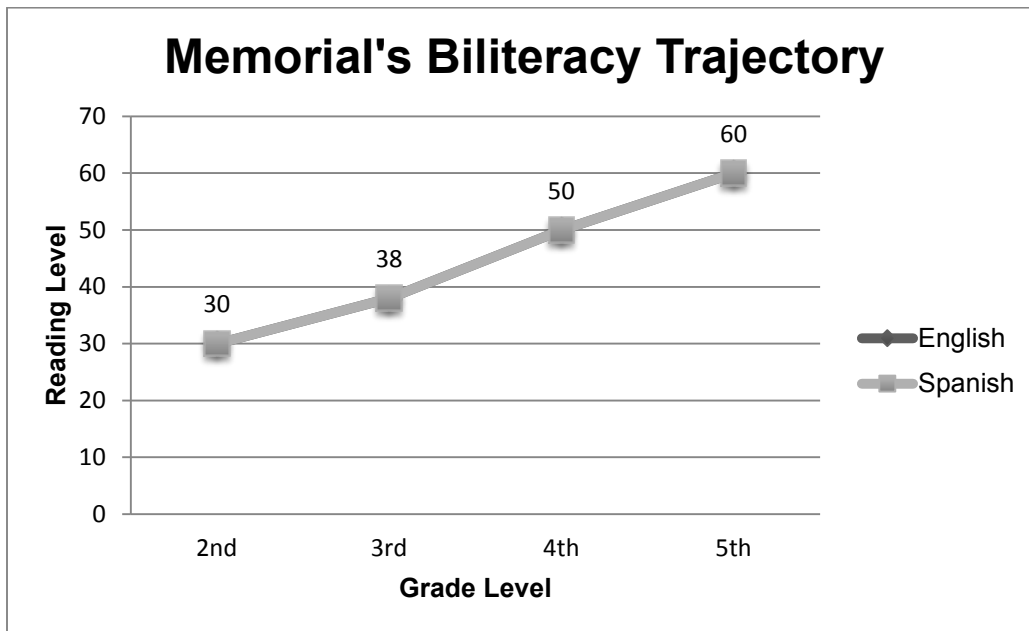


Figure 2. Memorial's biliteracy trajectory

*Note: English and Spanish reading score means are identical and thus have overlapping lines.

Like César Chávez, Memorial's second grade shows the greatest range in reading scores, as students fall into 8 different reading levels. However, unlike César Chávez, English reading in third and fourth grade shows a lesser range in scores, as students' reading levels span 5 reading levels in each grade, with the majority of students falling into two levels in second grade (28 and 34, equivalent to end of second grade and beginning of third grade) ($n = 29$) and third grade (34 and 40, equivalent to the middle and end of third grade) ($n = 32$).

In sum, the biliteracy trajectories at both campuses show a range of reading scores in English and Spanish at each grade level, with greater variations in student reading levels in second grade and less variation in each language in fourth and fifth grades. However, there was greater variance among the English and Spanish reading scores for César Chávez than there was for Memorial, with the exception of fourth and fifth grades. Both schools demonstrated comparable variance in individual student school mean trajectories by these grade grades.

English and Spanish reading correlations

In addition to examining the biliteracy trajectories at each campus, Question 2 explored the correlation between English and Spanish reading scores at each grade on each campus. Table 5 below shows the correlations for each campus by grade.

Table 5

English and Spanish Reading Correlations

School	Grade	r	r ² *
César Chávez	2	0.76	0.58
	3	0.76	0.58
	4	0.78	0.61
	5	0.96	0.99
Memorial	2	0.54	0.29
	3	0.7	0.48
	4	0.57	0.33
	5	0.62	0.38

***All significant at.01**

Generally, English and Spanish reading scores are highly correlated at César Chávez Elementary, with high correlations in second and third grade, $r(91) = .76$, fourth grade, $r(91) = .78$ and a very high correlation in fifth grade, $r(91) = .96$, $p < .01$ (Dancey & Reidy, 2004). On the other hand, the English and Spanish reading scores are generally

moderately correlated at Memorial Elementary, with moderate correlations in second grade, $r(35) = .54$, a high correlation in third grade, $r(35) = .7$, and moderate correlations in fourth, $r(35) = .57$ and fifth grades, $r(35) = .62$, $p < .01$. Subsequently, both schools' biliteracy trajectories show English and Spanish reading correlations that are in line with current research about biliteracy development. In addition, there are two salient findings worth exploring further. First, is the higher correlation among English and Spanish reading for students at César Chávez. While both campuses show moderate to high correlations among reading scores, the scores at César Chávez are very highly correlated in each grade level. Another salient finding at César Chávez is the especially high correlation of $r(91) = .96$ in fifth grade.

Biliteracy zones

With an understanding of the biliteracy trajectories at each campus and the correlation between English and Spanish reading scores, the second to last sub-question in research question 2 examines the number of students in the biliteracy zone at each grade level. Table 6 shows the percentage of students who are in the biliteracy zone at each grade at both campuses.

Overall, many students are in the biliteracy zone on each campus with a greater percentage of student reading being in the biliteracy zone in second grade at both campuses. In fourth and fifth grades, both campuses experience marked changes in the percentage of students in the biliteracy zone, with the greatest decrease occurring from third to fourth grade (-15% for César Chávez and -27% for Memorial). By fifth grade, increases at both campuses (+16% for César Chávez and +11% for Memorial) result in a comparable percentage of students in the biliteracy zone. The greatest

difference between schools occurs in third grade, with more students being in the biliteracy zone at Memorial than at César Chávez Elementary, with a difference of fifteen percentage points between campuses.

Table 6

Biliteracy Zone by School

César Chávez's Biliteracy Zone			
Grade	Total N	BZ n	%
2	93	87	94%
3	93	79	85%
4	93	65	70%
5	93	80	86%
Memorial's Biliteracy Zone			
Grade	Total N	BZ n	%
2	37	35	96%
3	37	37	100%
4	37	27	73%
5	37	31	84%

A student-by-student analysis for the biliteracy zone reveals that the biliteracy trajectories of students at César Chávez confirm the assumption of Escamilla and colleagues (2014) biliteracy zone: emergent bilinguals who speak Spanish at home will have slightly higher Spanish reading scores than English reading scores. However, the students' biliteracy trajectories at Memorial did not follow this assumption. Instead, students' English and Spanish scores were mostly equal in second and third grade and then changed in fourth and fifth grades, where a sub group of students' English reading levels were slightly higher than their Spanish reading scores ($n = 9$). This pattern is displayed in Table 7.

Students' English and Spanish reading scores have an asterisk if they do not fall within the biliteracy zone benchmarks at each grade. In fourth grade, these 9 students' Spanish reading scores do not fall into the biliteracy zone; instead, their English reading scores are higher than their Spanish reading scores. For 5 of the 9 students, their Spanish reading increases in fifth grade to the point that their bilingual reading is in the biliteracy zone. Conversely, for four of these students, their Spanish reading scores lay outside of the biliteracy zone in fifth grade for the second year in a row.

Table 7

Memorial's Student Biliteracy Trajectories that Don't Follow the BZ Assumption

Student	2nd E.	2nd Sp.	3rd E.	3rd Sp.	4th E.	4th Sp.	5th E.	5th Sp.
106	34	28	40	40	50	38*	60	50
107	10*	24	30	28	38	34*	40	38*
108	18	18	28	30	38	34*	50	40*
114	14	28	30	34	40	38*	50	38*
118	28	28	34	34	38	38*	50	50
121	28	28	38	40	40	34*	60	40*
122	34	28	40	34	50	38*	60	50
123	28	28	34	34	40	38*	60	50
126	34	34	40	40	50	38*	60	50
128	24	24	34	30	40	28*	40	28*

*indicates a score that does not fall in the biliteracy zone

While a full explanation falls outside the scope of this work, there are several potential reasons for this (temporary) biliteracy loss. Language exposure as a first language bilingual (McCardle & Hoff, 2006), the leakage of English as the language of power in schools (Freeman, 1998), and a host of individual identity factors interact with students' social networks (Norton, 2013) to create varying levels of bicultural identity and language investment (Babino & Stewart, 2015) that encourage or discourage language maintenance.

Question 2

Question 2 examined if the biliteracy trajectories at each school were statistically significant and if so, how much variance in the biliteracy trajectories was explained by several key factors: school of attendance, student gender, initial English oral language (EOL) score, initial Spanish oral language (SOL) score in addition to any interactions between these variables. As a case, César Chávez had lower mean English and Spanish reading scores in second, third and fourth grade than those at Memorial Elementary. By fifth grade, as demonstrated in the percentage of students in the biliteracy zone in question 1, both campuses demonstrate commensurate English and Spanish reading scores, shown in Figure 3.

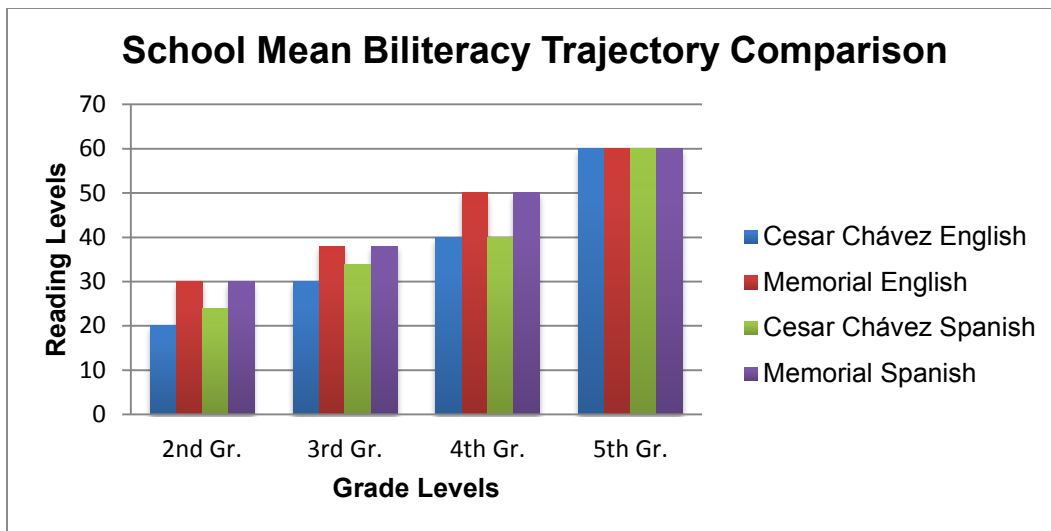


Figure 3. Mean biliteracy trajectory comparisons

Since English and Spanish reading scores are theoretically and practically correlated (evidenced by the Pearson r coefficients in this study), the researcher performed a split plot MANOVA analysis using English and Spanish reading scores to determine if the difference in biliteracy trajectories at each campus was statistically significant. Mauchly's test of sphericity was significant for Spanish reading, $W = .54$, x^2

(5) = 67.60 , $p < .001$ and English reading, $W = .40$, $\chi^2 (5) = 102.24$, $p < .001$. The test of sphericity assesses the approximate equality of the model implied and the sample variance-covariance matrices. A significant test of sphericity violates the assumption that both variance-covariance matrices are equal; therefore, the Greenhouse-Geisser corrections are interpreted.

Table 8 displays the Greenhouse-Geisser corrections for grade and interactions for English and Spanish performance scores.

Table 8

Repeated Measures Multiple Analysis of Variance for Grade and Interactions (Greenhouse-Geisser epsilon correction)

Effect		df	Mean Square	F
Grade	Spanish	2.214	291.047	11.298*
	English	2.034	558.585	17.971*
Grade * Initial_EOL	Spanish	2.214	26.587	1.032
	English	2.034	22.128	.712
Grade * Initial_SOL	Spanish	2.214	25.182	.978
	English	2.034	23.424	.754
Grade * School	Spanish	2.214	65.633	2.548
	English	2.034	376.641	12.117*
Grade * Gender	Spanish	2.214	23.115	.897
	English	2.034	18.208	.586
Grade * School * Gender	Spanish	2.214	20.087	.780
	English	2.034	6.173	.199
Error(Grade)	Spanish	248.022	25.760	
	English	227.806	31.083	

Note. * $p < .001$

The results revealed there is a significant change in Spanish ($F (2.214, 248.022) = 11.298$, $p < .001$) and English ($F (2.034, 227.806) = 17.971$, $p < .001$) across the four

grades. There was also a significant interaction effect between grades and the school type for English scores ($F(2.034, 227.806) = 12.117, p < .001$). This suggests the effect of grade across time for English scores are different for Memorial and César Chávez Elementary.

Furthermore, the researcher used Pillai's Trace to correct for type one errors instead of Wilk's Lambda, because Box's M was statistically significant (Tabachnick & Fidell, 2001). Table 9 summarizes the results of the split plot MANOVA analyses.

Table 9
Split Plot Repeated Measures of Analysis of Variance

Effect	Pillai's Trace	F	df ₁	df ₂	η ²
Initial EOL	.06	3.53**	2	111	.06
Initial SOL	.05	2.75	2	111	.05
School	.32	25.64*	2	111	.32
Gender	.03	1.56	2	111	.03
School * Gender			2	111	
Grade	.33	8.69*	6	107	.33
Grade * Initial EOL	.59	1.13	6	107	.06
Grade * Initial SOL	.03	.60	6	107	.03
Grade * School	.20	4.38*	6	107	.19
Grade * Gender	.03	.53	6	107	.03
Grade * School * Gender	.04	.77	6	107	.04

* Significant at $p < .001$ **Significant at $p < .05$

The analysis revealed a main effect for initial English oral language, $F(2, 111) = 3.53, p < .03, \eta^2 = .06$ and school, $F(2, 111) = 25.64, p < .001, \eta^2 = .32$. The η^2 suggest that 6% of the variation in biliteracy trajectories is explained by students' initial English oral language scores and 32% of the variation in biliteracy trajectories is explained by school of attendance. Additionally, there was an interaction effect for grade and school, $F(6, 107) = 4.38, p < .001, \eta^2 = .19$, showing that the variables of grade level and school account for 20% of the variance in students' biliteracy trajectories. Initial Spanish oral

language, gender nor any other of the interaction of variables displayed significant results to explain variance in students' biliteracy trajectories at these two campuses.

Discussion

The primary purpose of this study was to examine the English-Spanish reading growth of emergent bilinguals at two dual language schools. A secondary purpose was to explore how contemporary views on biliteracy development compared to students' biliteracy trajectories at each school, including explanations for the differences in biliteracy trajectories. Participating students at both campuses demonstrated positive yet distinct trajectories toward biliteracy, after participating in a 50/50 dual language model with paired literacy instruction from kindergarten to fifth grade. Since the school of attendance explains 32% of the variance in students' English-Spanish reading scores, a deeper analysis of each school's demographics is integral to expanding an understanding of the nature of biliteracy development; even with the small sample sizes, these case studies provide a critical test of significant a theory: biliteracy development (Yin, 2014).

As a group, students at César Chávez embodied the thinking of Escamilla (2006) and colleagues (Escamilla & Hopewell, 2010; Hopewell & Escamilla, 2014; Escamilla et al., 2014) in regards to biliteracy development: as native Spanish speakers, their Spanish reading scores were slightly higher than their English reading scores. Their English and Spanish reading scores are moderately to highly correlated throughout their elementary school years and most students' English and Spanish fall within the biliteracy zone in each grade level. Furthermore, it is only in fifth grade, after

participating in the program for six years, that students' English and Spanish reading scores perform at or above grade level when compared monolingual peers.

Yet, the biliteracy trajectories of students at Memorial provide grounds for inquiry in relation to contemporary theory regarding biliteracy development for native Spanish speaking students: students at Memorial did not experience a lag in English and Spanish reading scores in second and third grade. Instead, their mean reading scores in each language more closely approximate the grade level benchmarks of monolinguals in each language. Their English and Spanish reading scores are moderately correlated throughout their elementary school years and most students' English and Spanish fall within the biliteracy zone in each grade level. However, by fourth grade, a significant sub group of students at Memorial shifts towards having higher English reading levels than Spanish reading levels. What does this mean for our contemporary conceptions of biliteracy development? A closer look at the school profiles reveal that Memorial's emergent bilinguals differ from those at César Chávez in several key ways.

In fact, while categorically similar in regards to ethnicity, language background and socioeconomic status, these two schools represent key demographic nuances with critical programmatic implications. While Spanish literacy development is integral to EBs at both schools, it is all the more essential at César Chávez with students who are first generation Mexican-Americans or Mexican immigrants with Spanish dominance upon entering school. This is especially demonstrated by the .96 correlation between English and Spanish reading scores in fifth grade. As such, districts and schools with similar populations to César Chávez can capitalize on Spanish literacy development by

not disassembling the program midway in third or fourth grades, where—from a monolingual view—it may seem that the program is not achieving grade-level English reading scores for its students. Especially in light of standardized tests where English performance is stressed (Menken, 2008), it is fundamental to continue programs that support biliteracy development.

Though more subtle, there are also distinct dual language program implications for districts and schools with similar populations to Memorial (with second and third generation Hispanics from an early bilingual background). As evidenced by the subgroup of students becoming English dominant (and falling out of the biliteracy zone in fourth grade), these schools must examine how to protect and promote the minority language (Beaudrie & Fairclough, 2012; Medina, 2012; Suarez, 2002). By doing so, these programs may further foster positive bicultural identities and investments that lead to long-term language maintenance (Babino & Stewart, 2015; Norton, 2013). Although students at Memorial are considered “on grade level” from a monolingual view in English, monolingual literacy is not the goal of dual language programs. A more dynamic, full biliteracy can be achieved when both languages and literacies are fostered (Cummins, 2000).

Thus, while both campuses represent EBs on positive biliteracy trajectories, they simultaneously demonstrate a nuanced complexity in the nature of biliteracy development; each subpopulation of EBs develops its biliteracy in distinct ways and rates. As dual language stakeholders attend to these demographic differences, they are more likely to create and sustain biliteracy programs that provide ongoing enrichment and support for their specific EB populations’ needs. Lastly, the implications

for this study have far reaching effects for long term ELLs: since most students reach high levels of biliteracy by fifth grade, it is imperative for policymakers and educational stakeholders maximize the potential gains of this program by extending it through middle and high school. Implementing DL programs with a paired literacy model has the potential to fully and equitably address the complex educational needs of one of the hardest to reach student groups: emergent bilinguals.

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APPENDIX A
EXTENDED LITERATURE REVIEW

One of the most contentious issues in contemporary education is how to educate students who are not yet proficient in English (Crawford, 2004; Garcia & Kfleifgen, 2010). This conflict continues to grow for educational stakeholders as the number of English language learners (ELLs) increase. According to Texas Education Agency (2012), during the 2011-2012 school year, 50.2% of all students were Hispanic, with 17% of all students being ELLs. Nationally, Thomas and Collier (2003) project that 40% of the nation's students will come from minority language groups. As such, the state of ELL academic achievement becomes increasing imperative for all U.S. stakeholders, as ELLs make up increasing more of our present and future society.

Particularly troubling is that ELLs, along with other minority groups, have historically scored below language majority groups in the United States (August & Hakuta, 1997). In fact, 96% of eighth-grade ELLs scored below the basic level on the 2005 National Assessment for Educational Progress (NAEP) in reading (Perie, Grigg, & Donahue, 2005). Hispanic ELLs, which represent approximately 85% of the ELL population, show significantly lower scores than students of other groups on the 2011 NAEP. Mean Hispanic student scores were 24-point lower than those of white students (Hemphill & Vanneman, 2011). Since a significant portion of all ELL students are from Hispanic origin, it is especially important for stakeholders to respond to Hispanic ELLs' needs.

In response to the twin demands of developing English language proficiency while maintaining high academic achievement, dual language programs have grown at record rates (CAL, 2013). Dual language programs are broadly defined as language instructional academic programs where languages are separated from one another and

furthermore taught through rigorous academic instruction, with at least 50% of all instruction taught in the non-English language for a minimum of six years (Howard & Chrisitan, 2002; Lindholm-Leary, 1990; Thomas & Collier 2012; Rogers, 2009). As such, many (Calderon & Carreon, 2000; Calderon & Minaya-Rowe, 2003; Cloud, Genesee, & Hamayan, 2000; Lindholm-Leary, 2000; Thomas & Collier, 2012) believe dual language programs are a compelling means towards meeting and surpassing the goals of English language development and academic achievement. They are enrichment programs by definition, heralding biliteracy and biculturalism as prime goals, providing solid ground for academic achievement (Fishman, 1980).

With the increase in Hispanic students and higher standards for all, the challenge for educational stakeholders is to fully utilize these programs as a prominent means toward meeting and surpassing rigorous state and national goals. Part of maximizing dual language programs' impact, and the purpose of this study, is to provide detailed analyses of program models and student biliteracy development; exploring the specific successes and challenges to program implementation is fundamental to achieving the substantial student outcomes that dual language programs theoretically yield (Gunderson, Odo, & D'Silva, 2013; Sparrow, 2010; Thomas & Collier 2012).

Futher complicating this issue is that “no one program will meet all of [emergent bilinguals'] needs” (Collier & Thomas, 2009, p.23). They are a diverse group with equally diverse needs. While these “learners come from all regions of the world and speak many different languages, in 2009, 75% are of Spanish speaking background, and 65% are born in the U.S.” (Escamilla & Hopewell, 2010, p. 72). As a result, finding the “right” program for the needs of one district or school's emergent bilinguals is

challenging (Christian, Montone, Lindohm, & Carranza, 1997; Collier & Thomas, 2009).

And though this process is challenging, it is an integral step in truly serving these students' linguistic and academic needs. By first looking at the programs that serve emergent bilinguals, researchers and practitioners can more thoroughly understand how students' complex linguistic and academic needs are facilitated or hindered through the various language program models in general and the dual language model designs in particular.

Programs for Emergent Bilinguals

Both historically and at present, emergent bilinguals have received linguistic and academic support in the following program models: ESL pullout, ESL sheltered instruction; early exit transition bilingual programs, late exit bilingual programs and the dual language model. The principle difference between the programs is ESL (English as a Second Language), which has no native language support, and bilingual programs which use both the native language and English in instruction (Ragan, 2006). To see both the subtle and strident differences of these programs, one can look at these programs through the lens of Thomas and Collier's (1997) prism model for bilingual learners (see Figure A.1).

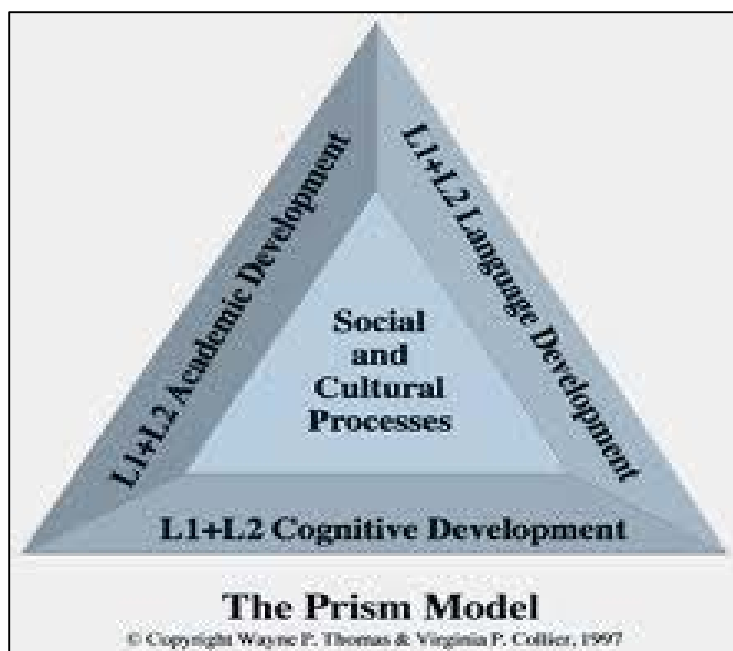


Figure A.1. The prism model (1997).

This prism model is characterized by four major components that fuel language acquisition in school: sociocultural, linguistic, academic and cognitive processes (Collier & Thomas, 2009). According to Collier and Thomas, these are “the same developmental practices that occur naturally for any child all through the K-12 school years” (p. 56). Yet, for the bilingual student, they are developing these capacities to varying degrees in both languages. Thus, the emergent bilingual’s language acquisition is based on the three sides of academic development, first and second language development, first and second language cognitive development, as well as academic development in both languages. Connecting all of the components, through a complex and multidimensional fashion, are the social and cultural processes associated with first and second languages.

In other words, all of language learning occurs in the social context (Gee, 2007; Scribner & Cole, 1981; Street, 1995; Vygotsky, 1978). This includes interactions in both

English and the second language at school and in the community; yet, it also includes emotional responses such as students' feelings about themselves as speakers, anxiety and self-esteem (Collier & Thomas, 2009; Cummins, 1991, 1996; Genesee, 1987). All of the activities and experiences, as well as prejudices, that happen in and around the community can positively or negatively affect language acquisition (Pavlenko & Blackledge, 2004; Gee, 2007).

With this core of the social processes, language acquisition is also dependent on three sides of the prism. The side of language pertains to the “subconscious aspects of language development (an innate ability all humans possess for acquisition of oral language), as well as the metalinguistic, conscious, formal teaching of language in school and the acquisition of the written system of language” (Collier & Thomas, 2009, p. 32). It has been long supported in the bilingual community that the depth of the student's development in his first language is directly related to the depth of development in his second language (Cummins, 1981; Crawford, 2004; Genesee, 1994; Freeman & Freeman, 2006). As a result, when looking at implementing the best program for emergent bilinguals, districts and campus administrators should not waver on the place of first language development for the long-term academic success.

Yet, the process of language acquisition is more complex than just the social and language development dimensions; it also includes academics. This pertains to all schoolwork in all subjects for the entire academic career. Clearly, just as with any mainstream, monolingual student, with each grade level, students gain increasingly more academic language—vocabulary, sociolinguistic and discourse dimensions of language at higher cognitive levels (Collier & Thomas, 2009). This is an especially

critical component of the prism model for bilingual students, because what one knows conceptually in his first language transfers to the second language. The idea follows: If I know how to add and subtract in Spanish, I will be able to use what I know in Spanish to add and subtract in English. Also, if I understand that writing is a process in Spanish, I will also understand that in English. So, a program that is to best serve an emergent bilingual will take this into consideration.

Finally, the last component of the model is cognitive development that occurs in one's first and second language. This includes the natural process of thinking and problem solving innate in human beings that continues to grow into all of adulthood (Collier & Thomas, 2009) In the school context, it is vital to consider the five or six years of students' cognitive development in their first language, because this is the base used to build upon for the rest of schooling (Cummins, 1981, 1991, 2000). Historically speaking, this component has been the least developed in students not yet proficient in English in their language programs. Often basic language development is addressed at the expense of academic and cognitively demanding work (Crawford, 1997; Echevaria, et. al, 2008; Thomas & Collier, 2002, 2010). Clearly, this too must be equally considered when choosing a program for bilingual students. A program may provide skill and phonics-based reading instruction or language support that does not meet the cognitive demands that are developmentally appropriate. The following result is the creation of more academic gaps for the student in order to attend to their language development needs.

In sum, through the prism model for bilingual learners, one can see not only that language acquisition is a complex process, but also that it is an interdependent process

requiring all the components—social, linguistic, academic and cognitive—to work together in tandem. It is essential that researchers and practitioners alike objectively evaluate the effectiveness of a program for its demographic of ELLs through this framework. In their latest book, *Educating English Learners for a Transformed World*, Collier and Thomas (2009) state that the strongest predictor of student success is the type of program they are served in.

An analysis of each language instructional academic program through the lens of the Bilingual Prism model will reveal the merits of each program. To start, the programs are divided into two branches: the ESL programs and the bilingual programs. Table A.1, adapted from Crawford (2004) shows, the major differences in programs. The first type of ESL program is called ESL pullout. Students in this program are pulled-out of the classroom for approximately 45 minutes a day for language support, missing instruction but then also spending the majority of the day in a general education classroom without specific linguistic support (Crawford, 1995).

Looking through the prism model, students are not provided with linguistic or academic development in their first language (two sides of the prism model) and furthermore are getting less of the cognitive component (the third side). This is also supported by the normal curve equivalents (NCE) on standardized tests in English reading (Collier & Thomas, 2009; Thomas & Collier, 2012). 50 NCEs being the average performance of all U.S. students, students served in ESL pullouts score, on average, at 24 NCEs (Collier & Thomas, 2009). This is half of the performance of an average English speaker, as shown in Figure A.2.

Table A.1

Language Programs in U.S.

Program	Language Used in Instruction	Duration	Goals
ESL Pull Out (Submersion plus ESL)	90-100% English; may include some home language support or not	As needed	Linguistic assimilation; remedial English
Structured Immersion (Sheltered English, Content-based ESL)	90-100% English; may include some home language support or not	1-3 years	Linguistic assimilation; exit to mainstream education
Transitional Bilingual Education (Early Exit Bilingual Education)	90-50% home language initially; gradually decreasing to 10% or less	1-3 years; students exit as they become proficient in English	Linguistic assimilation; English acquisition without falling behind academically
Developmental Bilingual Education (Late Exit Bilingual Education)	90% home language initially; gradually decreasing to 50% or less by 4 th grade or 50/50 in the beginning	5-6 years	Bilingualism and biliteracy; academic achievement in English
Two Way Bilingual Education (Two Way Dual Language, Two Way Immersion, Dual Immersion, Dual Language)	90/10 model: 90% language other than English, 10% English 50/50 model: parity of both languages	5-6 years, usually at the elementary level	Bilingualism and biliteracy; academic achievement in English
Dynamic Bi/Plurilingual Education	English and students' home languages in dynamic relationship; students are the locus of control for language used; peer-teaching	4-6 years, usually at the high school level and especially for newcomers	Bilingualism, academic achievement in English

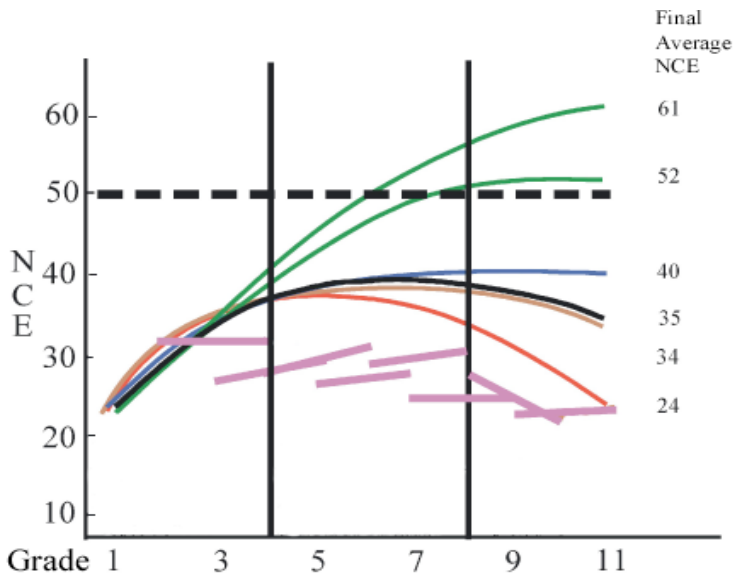


Figure A.2. English Learners' long-term k-12 achievement in normal curve equivalents (NCEs) on standardized tests in English reading.

Program 1: Two-way Dual Language Education (DLE), including Content ESL

Program 2: One-way DLE, including ESL taught through academic content

Program 3: Transitional BE, including ESL taught through academic content

Program 4: Transitional BE, including ESL, both taught traditionally

Program 5: ESL taught through academic content using current approaches with no L1 use

Program 6: ESL pullout - taught by pullout from mainstream classroom with no L1 use

Program 7: Proposition 227 in California (successive 2-year quasi-longitudinal cohorts)

In addition to the ESL pullout model is another ESL program model, termed ESL Self-Contained. It is characterized as a self-contained class with students who are all ELLs, working with a certified ESL teacher (Crawford, 1991). These students, like the ones in the ESL pullout program, are not receiving academic or linguistic support in their native language (two dimensions of the prism model). According to the same NCEs on standardized tests in English reading, on average, these students score at 34 NCEs, about 10 NCEs better than ESL pullout. This is much better when compared to ESL pullout, but still 15 NCEs below the national average. So, students served through ESL

programs score on average between 16 to 26 NCEs lower than the 50 NCE average, without attending to all the components of the bilingual prism model.

The other branch of programs serving students is a bilingual program, using the native language support at varying levels for a varying number of years. These, too, provide varying levels of effectiveness according to the prism model and the normal curve equivalents. The bilingual transitional models include both early exit (second to third grade) and late exit (fifth grade), where students begin school learning in their native language and increase learning in the English language until exit (Crawford, 1995). Then, there are the dual language bilingual programs, teaching the student's first language and second language for at least the first six years of schooling (Hongisfeld, 2009; Guglielmi, 2008; Thomas & Collier, 2002).

Students served through an early-exit bilingual program are provided with native language academic support for the first two to three years of schooling. Using the prism model, they receive some level of native language linguistic development and some level of academic development. Students served in these programs scored on average 35 NCEs, barely better than ESL content. Furthermore, those students served by a late-exit transitional bilingual program, receiving native language support until grade four or five, have a significantly greater linguistic foundation in their first language, as well as academic and cognitive development in the first language. These students scored on average 40 NCEs—a full 26 NCEs better than ESL pullout. Yet, these students still scored 10 points lower than the average 50 NCE (Collier & Thomas, 2009); undeniably this is a decided improvement over the ESL models, but these scores

still fall short of fulfilling the twin demands of NCLB's (2002) English language proficiency development while maintaining high academic progress.

The last program type is the dual language program. Students in these programs receive half of their instruction in English with ESL content support and the other half of their instruction in Spanish for at least six years (Cazabon, Lambert, & Hall, 1999). Furthermore, dual language programs may be characterized as one-way dual language programs (only serving language minority students) or two-way dual language programs (serving half language minority students and half language majority students). According to the prism model, both types of dual language programs have a strong depth of development for each of the prism components. Both languages are taught explicitly for the language component. Both languages are taught academically in all subjects and both languages are designed to teach in cognitively demanding contexts.

As can be seen, this is the only program that adequately addresses all the components in both languages of the prism model, thus effectively viewing the ELL not just as an English learner, (in terms of what the student lacks) but rather as an emergent bilingual (in terms of what the student is fully acquiring). Students served in one-way dual language students scored on average 52 NCEs, while students served in two-way dual language students scored on average 61 NCEs. Both dual language models surpass the national average by two to eleven points. Furthermore, only these two programs fulfill the dual standards of NCLB (2002) for students to develop English language proficiency and maintain high academic achievement. As this programmatic analysis with the bilingual prism model shows, the program models a district or administrators choose make a significant difference. The difference is 37 NCEs.

In looking at the program types again the prism model as a whole, additive bilingualism (the development of fluency in both L1 and L2) has been associated with a variety of cognitive attributes in the areas of “divergent thinking, nonverbal reasoning, concept formation, metalinguistic awareness, creativity, and cognitive flexibility” (Portes & Hao, 1998, p. 356). Also, a positive transfer of literacy skills across languages has been repeatedly demonstrated (Geva & Siegel, 2000; Holm & Dodd, 1996; Verhoeven, 1994). As mentioned earlier, what a student knows in his or her first language can be transferred to the second language. Subsequently, the linguistic, academic, social and cognitive capacities of emergent bilinguals are most fully addressed in the context of dual language program design.

In order to look at the biliteracy trajectory of dual language students, one must first consider the program in which these students are served. This provides the larger context and consequent framework for what happens in the larger school community and smaller classroom community. In looking at the framework of various ESL and bilingual programs, one is better able to trace student achievement in general. So, the prism model for bilingual learners provides an additional frame and sheds additional light into evaluating a program's effectiveness—the number one predictor of ELL achievement (Collier & Thomas, 2009).

Still, even with analyzing the basic nature of each program model, aligning the program label with the program reality is yet another challenge. According to Guglielmi (2008), it is hard to know the true nature of the educational programs these students receive, because the key characteristics of each program vary from place to place. One program may be named “late exit transitional,” but in reality there is a far greater use of

L2 (English) than L1 (Spanish) from an early age. So, the student isn't really receiving the linguistic support in the first language. In reality, students are not receiving the native language support the program is named for. Likewise, the opposite is true. A program may be said to be a late exit transitional bilingual program, increasing English language at each grade, but in reality be taught mostly in L1 (Spanish). For these students, in reality, they are not receiving the second language development as prescribed by the program. Such program inconsistencies, with the program practices not aligning with the program name, are a central issue regarding language program research (Collier, 1992; Moi, 1996; Whilehead, 1991; Gunderson, Odo, & D'Silva, 2013). As such, I will aim to describe the dual language campuses and its practices in detail through this study.

Dual Language Essentials

According to the bilingual prism model (Collier & Thomas, 1997, 2009), only dual language programs theoretically fully address the linguistic, academic, cognitive and sociocultural needs of emergent bilinguals. While there is widespread agreement about the success of dual language programs, there is not as much agreement about what the programs should be called or how they are implemented. Subsequently, before discussing dual language program variations, this section will review the essential components of dual languages. These essential components will include definitions, purposes and goals of programs as well as indicators of high quality programs.

To start, the terms used to refer to dual language programs are many. The most common terms include: *dual language education*, *developmental bilingual education*, *two-way bilingual and two-way immersion*, *dual immersion* and *enriched education*

(Freeman et al, 2005; Howard, Sugarman, Christian, Lindholm-Leary, Rogers, 2007). Each term highlights a nuance for the type of dual language education it is (Freeman et al., 2005). For example, the term *dual language education*: captures the principle aim of the program: to use two languages for instruction. The term *developmental bilingual education*, on the other hand, is a term that the department of education used for funding support for programs that take into account the linguistic psychological, social and cognitive developmental issues (Torres-Guzman, 2002) It can also be considered a *one-way dual language* program, where one language group (for example native Spanish speakers) is learning English and Spanish.

Furthermore, the terms *two-way bilingual education* and *two-way immersion* have been used in the U.S. in order to stand out from French immersion programs; the purpose is to show that there are native and nonnative speakers of the majority language, instead of just majority speakers learning the minority language as was the case in Canada. Next, the term *dual immersion* is used in reference in dual language program in order to highlight the important feature that students are immersed in a new language. Lastly, the term enriched education in reference to dual language programs underscores the high level of academic rigor that is the focus in the instruction through two languages (Fishman, 1976). Many prefer to use the term with immersion because it differentiates itself from the political stigma associated with remedial bilingual programs (Hamayan, Genesee, & Cloud, 2013; Lindholm-Leary, 2001; Thomas & Collier, 2012). For the purpose of this work, I will use the general term dual language to refer to language instructional academic programs where languages are separated from one another and furthermore taught through rigorous academic instruction, with at least 50%

of all instruction taught in the non-English language for a minimum of six years (Howard & Chrisitan, 2002; Lindholm-Leary, 1990, 2001; Thomas & Collier 2012; Rogers, 2009).

Dual Language Program Variations

While there is extensive research that validates the strength of dual language programs, there is still much latitude in the design and model of dual language programs. What's more, some dual language researchers suggest that different dual language models may lead to varying biliteracy trajectories for emergent bilingual students (Escamilla et al, 2014; Freeman et al., 2005; Lindholm-Leary, 2005; Potowski, 2007). As such, bilingual researchers argue for further research to be conducted on the efficacy of different types of dual language programs (Escamilla, Hopewell, Geisler, & Ruiz, 2007; Calderon & Minaya-Rowe, 2003; Collier & Thomas, 2009; Freeman et al., 2005; Lindholm-Leary, 2005; Perez & Guzman, 2002). The variation among dual language programs includes the terminology for dual language programs shared previously, but also includes the differences in program languages, student demographics, program models (including language of initial literacy instruction) and method of language separation.

Languages. The first area of variation in dual language programs is the program's languages. The most common languages used in dual language programs in the U.S. (in order of popularity) are English, Spanish, Cantonese, Korean, French, Portuguese, Haitian Creole, Tagalog, Arabic and Japanese (Freeman et al., 2005), with two thirds of all programs being Spanish/English dual language programs (CAL, 2013). As expected, the languages of the dual language programs color the biliteracy program because of the shared and divergent linguistic features of the languages (how alike the

two languages are), as well as the number of personnel and literacy resources to sustain a successful dual language program for the minority language (Freeman, et al, 2005). Those programs with more typographically similar languages can maximize the languages' similarities in instruction (like English and Spanish), while those programs with more typographically different languages (like English and Cantonese for instance) with have other instructional implications different from those programs with similar languages (Freeman et al, 2005). Furthermore, because most dual language programs are Spanish/English programs, there are comparatively more resources available (including books, instructional materials and personnel) than for programs with less common languages (Cantonese, Korean, French, Portuguese, Haitian Creole, Tagalog) (Calderon & Minaya-Rowe, 2003).

Student demographics.

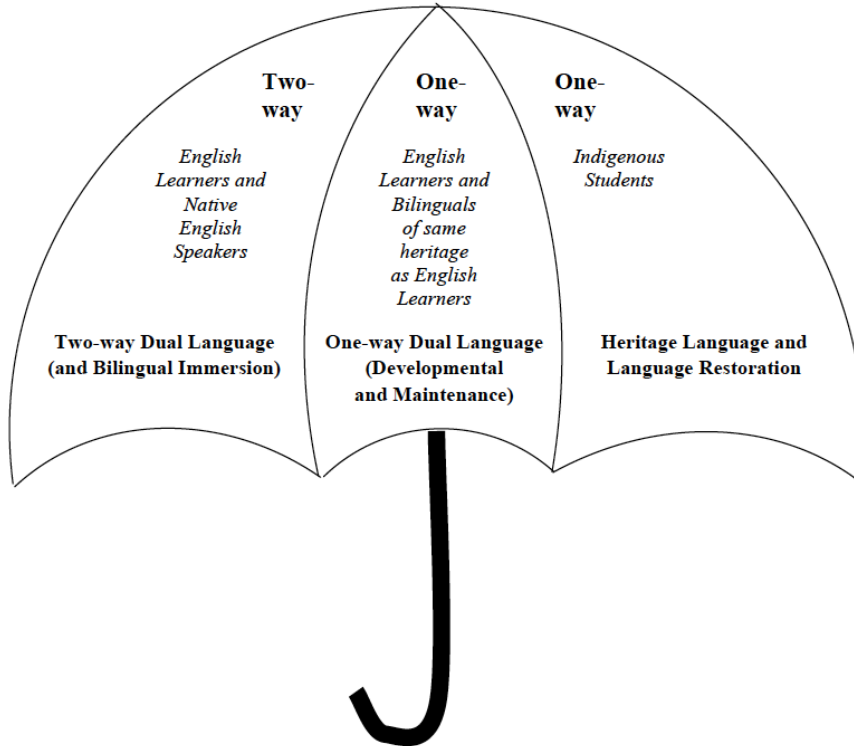
Another way that dual language programs differ from one another is the student participants. In this regard, dual language programs can be *two-way*, where there are native speakers of majority language and native speakers of minority language or *one-way*, in which the program consists of speakers from one language group (Freeman et al., 2005). In order to classify a school as two-way, at least 1/3 of all participants should be native English or Spanish speakers (Thomas & Collier, 2012). The benefit of having a two-way program is having native speaking peers of each language, providing robust opportunities for quality language acquisition for both sets of native speakers. Many speakers discuss the ideal mix of 50-50 split of native speakers in each language in a two-way program; however, school and wider community demographics oftentimes prevent this ideal mix in demographics. Whether a two-way program consists of 1/3 or

½ of native speakers in either languages, the programs still show to be effective (Thomas & Collier, 1997, 2002, 2009, 2012); however, when percentages of native speakers from either group drop below 35%, program effects reflect those typical of one-way programs (Thomas & Collier, 2012).

In contrast to a two-way program, in a one-way program there is a single language group. This language group can be speakers of a minority language (like Hispanic Spanish speakers in the U.S.), thereby receiving language instruction in their heritage language. This is especially prevalent in schools and communities with large percentages of Hispanic students, or other language minorities like the Navajo and Zuni in Arizona and New Mexico, Cherokee in North Carolina and the Yup'ik in Alaska (Francis & Reyhner, 2002). Here the prime goals are to maintain or restore the heritage language, while also acquiring English and high academic achievement in both languages. Yet, the single language group of one-way programs can also include speakers of the majority language, learning the minority language (like native English speakers learning French in Canada and native English speakers learning Spanish in the U.S.). According to Thomas and Collier (2012), it is important to differentiate between these key demographic differences because historically dual language programs have “been defined by some researchers as applying only to two-way programs with equal numbers of native English speakers and students from the other language background, while ignoring one-way” programs (p. 25). Thomas and Collier (2012) that differentiates between two-way and one-way dual language programs in Figure A.3.

*** Additive Models of Bilingual Schooling
for English Learners**

Dual Language Education



Two-way: Two language groups schooled through their two languages
One-way: One language group schooled through their two languages

*Additive bilingualism refers to students continuing to develop cognitively in their first language as they acquire their second language.

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Figure A.3. Dual language programs according to student demographics.

As mentioned previously, there has been little research looking at the differences in efficacy of these different program designs, presenting a definite area on the horizon of bilingual education (but see Collier & Thomas, 2009; Thomas & Collier, 2012).

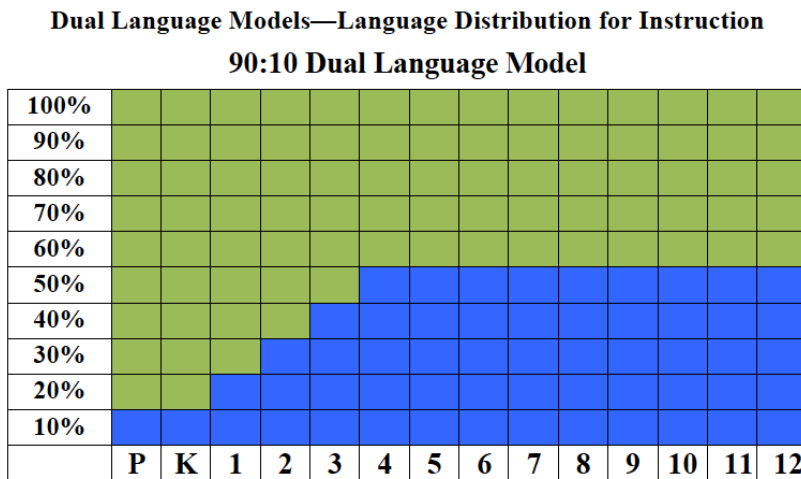
Program models.

According to Christian, Howard, and Loeb (2000), no two dual language programs are carried out in the same way, and many programs vary widely from the basic models that are often described in the literature on dual language. However, understanding the differences in program model implementation gives researchers and practitioners better insight into key programmatic components' effects on students' academic and literacy outcomes. Due to this lack of research, much of the dual language research in the 2000s focuses on program structure (Cloud, Genesee, & Hamayan, 2000; Howard & Christian, 2002; Howard & Sugarman, 2007; Howard, Sugarman, & Christian, 2002; Lindholm-Leary, 2001; Soltero, 2004; Torres-Guzman, 2002). In general, the two basic models are:

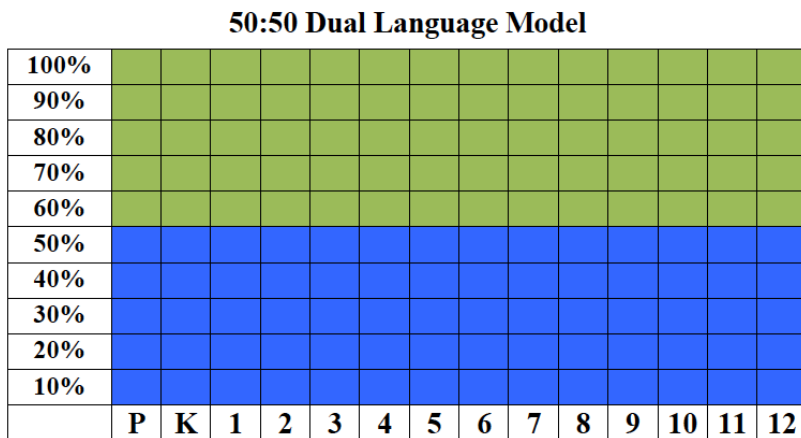
the 90/10 model, where the non English language is used 90% of the time in the early grades and gradually more English is added until sixth grade, when students receive equal instruction in both languages and the 50/50 model, where students learn in English and in Spanish 50% of the time throughout the program. (Freeman et al., 2005, p. xx)

The 90/10 Spanish/English dual language programs have shown success in Canada and California in the 1960s and 1970s. These programs are start off teaching 90 percent of instruction in the non-English language in kindergarten and first grade, gradually increasing instruction in English until instruction reaches 50 percent in each language by third (Baker, 2011; Collier & Thomas, 2009; Genesee, 1987; Lindholm-Leary, 2001). Instruction in the other 10 percent focuses on English language development with special attention to oral language and vocabulary practice. This percentage includes extracurricular activities of the school like art, physical education and music, but also includes intentional English language development in the

classroom. Figure A.4 shows the language distribution for a 90/10 program compared to a 50/50 program from kindergarten to twelfth grade.



Key: Percentage of instructional time in English in blue
 Percentage of instructional time in the partner language in green
 *For *both* models, the percentage of instruction in each language is the same for all students participating in the program.



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Figure A.4. Dual language model.

A primary rationale for implementing the 90/10 model is to develop a strong foundation in literacy for the non-English language that can then be transferred to English in the intermediate grades (Thomas & Collier, 2012). Many argue this model provides a stronger foundation for the minority language without long-term negative

effects to English language development (Cloud, Genesee, & Hamayan, 2000; Collier & Thomas, 2009; Genesee, 1987; Reese, Garnier, Gallimore & Goldenberg, 2000; Howard, Chrisitan, & Genesee, 2003; Lindholm-Leary, 2001; Lindholm-Leary & Borsato, 2006, Ramirez, 1992; Willig, 1985). Furthermore, some research has shown that 90/10 models entirely close the achievement gap sooner than 50/50 programs (Collier & Thomas, 2009; Lindholm-Leary, 2001). A challenge of implementing the 90/10 model is having highly qualified bilingual staff with high academic proficiency in the two languages (Escamilla et al, 2014; Freeman et al, 2005; Lindholm-Leary, 2001; Soltero, 2004; Thomas & Collier, 2012). Many bilingual teachers are more proficient in one language over another, which can make high quality instruction in both languages a challenge. According to Soltero (2004), many programs change to 90/10 models after starting off as 50/50 models once they are able to secure more highly qualified bilingual staff.

Furthermore, due to availability of bilingual faculty and materials, student population, and attitudes within the school and community, some dual language programs choose to implement a 50/50 model (Calderon & Minaya-Rowe, 2003; Howard & Sugarman, 2007). This model emphasizes instruction in both languages from the start of school. All academic subjects as well as literacy are taught using sheltered instructional techniques in both languages. Subsequently, a major difference between 90/10 and 50/50 dual language programs is whether initial literacy instruction occurs in one language (often the non-English language) or two languages (Calderon & Minaya-Rowe, 2003; Howard & Sugarman, 2007).

Like program model choice, reasons for choosing the language or languages of initial literacy instruction vary, based on practical, philosophical or pedagogical beliefs (Howard & Christian, 2002; Howard & Sugarman, 2007). As shared earlier, some believe it is better to begin literacy instruction in the non-English language (Spanish for Spanish/English dual language programs), others believe in beginning literacy instruction in both languages, while still others believe in starting literacy instruction in the students' native language (Spanish for native Spanish speakers and English for native English speakers) (Calderon & Minaya-Rowe, 2003; Freeman et al, 2005; Thomas & Collier, 2012). While there is little research to date on the academic outcomes for students in each initial literacy instruction configuration, the extant research shows a slight advantage for students who received initial literacy instruction in the non-English language. That is, students who participated in a 90/10 dual language program with initial literacy instruction in Spanish showed higher levels of bilingualism than those who participated in 50/50 dual language program with initial literacy instruction in both languages in the short term, at the end of elementary school (Collier, 1992; Genesse, 1987; Howard & Sugarman, 2007; Howard, Sugarman, & Christian, 2003; Lindholm-Leary & Howard, 2008; Thomas, Collier & Abbot, 1993). However, long term students from 90/10 and 50/50 program models outperformed those students who participated in monolingual or transitional bilingual programs (Collier & Thomas, 2009, 2014; Thomas & Collier, 2002, 2012). So while there may be differences in the ultimate biliteracy outcomes of students in 90/10 and 50/50 models, overall students from both models outperform those of any other program. This conclusion presents yet

another reason to continue examining the effects of program implementation and outcomes from various dual language models.

Method of language separation.

Just as the program model (90/10 or 50/50) largely determines the language of initial literacy instruction, it also partially determines how languages are separated within the program. Since separation of languages is a key tenant in dual language programs, it is pertinent to discuss the array range of language separation strategies—especially in light of inconsistencies in program labeling and various levels of implementation (Sparrow, 2010; Thomas & Collier, 2012). Once again, just as will the program model and language of initial literacy instruction, choosing a method of language separation varies due to teachers' language proficiencies and pedagogical beliefs. However languages are separated, the consensus is that program models should address the method of language separation in order to ensure deep development of academic vocabulary in both languages (Freeman et al, 2005; Hamayan et al, 2013; Howard & Sugarman, 2007; Lindholm-Leary, 2001; Thomas & Collier, 2012). By formally providing space for the development of the non-English language, which can often be dominated by English in transitional bilingual programs, dual language administrators provide more fertile ground for parity of languages (Freeman et al, 2005; Howard & Sugarman, 2007; Carrera-Carillo & Rickert Smith, 2006). In general, languages are separated by teacher, time and subject; many programs use a combination of these methods, separating languages by teacher and time or subject and teacher. Figure 8 shows a summary of the language separation methods in dual language programs.

Separation of the Two Languages

By teacher	<p>Team teaching:</p> <ul style="list-style-type: none"> • One teaches in English in one classroom; the other teaches in the partner language in the other classroom located next door or across the hall.
By time in each language	<p>E.g., 50:50 model:</p> <ul style="list-style-type: none"> • Alternate mornings and afternoons • Alternate by one day <p>Only after students are more proficient in their L2:</p> <ul style="list-style-type: none"> • Alternate every two days, or • Alternate every other week
By subject	<p>The first year, some subjects are taught in one language and the rest in the other language, with language arts taught in both languages. In subsequent years, the subjects alternate to the other language, so students wrestle cognitively and acquire vocabulary/language discourse in both languages for all subjects. Thematic units provide scaffolding and natural learning connections between the two languages, with different material covered in each language.</p>

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Figure A.5. Language separation methods.

As Figure A.5 shows, one way languages may be separated is by teacher. In this situation, students have an English teacher and a Spanish teacher, with students moving from classroom to classroom to receive academic and literacy instruction in each language. Depending on the age of the child and program design, students may change teachers (and thereby languages of instruction) at the middle of the day, each day, every two or three days or every week in the upper elementary grades (Thomas & Collier, 2012). Generally, younger students in pre-kindergarten, kindergarten and first

grade change languages at mid-day or every other day. The benefit of having one language for one teacher is several. First, most bilingual teachers are more proficient in one of their two languages; as such, those with more proficiency (or adequate) academic proficiency in Spanish teach solely in Spanish, while those with more English academic proficiency teach solely in English (Escamilla et al, 2014; Freeman et al, 2005; Thomas & Collier, 2012). This arrangement also allows schools to hire more English as a Second Language (ESL) certified teachers, creating less demand for Spanish speaking teachers, which can be hard to recruit. An added benefit of this team teaching technique is lower teacher attrition and greater instructional expertise (Carrera-Carrillo & Rockert-Smith, 2006; Escamilla et al, 2014; Howard & Sugarman, 2007; Thomas & Collier, 2012).

In addition to separating languages by teacher is separating languages by time in each language. Separation of time usually coincides with separation by teacher, though it doesn't necessarily have to (Thomas & Collier, 2012). For instance, in a 50/50 model, a bilingual teacher may alternate instruction in English and Spanish in the mornings and afternoons, by day or by week. Another way to separate languages in a 90/10 model (after students have attained greater proficiency in the second languages in the upper grades) is to alternate languages of instruction every two days or every week, with the same teacher or between two teachers. The purpose of alternating instruction every half, full, several days or a week is to ensure that academic content and language are being developed sufficiently in both languages. Thomas and Collier (2012) recommend younger children (usually in grades prekindergarten to first grade) don't spend more

than every half-day or day in each language due to the fact that students need more frequent exposure in both languages during early language acquisition.

Lastly, dual language programs, like the Gomez and Gomez model (2000), may choose to separate languages by subject. In the Gomez and Gomez model, certain subjects are always taught in English (like mathematics), other languages are always taught in Spanish (like social studies), while literacy is taught in both languages.

Another configuration of separating languages by subject is to change the subjects that are taught in each language every year, so that over the course of the program, students have exposure to all academic content in both languages (Thomas & Collier, 2012). Again, just as with separating languages by time, separating languages by subject can occur in a one-language one-teacher arrangement, where students switch classrooms based on content, or by a single bilingual teacher.

The research, professional reports and summaries to date show a wide range of dual language programming. The most common variations among programs are the languages of instruction, student demographics, program models (including language of initial literacy instruction) as well as method of language separation. These major program components provide the overarching framework for the literacy program components and instruction that affect emergent bilinguals' biliteracy outcomes.

Biliteracy Program Nuances

After exploring the essential and differentiating components of dual language programs in general, practitioners and researchers are better able to situate the characteristics exclusive to the biliteracy component in dual language programs.

Therefore, the purpose of this section is to examine the similarities and differences in

mainstream and biliteracy programs in an elementary dual language setting, using the existing research on comprehensive, balanced literacy as a foundation. In particular, I will examine these literacy programs through the lens of literacy theory, literacy models, and sociohistorical views. Each lens provides a basis for exploring biliteracy program nuances essential for high biliteracy development unique to dual language programs.

Literacy theory as context. In mainstream literacy, there exists an array of theoretical frameworks that determine program models and instruction. Behaviorism, constructivism, cognition, sociocultural, sociocognitive and information processing are just some of the theories undergirding many literacy programs (Tracey & Morrow, 2012). In biliteracy programs, however, there is comparatively little discussion and agreement about what theories and models underlie literacy in dual language programs (August & Shanahan, 2006; Escamilla, 2010; Freeman, et al., 2005). Despite the differences in availability and appropriation of theories between mainstream and biliteracy programs, many argue that there is a growing need for a more complex view of reading (Braunger & Lewis, 2006; Garcia, 2009).

So it is with this mind towards multidimensionality that Freeman et al. (2005) suggest practitioners assume a transactional, psychosociolinguistic perspective in biliteracy program design and implementation, one in which readers transact with the text in order to construct meaning (Rosenblatt, 1978). From this perspective, meaning does not exist within the text or within the reader, but rather through both as they participate in co-construction of meaning. The researchers continue to argue that the reader must use clues from the text and his/her background knowledge in order to build meaning (Goodman, 1967).

Cummins (1979, 1981) further supports this claim through the concept of linguistic interdependence, in which both languages of a person aid the acquisition of the other language. This concept has a direct relation to the models of biliteracy as it shows that what one learns in one language can be transferred to another. Essentially, this means that a reading strategy or academic concept does not need to be taught twice, once in language x and then another time in language y; instead, it means that the content can continue forward through transactions with texts, peers and teacher (Hornberger, 2003, 2005).

While this transactional approach to reading is not new to literacy programs, but it appears that it is especially highlighted in biliteracy contexts. In addition to proposing a transactional view of biliteracy, Freeman et al. (2005) also purport that the theory underlying biliteracy program is psychosociolinguistic. That is, theory shaping biliteracy programs must attune to the psycholinguistic aspects of language as well as the social aspects. It is psychological because readers use a series of strategies as they read (background knowledge plus graphophonics, syntax and semantics) as they transact with texts.

Freeman et al. (2005) and Escamilla et al. (2014) believe that developing proficiency in written language is the same as developing proficiency in oral language: both need comprehensible input (Krashen, 2003). This comprehensible input can be constructed through the cognitive strategies a language learner employs as well as through the social interaction with other learners (A. Freeman, 2005; Kucer & Tuten 2003; Paulson & Freeman, 2003). Once again, both mainstream and biliteracy programs have proponents that tout a psycholinguistic and sociolinguistic view of

literacy; however as in the case with the transactional paradigm, it seems that biliteracy programs have a nascent special focus on psychosociolinguistic processes as only Freeman et al. (2005) have made a formal stand on biliteracy theory. It's important to note, however, that there are a few emergent views of bilingualism in linguistics making its transition to literacy (Grosjean, 1989; 1998; Garcia & Kleifgen, 2010; Valdes & Figueroa, 1994) as well as other work that aims to describe aspects of biliteracy (see Escamilla, 2006; Dworin, 2003; Reyes, 2006); nevertheless, at this time neither sources present a formalized theory of biliteracy for dual language programs. The most comprehensive and formalized theory of biliteracy instruction and development is the literacy squared framework developed by Escamilla and colleagues (2005) and depicted in Figure A.6.

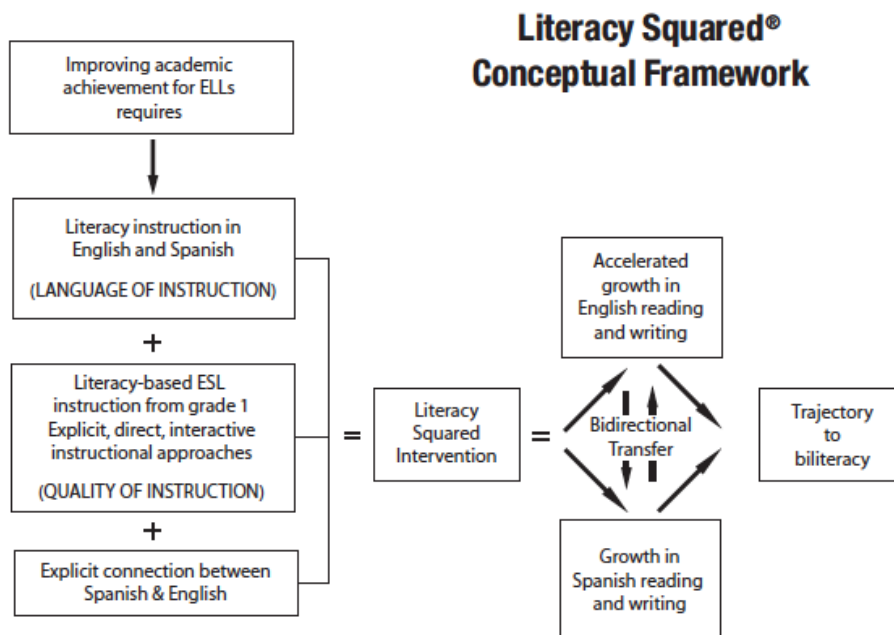


Figure A.6. Literacy squared.

This conceptual framework operationalizes key abstractions to the instruction and learning for simultaneous bilingual students. Building on other theories, this

framework addresses not only the languages of instruction, but also the quality of instruction in those languages necessary for bilingual and biliterate growth. Furthermore, it shows the dynamic, bidirectional relationship between literacy development in each language for the bilingual which ultimately leads to his/her overall biliteracy trajectory.

Literacy models as context. Similar to the theories underlying mainstream literacy programs, there are a myriad of models to conceptualize and operationalize curriculum and instruction in mainstream literacy (Alvermann, Unrau, & Ruddell, 2013). However, many bilingual researchers (Calderon & Minaya-Rowe, 2003; Escamilla, 2010) agree that biliteracy program models are in dire need of model testing. Calderon and Minaya-Rowe (2003) and Freeman et al. (2005) point to the National Research Council's (Foorman, Francis, Fletcher, & Mahta, 1998; Slavin & Madden, 2001) conception of comprehensive literacy.

According to this more complex, dynamic view of comprehensive literacy, all components of literacy should be included that are evidenced-based (National Reading Association, 2002) and that provide children with the opportunity to “acquire the level of literacy that allows them full participation in our democratic society” (Calfee, 2005, p. 67). This comprehensive model of literacy that serves as a foundation to biliteracy moves “beyond the code versus meaning debate (i.e. balance in the past) to argue that there are many independent elements of literacy that must be simultaneously balanced (i.e. balance today)” (Madda, Griffo, Pearson, & Raphael, 2011, p. 121).

Furthermore, both mainstream and biliteracy programs must maintain balance in a comprehensive literacy program means by attuning to the balance in literacy contexts

and content (Madda et al., 2011). In referring to literacy contexts that are balanced ,Madda et al. (2011) refer to the components of a literacy program that surround the learning. In terms of context, the Madda et al. (2011) argue for a balance in authentic (or real work for real audiences) and inauthentic work (practice without a real audience), classroom discourse as well as teachers’ roles and curricular control. They continue to explain that comprehensive literacy programs must be balanced in terms of contexts because it is critical to supporting literacy development. Table A.2 summarizes the key points in maintaining balance in terms of contexts.

Table A.2

Balance in Contexts Continua

Type	Description	Research Support
Authenticity	There should be a balance between doing school and doing life; neither one should be pursued too single mindedly or students will miss important skills	Purcell-Gates, Duke & Marineau, 2007
Classroom Discourse	Consider who controls the topics and what languages are used during discussion.	Gee, 2002, 2007
Teacher’s Role	Teachers can participate in directing students’ learning in five different ways, varied by level of involvement: explicit teaching, modeling, scaffolding, facilitating, and participating.	Au and Raphael, 1998
Curricular Control	There should be a sense of balance between control from the national, state, district, school and teacher level in curriculum decisions.	Madda et al., 2011

While some of the types of context continua seem to exist in binaries (authentic and inauthentic, teacher control of discourse and student control of discourse), each of these context types exist along a continuum that an expert teacher who knows his/her class must adjust throughout the school year, semester, unit and lesson. This is surely where the art and balance of teaching meet and why it is necessary to have strong

programmatic support to serve as a nurturing environment for teacher decision-making (Langer, 2002). Nonetheless, balance in a comprehensive literacy program expands beyond the balance of contexts to also include balance the type of literacy content (Madda et al., 2011). By literacy content, Madda et al. (2011) mean that there needs to be a balance in what is taught. Table A.3 details the types of balance in literacy content, several of which have been the topic of heated debate.

Table A.3

Balance in Content Continua

Type	Description	Research Support
Skill Contextualization	This refers to a balance in using predetermined curriculum or the regular course of instruction to teach specific skills.	Pearson & Raphael, 1990
Text Genres	This refers to a balance in genres that students read and study in class, including the new literacies and multimodal literacies.	Duke & Purcell-Gates, 2003; New London Group, 2000; Pahl & Rowsell, 2012
Text Difficulty	Students should have access to decodable as well as quality literature.	Rafael, et al., 2004
Response to Literature	There should also be a balance between text-driven response to literature and reader-driven response to literature.	Galda & Beach, 2001
Subject-Matter Emphasis	There should be care that school curriculum not become too literacy centric, while still making cross-curricular connections by authentically implementing literacy strategies.	Cervetti et al., 2006
Balance within the Language Arts	The language arts (reading, writing, listening, speaking) have distinct functions but are also synergistic.	Madda et al., 2011
Reading Instruction	This refers to the need to balance teaching reading as code and reading as meaning.	National Reading Panel, 2000

Like the context continua, the content continua show range in content focus in comprehensive, balanced literacy programs. This comprehensive model with its ultimate goal at meaning-making, which also applies to biliteracy programs. Over the past six decades, the field has moved once again beyond binary views of literacy instruction to embrace a more complex, comprehensive view of effective programs (Langer, 2002; Madda et al., 2011). Yet it is the next model of literacy that somewhat distinguishes biliteracy programs from mainstream literacy programs. The transactional, psychosociolinguistic theory of biliteracy placed forward by Freeman et al. (2005) aligns with Collier and Thomas's (1997, 2007, 2009) bilingual prism model.

This prism model specific to bilingual learners is characterized by four major components that fuel language acquisition in school: sociocultural, linguistic, academic and cognitive processes (Thomas & Collier, 2009). According to Thomas and Collier, these are "the same developmental practices that occur naturally for any child all through the K-12 school years" (p. 56). However, the bilingual student is doing this in both languages. Thus, emergent bilinguals' language acquisition is based on the three sides of academic development, first and second language development and first and second language cognitive development, as well as academic development. Holding it all together, through a complex and multidimensional fashion, are the social and cultural processes associated with first and second languages.

Hornberger's (2001) work on the continua of biliteracy expands the sociocultural processes and places of emergent bilinguals' language learning of Collier and Thomas's (2009) bilingual prism model to include four hierarchal contexts. Here, bilingual learning, (which he calls development) is situated immediately by content, media and

contexts. According to Hornberger (2001), the dimensions of content, media and other contexts interact to create the ecological environment for the languages and so “provides a heuristic for addressing the unequal balance of power across languages and literacies” (p. 38).

Taken together, the literacy models context for mainstream and biliteracy programs both aim to convey the complex, dynamic components and processes of literacy. While both mainstream and biliteracy have similarly corresponding models (both have access to transactional, psychosociolinguistic models, sociocultural and cognitive models as well as situated discourses), it appears that biliteracy’s models are much more narrow in number and specific in focus.

A possible explanation for the lack of models in biliteracy is bilingual education’s historic focus on language rights for language of instruction (Escamilla & Hopwell, 2010; Ovando, Collier & Combs, 1998). Escamilla and Hopwell (2010) further argues that this is based on a language ideology that views the non-English language as a problem to be solved (also see Crawford, 2004; Ruiz, 1984). Seeing language as a program is especially seen through the pervasive xenophobia and languages ideologies surrounding bilingual education’s history (Crawford, 2000). Subsequently, there is a whole other layer of sociohistorical complexity in biliteracy that mainstream literacy experiences in microcosm.

The sociohistorical context. Almost every book and article in dual language programs and biliteracy begin with an explicit or implicit reference to language policy (August & Shanahan, 2006; Calderon & Minaya-Rowe, 2003; Crawford, 2004; Cummins, 2000; Collier & Thomas, 2009; Freeman et al., 2005; Perez & Guzman,

2002; Valdes, 1998). It doesn't matter if it is the mention is a sentence, a chapter or an entire part of the book; each work demonstrates by its mere inclusion, a reference to bilingual education's vitriolic past and its residual influence on current thinking and practices. That's why I would contend that while both mainstream literacy and biliteracy programs have multilayered, complex contexts, biliteracy programs are particularly marked by the languages ideologies of its people in its contexts (Gee, 2007, 2012).

Ruiz's (1984) seminal work on language ideology is a traditional framework for positioning bilingual education in the U.S. In short, he states that there are three general perspectives in viewing language diversity: one can see language as a problem, as a right, or as a resource. All three perspectives are seen to varying degrees throughout the history of bilingual research. According to Ruiz (1984), viewing language as a problem means seeing a language as something that needs to be fixed; much of the initial two decades of bilingual education represent this paradigm, where there was immense struggle in legitimizing a non-English language in schools (Freeman et al., 2005; Perez & Guzman, 2002).

Viewing language as a right, however, represents the reaction to the view that non-English languages in school were a problem. Here, the emphasis is on the inherent justification of one's language for its own sake. This paradigm can be seen throughout part of the 1980s and in response to the English Only movement in the 1990s (Perez & Guzman, 2002). Nevertheless, the last language perspective, language as resource, is one that proponents of bilingual education have long held , but has only recently (in the last ten to fifteen years) seen sway in greater parts of the American Public (Crawford, 2000, 2004).

Inherent in these language ideologies, seeing language as a problem, a right or a resource, are the power relations between the language majority and language minority speakers. According to Cummins (2000), the fundamental root of inequality is that the interactions between educators and students reflect and reinforce the broader social patterns of coercive power relations between the dominant and the dominated group. Subsequently, in his line of thinking, developing biliteracy is not enough; students must also develop critical literacy in multilingual classroom contexts in order “read the word and read the world” (Freire & Macedo, 1987). So, Cummins (2000) and Freire and Macedo (1987) argue for biliteracy programs to be transformative in nature so that it empowers its learners with skills to face broader social inequities. With these coercive power relations, it is especially imperative that biliteracy programs intentionally ensure culturally relevant teaching at all levels of the program—from professional development and student instruction, to intergroup relations, school governance and assessment (Banks, Cookson, Gay, Hawley, Irvine, Nieto, & Stephan, 2001).

Bilingual and Biliteracy Development

Depending on the type of dual language program a school chooses, the program will have a mix of language proficiency levels in the two languages of the program. Due to this variability in students’ linguistic history, it is imperative that dual language stakeholders understand the differences between simultaneous and sequential bilingual development. To neglect attuning to these differences would create an incompatible language-program-language-development-dynamic, leading to undue frustration with unmet expectations.

In order to mitigate the frustration stemming from a misunderstanding of bilingual development, there are two main aims of this section of the paper: to define contemporary bilingualism in general (and therefore clarify some mainstream misconceptions of bilingualism) and compare sequential and simultaneous bilinguals in regards to three factors in psycholinguistic development. Through achieving these objectives, I intend to show that while there are distinct developmental differences between sequential and simultaneous bilinguals, these rigid categories do not fully represent the reality of dual language students; instead, many students fall someplace between sequential and simultaneous bilingual continuum. This more holistic view of psycholinguistic bilingual development is made especially clear as I survey three major factors influencing bilingual development that dual language programs can capitalize on: age and rate of acquisition, linguistic environment and crosslinguistic influences. As a result of defining bilingualism and its development more holistically, I plan to set a theoretical stage for my current study with practical implications in U.S. Spanish-English dual language programs.

Who is Bilingual?

Determining exactly who is bilingual largely depends on whom you ask—linguists, educators and lay people are likely to give varying, conflicting definitions. Many linguists (Baker, 1988; Bloomfield, 1933; Edwards, 2004; Grosjean and Li, 2012; Weinreich, 1953) agree that there is an array of definitions for bilinguals and bilingualism, depending on the contexts in which these words are used. A “bilingual” can simply be a person who has knowledge of two or more languages or a person who uses two or more languages (Grosjean and Li, 2012, p. 10). In other words, bilinguals

and bilingualism can be defined in terms of fluency (in the languages involved) and use. In terms of fluency, then, a bilingual may be a *balanced* or *unbalanced* bilingual (Peal and Lambert, 1962). A balanced bilingual is “one who develops similar degrees of proficiency in both languages, whereas [unbalanced] bilinguals are individuals whose proficiency in one language is higher than that in the other language(s)” (Butler and Hakuta, 2006, p. 23). That is, these bilinguals have similar levels of proficiency in two languages.

One of the primary misconceptions regarding bilinguals is that they are equally knowledgeable in both the languages involved and, furthermore, have mastered two or more languages. In reality, however, “the majority of bilinguals do not have equal fluency in their languages, many have an accent in at least one of their languages and may have acquired their other languages when they were adolescents or adults” (Grosjean & Li 2012, p. 20). Subsequently, Grosjean and Li (2012) maintain that those with differing levels of fluency not only qualify as bilinguals, but also maintain that this lack of equal proficiency in both languages is typical. Grosjean (2008) further argues against a strong fractional view of bilingualism that insists bilinguals have or should have “two separate and isolable language competencies [that are] similar to those of the two corresponding monolinguals” (p. 10).

Subsequently, expecting a bilingual to have equal fluency in both languages to the degree of a monolingual in each language is not having a correct or comprehensive understanding of bilingualism. It is completely possible that a bilingual may have receptive and productive knowledge in one language (listening and reading; speaking and writing respectively) and what is termed as the “passive” knowledge in another

language; that is, the bilingual is able to listen, speak, read and write in one language, but is only able to understand (listen and read) in the other language (Edwards, 2004). Of course this idea of a productive ability in one language and passive ability in another language is merely one possibility. Many bilinguals fall somewhere along the continuum of dominance and development between their two languages and the language skills (Baker, 1988; Edwards, 2004; Myers-Scotton, 2010). Subsequently, having an unequal dominance between one's languages is entirely a common phenomenon for bilinguals. (Eilers, Pearson, & Cobo-Lewis, 2006; Grosjean, 2010; Johnson & Newport, 1989; Piske, MacKay, & Flege, 2001).

One reason for this difference in fluency between a bilingual's languages is that bilinguals use their languages for different purposes in different situations (Grosjean, 1989; Meyers-Scotton, 2006). Grosjean (1989) explains this phenomenon through the *complementarity principle*. Here, the bilingual may use his/her languages for different domains in life (e.g. with siblings, parents, relatives, friends, and other people at home and other informal domains and with people at workplace, recreation, school, etc.) to differing degrees. Some people and situations may lead the bilingual to the use of one language or a combination of languages. One example may be that one language primarily for informal, relational purposes at home, another language for work and academics, and a combination of the languages with other members of the community. Due to this phenomenon, many linguists believe that to define bilinguals solely by their fluency in their languages is limiting to the scope of bilingualism (Grosjean & Li, 2012; Mackey, 1999; Myers-Scotton, 2006; Weinrich, 1968). Furthermore, Weinreich (1968) and Mackey (2000) emphasize that language use, rather than language fluency, should

be the determining factor of bilingualism. According to this perspective, a bilingual's languages cannot only have different purposes (Myers-Scotton, 2006), but may also have different domains (of use) for each language.

The results of having different domains for different languages are increased use and many times increased proficiency of one language over another (Schmid, Kope, Keijzer, & Weilemar, 2004). Through the continued use of a language for a particular domain, the bilingual increases his/her proficiency in the language. Yet, the reverse is also true: if a bilingual does not use a language in a certain domain, it is very likely that he/she will not have the vocabulary, variety and style needed for that domain (Grosjean and Li, 2012). This tendency holds true despite popular thought that suggests a bilingual knows two words, one in each language, for any given concept (Grosjean, 2008). Another implication for using one language for a certain domain is that bilinguals may have linguistic knowledge for a domain in one language but not another (Grosjean, 2008). For instance, a bilingual may have work vocabulary in one language, but not another because the person only uses the said language at work. This is especially true if a domain's language is highly specialized and context dependent like certain fields of work, religion and academic life.

Over time, this one-language one-domain trend may create a dynamic change in a person's language configuration and language processing. Furthermore, one's first language is not always the speaker's dominant language (the one with more use, fluency and domain coverage). It is completely possible that one's dominant language can change over the course of the life span due to the prominence of one language's use in certain domains. In this way, one's first language may wax in dominance (use,

proficiency and domain coverage) because of heavy use and domain coverage of another language (Cooper, 1971; Grosjean, 2008; Grosjean and Li, 2012). For example, a person may be born into a language community speaking language A at home. Then at school age, the person may begin to speak languages B and C. Afterward throughout his/her adult life, the speaker may speak language B at work and (because he/she spends most of his/her time at work) become dominant in language B, though it is not the speaker's first language.

This change in language dominance was the subject of Grosjean's 2010 study, where a participant's language dominance changed four times over 50 years, with his second language serving as his dominant language for 10 years at two different points in his life. So in addition to having varying levels of fluency and use in each language, a bilingual may also change his/her language dominance over the course of his/her life. This discussion of language fluency and language use is especially salient for language programs that often rely on first and second language designations to consider language dominance. Given such a scenario, it is therefore, important to consider one's dominant language use in general and the domain in particular before considering one's first or second language to determine dominance.

With a foundational understanding of language proficiency and language use, one can see that the issue of determining exactly who is bilingual is a multilayered, complex question. Language proficiency exists along a continuum of being balanced and unbalanced as far as each language is concerned, and this proficiency can be strongly influenced by language use over time (Cooper, 1971; Grosjean, 2012; Grosjean & Li, 2012). The following sections concerning the definitions of sequential

and simultaneous bilinguals and the major factors influencing bilingual development will speak to how dual language programs can capitalize on creating a language program that provides ample opportunity to use the target languages in various domains. By doing so, dual language programs may set the conditions for students to develop high levels of proficiency for all bilinguals, no matter where they fall on the sequential-simultaneous bilingual continuum (Thomas & Collier, 2002).

Definitions of sequential and simultaneous bilinguals. Sequential bilinguals as a category portray key characteristics in language development and processing that are distinct from simultaneous bilinguals. Yet settling on an exact definition for each bilingual type is an intensely contested issue (De Houwer, 2009; Deuchar and Quay, 2000; Grosjean, 2008; Schlyter, 1999). I hold to the view, along with Baker (2011), Cook (1991, 1996), Escamilla, (2006), Garcia (2009, 2010, 2011) and Grosjean (2008), that sequential and simultaneous bilingualism exist along a continuum rather than two distinct categories; to strictly classify bilinguals as either simultaneous or sequential greatly reifies the language learning experience of bilinguals, creating arbitrary dichotomies that don't represent the dynamic realities of bilingualism. So in defining sequential bilinguals, I will loosely use the definition touted by second language acquisition (SLA) researchers: sequential bilinguals are those who learn a second language in "late childhood, adolescence or adulthood, and once the first language or languages have been acquired" (Ortega, 2009, p. 2).

As such, SLA differs from monolingual language acquisition and simultaneous bilingual acquisition in that it explores second (or third) language acquisition after the first language has been acquired. By definition, this tends to happen later in life in

contrast to simultaneous bilinguals who are exposed to two or more languages from birth up to three years of age (McCardle & Hoff, 2006). Even though second language acquisition may happen later than first language acquisition, this idea of “later” is relative: sequential bilinguals can include those who learn a second language at the age of three, thirteen or twenty-three. For native Spanish and English speakers of U.S. English-Spanish dual language programs, this “later” in second language acquisition usually occurs at school-age, when many dual language programs start. As a result, it is important to note that SLA may overlap with first language acquisition (Ortega, 2009), thus making the need for a sequential-simultaneous bilingual continuum all the more necessary. Even with this wide range in who is considered a sequential bilingual, SLA researchers use the term *mother tongue* or *first language* (L1) to refer to the first language(s) sequential bilinguals hear from birth and *additional language* or *second language* (L2) to refer to any other language learned after L1 (Krashen, Long, & Scarcella, 1979). This L1 and L2 phenomenon is exactly what SLA researchers investigate.

In addition to the native English and native Spanish speakers of U. S. dual language programs that may be classified as sequential bilinguals, there is another category of students who experience two languages from birth to three years old named simultaneous bilinguals (Clark, 2003). Compared to SLA research on sequential bilinguals, there is relatively little research on simultaneous bilingual development. In fact, as of 1999, only 2% of the research on language development focused on children learning two languages simultaneously (Bhatia & Ritchie, 1999). This is quite a startling finding considering that globally speaking, most people grow up in multilingual contexts

(Grosjean, 1982). As a result, a large portion of the research reviewed in this section will come from SLA research, including simultaneous language acquisition research as available.

For the purposes of this paper, I will use the term *sequential bilinguals* refer to those who enter school age mostly proficient in one language and the term *simultaneous bilingual* to refer to those who have varying levels of proficiency in two languages upon entering school. In referring to the language development of sequential bilinguals, I will use the term *L2 acquisition*; in referring to the language develop of simultaneous bilinguals, I will use the term *language maintenance*; and in referring to both types of bilinguals I will use the term *bilingual development*.

Factors influencing bilingual development. The following section will examine three of the major factors affecting bilingual development that dual language programs can affect: age and rate of acquisition, the linguistic environment and crosslinguistic influences (Fernald, 2006). Other key factors affecting language acquisition like cognition, language aptitude, motivation, affect and personality differences are excluded from this analysis because these factors are highly individualized in nature (Ortega, 2009). Instead, I seek to focus on the factors that language programs can systematically maximize to create favorable conditions for L2 acquisition and language maintenance. Dual language programs stand out from other languages programs in that they create a unique linguistic environment with room to use and develop high levels of proficiency in two languages over several domains at an early age, while emphasizing the crosslinguistic similarities between bilinguals' two languages (Baker, 2011; Cummins, 2000; Escamilla, 2006; Thomas & Collier, 2002). While each factor

(age and rate of acquisition, linguistic environment and crosslinguistic influences) is initially treated separately, in practice each factor works together in an interdependent relationship that strengthens bilinguals' language development (Collier & Thomas, 1997).

Age and rate of acquisition. Most children acquire their first language by the age of six years old. The age that one acquires a second language, on the other hand, is different for each learner, with the age of initial second language learning varying widely (Ortega, 2009). This leads to variable differences not only in age of first exposure to a second language, but also language use and fluency in bilinguals (Fernald, 2006). Accordingly, age of acquisition is a major issue in SLA, which is very closely related to ultimate attainment in a second language (Cook, 1991, 2008; Grosjean, 1989). To date, this topic remains one of the most investigated of SLA, without much consensus. Many of the findings are conflicting and difficult to interpret, leaving many questions to age effects on L2 unanswered (Birdsong, 2006; Herschensohn, 2007; Hyltenstam and Abrahamsson, 2003).

The notion that there is an optimal or critical time to learn a language, beyond which it is impossible or nearly impossible to learn, is known as the *critical period hypothesis*. This critical period hypothesis (CPH) was considered supreme in the 1960s and is still considered a possibility today in SLA (Ortega, 2009). Penfield and Roberts (1959) believe that the human brain begins to lose plasticity at nine years old. Leneberg (1967), another researcher that influenced this theory, believed this critical brain plasticity period could extend as far as puberty. During this time, the process of lateralization, when the specialization of language in the left hemisphere, takes place; it

is a pre-programmed time when the brain is ready to be shaped. So, the thinking goes, if one misses this critical period of development, one is not able to develop the skill in question. Pinker (1994) further developed the CPH as he claimed language acquisition is:

guaranteed for children up to the age of six, is steadily compromised from then until shortly after puberty, and is rare thereafter. Maturational changes in the brain, such as the decline in metabolic rate and number of neurons during the early school-age years, and the bottoming out of the number of synapses and metabolic rate around puberty, are plausible causes. We do know that the language-learning circuitry of the brain is more plastic in childhood; children learn or recover language when the left hemisphere of the brain is damaged or even surgically removed (though not quite at normal levels), but comparable damage in an adult usually leads to permanent aphasia. (p. 152)

In this way, Pinker (1994) shows that there is a critical period of language development up until age six, and there is a progressive sensitive period until puberty that allows for language acquisition as a possibility, though it becomes almost impossible afterward due to biological human development. Pinker's (1994) view of the CPH stands somewhat in the middle of the original CPH and the *sensitive period hypothesis*. According to the sensitive period hypothesis (SPH), there is no absolute time period that one must learn a skill (or language in this case); yet during this time one is considerably more able to develop a skill, after which it is significantly more difficult to acquire (Harley and Wang, 1997). The basis for this belief comes from owls' ability to process spatial information auditorially (Knudsen, 2004). Owls create mental maps of their surroundings based on auditory cues at a young age. If an owl has a hearing or vision impediment during this sensitive period, an owl will not be able to normally process spatial information normally as it ages. The idea of a critical or sensitive period for development has been shown to hold true for other animals (Knudsen, 2004). Not

only that, but also studies of feral children, deprived of social interaction and language development until past puberty, have shown continual struggle with language acquisition, despite all efforts to teach the children language (Candland, 1993; Curtiss, 1977; Rymer 1993).

Taken together, the critical period hypothesis and the sensitive period hypothesis represent two strong theories in explaining ultimate attainment in the language proficiency of bilinguals. Others (Bialystok and Hakuta, 1999; Marinova-Todd, Marshall, & Snow, 2000; Miles & Snow, 1978) believe that while biological development may explain some of the differences between early and late language learners, most language attainment differences are more likely a result of socio-educational and motivational forces. That is, the educational environments, social networks and motivations of adults are so drastically different than those of young learners, that it is possible that it is these social factors rather than age itself that differentiates language attainment for early and late language learners. Due to these social factors, Marinova-Todd and colleagues (2000) posit that these critical or sensitive periods for SLA are not completely insurmountable.

Another aspect of SLA closely related to age of attainment is the rate at which one can learn a language. Popular thought in the lay community is the belief that children are more readily able to learn a language (Crawford & Krashen, 2007). However, studies in the 1970s have shown that this is not entirely true. Two studies in the Netherlands (Snow & Hoefnagel-Hohle, 1977, 1978) found that adults could learn more than children in 25-minute sessions for up to a year; yet this adult advantage begins to wane after ten months. Krashen, Long, and Scarcella (1979) hypothesize that

adults have an initial advantage in SLA due to their generally more developed cognition, but this advantage tends to decline over the long run, thus showing children to have the advantage in SLA. Of the 28 studies the researchers studied (Krashen et al., 1979), five long-term studies conclude that young language learners perform significantly better than late(r) language learners. Long (1990) and Aoyama, Guion, Elege, Yamada, and Akahane-Yamada (2008) also reach the same conclusion regarding age of acquisition; because the initial adult advantage dissipate after approximately a year's time, children eventually outperform later language learners.

Language acquisition rate is an especially contentious issue in U.S. bilingual education (Crawford, 2004; Cummins, 2000; Baker, 2011). Often children who are acquiring two languages are required to take state mandated tests within two years of arriving to the country. Linguists and bilingual educators alike argue that this policy stands in direct contrast to the time it takes to acquire academic proficiency in another language. According to Cummins (1981), "Conversational aspects of proficiency reached peer-appropriate levels usually within about two years of exposure to L2 but a period of five to seven years was required, on average, for immigrant students to approach grade norms in academic aspects of English" (p. 58). Based on this rate of acquisition, testing academic concepts in L2 for a sequential bilingual and in an emergent language for a simultaneous bilingual is inappropriate (Gathercole, 2013a). So while some studies may show that children have an advantage in learning language (Aoyama et al., 2008; Krashen et al., 1979; Long, 1990; Snow and Hoefnagel-Hohle, 1977, 1978), this does not mean that sequential and simultaneous bilingual students perform commiserate with monolingual peers.

Furthermore, even with the evidence supporting younger language learners, other studies contradict these findings. Garcia Mayo and Garcia Lecumberri (2003) and Munoz (2006) found that later language learners (between the ages of 11 to 17) actually maintained their advantage over early language learners (between the ages of eight to 16) for more than five years after instruction (seven and nine years, respectively). Ortega (2009) argues this advantage for the later language learners may be due to the intensity and quality of exposure to L2 that exists in foreign and second language learning contexts, rather than age of acquisition in and of itself.

In fact, students enrolled in a foreign language program may receive significantly less instruction, experiencing as little as 540 hours of actual instruction and exposure over five years. Students in second language programs, conversely, may gain up to 7,000 hours of L2 instruction and exposure over the same time period. As a result, Singleton (2003) purports that in addition to age, the linguistic environment also significantly affects ultimate language proficiency.

Simultaneous bilinguals, on the other hand, by definition are exposed to both languages from birth, providing them with input and output opportunities to develop both languages that are not afforded to sequential bilinguals (Yip, 2012). This time period from birth to three years old creates a linguistic environment where, depending on the amount of exposure of each language, speakers may not have an L1 or L2; that is, since both languages are acquired at an early age, simultaneous bilinguals may not initially have a dominant language. McCardle and Hoff (2006) explain that these speakers take part in “bilingual first language acquisition (BFLA)” (p. 2). One of the hallmarks of BFLA is being able to easily perceive the phonetic differences in consonant

and sounds of each language (Bosch & Sebastian-Galles, 2003; Burns, Werker, McVie, 2003) and differentiate phonemes and lexemes in each language (Jusczyk & Aslin, 1995; Polka & Sundara, 2003). While BFLA research is still in its infancy, McCardle and Hoff (2006) maintain that the “developmental trajectory is different for BFLA infants, and the use of phonological information remains distinct even in fluent adult bilinguals” (p. 14).

While there is little currently known about BFLA for simultaneous bilinguals, SLA and bilingual education research (Baker, 2011; Cummins, 1981, 2000; Thomas & Collier, 1997, 2002, 2009) does show that the continued development and maintenance of bilingualism is largely dependent on the bilingual’s linguistic environment. It is especially at school age where age, rate of acquisition, and linguistic environment intersect for the simultaneous bilingual: the linguistic environment in childhood and adulthood primarily predicts if simultaneous bilinguals will develop into balanced or unbalanced bilinguals (Yip, 2012). The exact language programs and theories that support bilingual development for sequential and simultaneous bilinguals will be explored in the next section.

Linguistic environment. A bilingual’s linguistic environment has a major impact on sequential bilinguals’ (Garcia Mayo and Garcia Lecumberri, 2003; Munoz, 2006) and simultaneous bilinguals’ (Yip, 2012) language proficiency development. From a cognitive-interactionist view (Piaget, 1974), one’s linguistic environment consists of the bilingual’s attitudes toward his/her language(s), the input he/she receives, the interaction with the languages, as well as the amount and quality of language output. A number of SLA theories work together to provide a multidimensional view of bilinguals’

linguistic environments (Ortega, 2009). These include the acculturation model, comprehensible input hypothesis, the interaction hypothesis, the pushed output hypothesis and the noticing hypothesis. All of these theories are either strengthened or mitigated by the linguistic environments of school, as shown in the analysis of program models in the previous section.

As Crawford (2004)'s chart in conjunction with the bilingual prism (Thomas & Collier, 1997) show, only the last three programs, developmental bilingual education, two-way bilingual education and dynamic bi/plurilingual education, provide an additive linguistic environment with the goal of bilingualism and biliteracy for an extended period of time (Crawford, 2004; Garcia & Klefigen, 2010; Thomas & Collier, 2002). All the other programs, submersion, ESL pullout, ESL push in, structured immersion and transitional bilingual programs, provide linguistic environments with significantly less amounts of bilinguals' two languages (some programs like submersion, ESL pull out, ESL push in and structured immersion don't provide for the inclusion of the other language at all), with diametrically different purposes (proficiency in one target language) and furthermore different outcomes (usually language loss in one language and development in the other language).

It is under this backdrop of language programs that the following theories are implemented to varying degrees, and thus set the conditions for the development or impediment of the bilingual's languages. To start, Schumann's (1979, 1990, 1997) acculturation model, based on a case study of Alberto, predicts that the more acculturated a learner becomes, the more successful the learner's learning outcomes will be. In other words, Schumann defines acculturation as the learner's attitude toward

and participation with the target language and culture. So the more positive attitude the learner has, the more positive the language proficiency. In Schumann's (1979) study, Alberto had a negative affect toward the target language and people, leading to a negative language-learning environment. This caused Alberto to stagnate in language learning, creating a pidgin-like grammar. One's attitude, as explained by the acculturation model, is a prime ingredient in affecting ultimate attainment in L2 for the sequential bilingual. Developing a positive attitude is especially seen through additive language programs that aim to add another language and culture to the learner's already existing language and culture, as opposed to subtractive programs that take away one's language and culture in order to add another language and culture (Baker, 2011; Cummins, 2000). Yet, language attitude is by no means a sufficient explanation for ultimate language attainments in regards to linguistic environment.

In addition to language attitude, it is essential that language learners have comprehensible input in their linguistic environments. Schmidt's (1983) study on L2 language learning initially aimed to support the acculturation model, but actually revealed how language attitude is not the only nor the most important factor in SLA. In response, Krashen (1985) developed the *comprehensible input hypothesis* to describe the central role that input plays in L2 learning. According to this theory, the most important source of L2 learning occurs when learners participate in situations where the language is slightly above their current level in proficiency. Krashen considered this "i + 1". The logic follows that with passive input slightly above their current understanding, learners will process messages for meaning, thereby leading to natural learning. This idea of comprehensible input is very similar to first language acquisition; learners build

grammar and vocabulary when exposed to caretakers' language in order to make meaning.

For the simultaneous bilingual, having sufficient input is slightly more complicated. Yip and Matthews (2007) argue that language development is twice as complex for bilingual children, because in addition to learning one complex language system, they are learning two. Then add to the intricacy of learning two complex language systems the fact that input in each language is divided between the bilingual's two languages (since the amount of time hearing any language is shared by the time hearing the other language) and the simultaneous bilingual experiences a unique input experience from the monolingual in his/her linguistic environment. As such, Yip and Matthews (2007) extend Chomsky's (1980) poverty of the stimulus for monolingual language learners to be called "poverty of the dual stimulus" for simultaneous bilinguals (p. 30 to term this lessened input that the simultaneous bilingual receives each of his/her languages.

The result of this unique input configuration is the *paradox of bilingual acquisition* termed by (Francis, 2011) and explained by Yip (2012):

on the one hand, to account for the successful development of grammatical competence in two languages, one must assume that the language faculty is entirely capable of dealing with the challenges of dual input; on the other hand, unlike the case of first language acquisition, the development of bilingual competence is far from guaranteed, and many children who do develop bilingualism show unbalanced development in their two languages. (p. 97)

As this explanation shows, the distinct linguistic environment provided to the simultaneous bilingual peculiarly positions him/her to easily learn two languages; yet it is this same linguistic environment that may lead to the simultaneous bilingual's unbalanced development. This scenario represents a paradox indeed, and I believe

also exemplifies why it is vital to consider the other theories that undergird the linguistic environment of bilinguals: Comprehensible input is a necessary but not sufficient factor in the bilingual's linguistic environment. Krashen (2004) himself has noted that there is a distinct difference between comprehension and acquisition. It is quite possible to comprehend a language (reading and listening), but not be able to acquire the language (which requires the additional language domains of writing and speaking).

In 1996, Long proposed the *interaction hypothesis* to further explain the linguistic environment's role in SLA. Here, Long expanded Krashen's (1985) comprehensible input hypothesis, agreeing that language acquisition occurs when a learner has comprehensible input, but added an additional piece: the best kind of comprehensible input occur when the learner has to modify the input through interaction. That is, the learner negotiates meaning through clarification requests for parts of the conversation that aren't understood. The learner can request clarification by asking questions like "excuse me" or "huh?" as well as produce confirmation checks when the learner has some understanding of the message. The learner can create a confirmation check by paraphrasing or repeating the main idea of the message. At times, the other speaker may modify his/her speech to ensure that the learner understands. This creates a bidirectional relationship in comprehension checks that increases L2 comprehension and acquisition (Pica, 1994). These findings are also supported by others (Gass and Veronis, 1994; Keck, Iberri-Shea, Tracy-Ventura, & Wa-Mbaleka, 2006; Mackey, 1999; Mackey and Goo, 2007).

Through the interaction hypothesis, researchers began to see the importance of output, or production, in SLA (de Bot, 1996; VanPatten, 2004). SLA is not just an issue

of comprehension through messages that are slightly above the learner's current level, nor a matter of negotiating messages to make meaning; these components, though necessary, were not sufficient to guarantee successful L2 acquisition. In her study of French immersion programs in Canada, Swain (1985) developed the *pushed output hypothesis* to address the missing component in L2 acquisition. Through her study she found that though the school immersion program (kindergarten to sixth grade) provided optimal discourse competence, these students did not develop grammatical competence or sociolinguistic competence. That is, the students were able to understand school content learning, but were unable to implement the formal and informal French "you" and use the conditional tense to mark politeness.

As a result of her study, Swain (1985) and others (de Bot, 1996; VanPatten, 2004) argue that optimal L2 learning must include speaking and writing activities that are slightly above the learners' current level so that they may develop the high language competence of more proficient bilinguals. Swain (2000) later expanded her initial pushed output hypothesis to include a sociocultural frame. Here, Swain explains that as learners plan and produce output (through speaking and writing), the notice breakdowns in their messages, which provides opportunities for learners to revise utterances and negotiate linguistic forms for production. Further supporting the pushed output hypothesis is Gas and Varonis's (1994) study that found higher quality output for learners that interacted with native Dutch-speaking students, as opposed to other L2 learners. So addition to comprehensible input and opportunities to express oneself in L2 is a need for negotiation of meaning.

Yet merely having ample opportunity for comprehensible input, output and meaning negotiation does not insure high levels of L2 acquisition (for the sequential bilingual) and bilingual maintenance (for the simultaneous bilingual). The last component necessary for optimal bilingual development is the learner's attention (Ortega, 2009). Schmidt (1995) defines attention as the intentional noticing of relevant material in the environment. This includes noticing new material formerly unknown to the learner, as well as mentally storing an unknown linguistic token to be studied later. Schmidt (2001) later expands the role of attention in L2 acquisition by concluding this relationship between noticing and L2 learning: the more one notices, the more he/she learns. In this way, an L2 learner pays attention to new features in L2 (Schmidt, 1995), notices the difference between what he/she knows and what other interlocutors know (Schmidt and Frota, 1986), as well as find breaks in their expressive language competence (Swain and Lapkin, 1995).

This noticing can be utilized as a metacognitive strategy, both internally and externally motivated to develop holistic L2 acquisition (Ortega, 2009). As the language learner notices what he/she understands and is able to produce, he/she is able to check for understanding and employ fix-up strategies in the moment as well as afterwards in order to advance his/her learning. For example, the language learner may be internally motivated to speak or write correctly. In order to do so, the learner may rehearse an utterance, paying attention to what he/she knows and then seeking resources (such as a translation device or another speaker of that language) to confirm his/her understanding on a questionable word choice or grammar structure. By doing so, the learner is employing a metacognitive strategy to further develop his/her holistic L2

acquisition; the language learner understands what he/she needs for the moment, but also learns for the future, by noticing and employing this metacognitive strategy.

At this point, the sequential bilingual's linguistic environment has been discussed in terms of language attitudes through the acculturation model (Schumann, 1979, 1990, 1997) and the need for comprehensible input (Krashen, 1985) and output (Swain, 1985) that is slightly above the learner's current abilities. All the while the learner's acquisition develops, he/she notices key linguistic features (Schmitt, 2011) and negotiates meaning with the interlocutors in his/her environment (Long, 1996). The research has shown that none of these hypotheses are sufficient in and of themselves to explain the effect of linguistic environment on sequential bilinguals' ultimate level of L2 attainment and bilingual maintenance; it is only when they are analyzed together that these components more closely approximate the influence the linguistic environment plays in language acquisition for sequential bilinguals and continued language development in both languages for simultaneous bilinguals. Furthermore, these hypotheses, while undeniably influential on bilingual development, still fail to consider the sociocultural aspects and power relationships that affect L2 acquisition, L1 maintenance and bilingualism in general (Lindmann, 2002; Ortega, 2009; Schmidt, 1983). This is a serious shortcoming of the cognitive-interactionist perspective that dominates SLA. Subsequently, other researchers focus their research on the sociocultural and power roles on L2 acquisition (Potowski, 2007; Pavlenko & Blackedge, 2004a, 2004b).

Crosslinguistic influences. In addition to the linguistic environment, another major factor that influences bilingual development and can be maximized in dual language programs is the linguistic similarities between bilinguals' languages.

Contemporary linguists use the terms crosslinguistic influences or transfer to refer to this idea, while previous SLA research utilized the term interference (Jarvis & Pavlenko, 2008; Odlin, 1989; Ortega, 2009; Ringbom, 1987, 2007). The reason for this change in terminology is largely due to a refined understanding of crosslinguistic influences; this includes both the positive ways one's L1 affects L2 development (how the L1 helps L2 acquisition) and the negative ways one's L1 affects L2 development (how L1 hinders L2 acquisition). The term interference, on the other hand, primarily connotes the negative effects of L1 on L2.

SLA research in the 1950s and 1960s initially hypothesized that it was the linguistic similarities and differences between language pairs that added or detracted from positive L2 language acquisition, through contrastive analysis study (Stockwell, 1965). Here, researchers were able to empirically predict which languages pairs would lead to negative or positive transfer in L2 acquisition. Specific knowledge of language pairs continued to grow through the 1960s and 1970s through error and performance analysis of individuals (Long and Sato, 1984). This allowed linguistics to see what exact language features led to negative transfer from one language to another.

In fact, similarities between two languages in a language pair can not only facilitate, but also accelerate L2 learning (Ringbom, 1987, 1992, 2007), allowing students to make deeper connections between their languages (Escamilla & Hopewell 2010). This is especially true if two languages are genetically and typologically close (Jarvis, 2002). That is, if their languages share morphology and are part of the same language family, it is far easier for learners to acquire the L2. Both Jarvis (2002) and Bialystok's (1997) studies on English-Swedish and German-French bilinguals reveal the

facilitative or hindering effects of L1 on L2 acquisition. In both cases, the similarities between learners' L1 facilitated learning in L2, where those of different L1 background struggled to learn concepts not present in participants' L1. Ortega (2009) suggests that the English-Swedish bilinguals (Jarvis, 2002) and German-French bilinguals (Bialystok, 1997) were more successful because these language pairs are both Germanic languages in the Indo-European family. The Finns in Jarvis's (2002) study, however, struggled to learn English because Finish is an agglutinative language, which is part of the Finno-Ugric family.

Much of Escamilla and colleagues' more current work focuses on maximizing the cross-linguistic similarities between Spanish-English in dual language programs in order to facilitate biliteracy development (Escamilla, Geisler, Hopewell, Sparrow, & Butvilofsky, 2009; Escamilla, Hopewell, Geisler, & Ruiz, 2007; Escamilla & Hopewell, 2010). In fact, these researchers have named making explicit crosslinguistic connections a key feature of their Literacy Squared pedagogy, a specific set of instructional components for dual language programs. By doing so, she argues that students can become bilingual "better not just faster" (Escamila & Hopewell 2010, p. 1). That is, teachers can facilitate the rate of acquisition by explicitly discussing the similarities between the languages, and by doing so, also facilitate deeper learning of linguistic structures of language. Subsequently, crosslinguistic influences can have a positive effect in facilitating bilingual development.

However, crosslinguistic influences can also have a negative effect on language learning through the crucial similarity measure (Wode, 1976). Here, Wode (1976) and others (Andersen, 1983; Klee and Ocampo, 1995) found that misleading similarities

between languages might also influence one's L2 development. Klee and Ocampo (1995) discovered this with Quechua-Spanish speakers by studying how Quechua and Spanish encode eventuality. In Spanish, like English, eventuality is encoded lexically. The speaker would show this by using words like *eventually*, *some day*, or *later*. Quechua, on the other hand, encodes eventuality through morphology. So when the L1 Quechua speakers spoke their L2, Spanish, they used morphological structure of Quechua in Spanish to show eventuality. The misleading similarity between Quechua and Spanish caused these Spanish learners to encode eventuality differently than the target Spanish formation.

This study, then, led to work in the 1980s that show there is more than language similarity that accounts for crosslinguistic transfer (Singleton, 1987). There is also the issue of *interlingual identification* (Odin, 2003). Interlingual identification transcends crosslinguistic similarities and differences to include the learner's perception of languages' similarities and differences. This often leads to an interim systematic understanding of L2, which Selinker (1972) has termed *interlanguage*. Interlanguage is a developing bilingual's idiosyncratic yet systematic understanding of his/her L2 as he/she grows in linguistic competence in L2. During this time, the bilingual is trying to figure out how the L2 works, inventing developmental solutions for a given L2 (Ortega, 2009). This interlanguage development is especially characteristic of sequential bilinguals that do not learn both of their languages simultaneously. While both simultaneous and sequential bilinguals experience bidirectional influences for their languages (Dworin, 2003; Pavlenko & Jarvis, 2002; Reyes, 2006), it is sequential

bilinguals that experience a distinctive intermediate interlanguage period in their development.

As the research in this section shows, sequential and simultaneous bilinguals experience similarities and differences in regards to their age and rate of language acquisition, their linguistic environments and the crosslinguistic influences of their languages. What primarily differentiates sequential from simultaneous bilinguals is their age and rate of language acquisition, since sequential bilinguals develop their L2 after their L1 has been acquired. However, with dual language programs starting at early school ages, this L2 development may cross over with L1 development, creating learning characteristics that don't completely fit within the sequential or simultaneous bilingual categories.

For both sequential and simultaneous bilinguals, the home and school represent key linguistic environments that set the conditions for bilinguals to develop into balanced or unbalanced bilinguals. Depending on this environment and the extent the underlying facilitative theories are maximized, bilinguals may develop very high levels of proficiency in their two languages, especially where explicit measures are taken to capitalize on the crosslinguistic similarities between bilinguals' languages. So not only does the bilingual person exist along a continuum in terms of his/her language proficiency and use of each respective language, but he/she exists along the bilingual continuum in terms of being sequential to simultaneous in his/her age of acquisition and how facilitative his/her linguistic environments are of the key theories (e.g., acculturation, comprehensible input, interaction, output and noticing) in bilingual development.

APPENDIX B
METHODOLOGY

This section reviews the design of the study, including the measures and instruments, a description of the cases, the procedure, as well as the methods for data analysis. Overall, the research questions were addressed through a comparative case study, with longitudinal components using mixed methods (Bryman, 2012). This methodology fits with a pragmatic paradigm (Teddlie & Tashakkori, 2009) that sought to describe an educational entity as it is (in this case, the two dual language campuses), in order to better understand key components to successful biliteracy programs and the resulting biliteracy development from these programs.

Design of the Study

This was both an exploratory and confirmatory comparative case study using mixed methods. The cases in this study were the dual language programs at each campus and its dual language students ($n = 93$ at César Chávez and $n = 37$ at Memorial). Yin (2014) considers it an embedded multiple case type 4 design shown in Figure B.1.

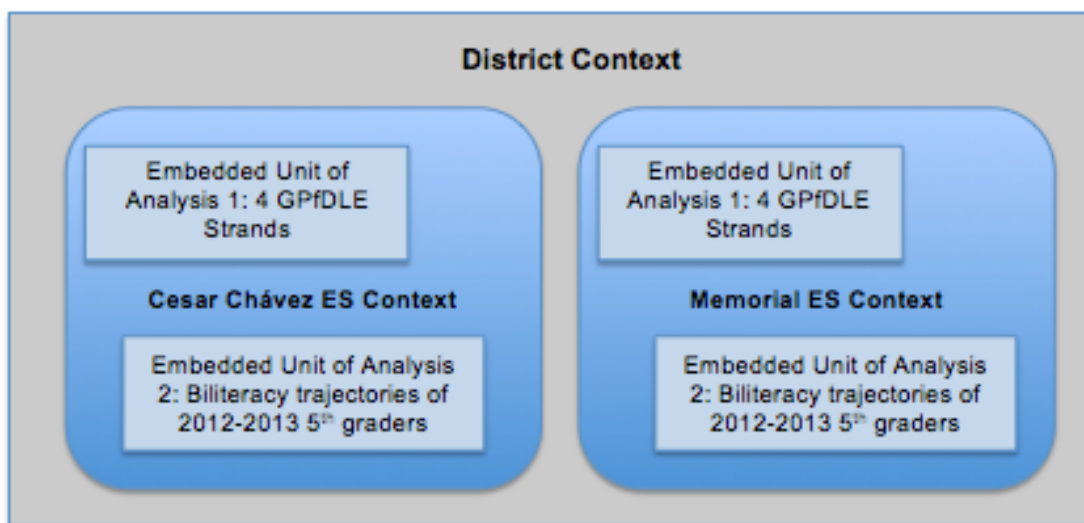


Figure B.1. Embedded multiple case type 4 design.

The study was mixed, according to Mertens' (2005) mixed methods criteria, because it included both qualitative and quantitative methods with a total of two phases in the study. As such, it is considered a mixed methods multistrand design (Teddlie & Tashakkori, 2009).

Mixed methods were used at the first phase with a qualitative emphasis placed in (QUAL (quan)) while a solely quantitative approach was utilized in the second phase (QUAN) (Morse, 1991, 2003). The purposes for this mixed methods design were several. In phase 1, the use of mixed methods was for triangulation, in order to corroborate findings generated through observations and key informant interviews with the trend data from the state education agency and the quantifiable parts of the teacher survey. For the second phase, quantitative measures were used to examine the second through fifth grade English and Spanish reading trajectories for students at both schools in order to examine the biliteracy trajectories of the programs' students and assess the variance of key factors on students' trajectories. As a whole, the qualitative emphasis on the first phase described in detail the understanding and implementation of the dual language programs in general and the biliteracy programs in particular at each school. This qualitative exploration of schools' implementation provided a rich context for understanding the quantitatively based biliteracy trajectories of both schools, with an analysis of variance for key factors affecting biliteracy development.

Measures and Instruments

In order to create a rich description of the two campuses in the first phase of the study, I employed seven methods: a semi-structured interview for three key informants (3), school data from the state education agency over six years at each campus (12),

teacher observation protocols (12), teacher surveys (33), teacher focus groups (2), dual language program implementation rating from campus principals (2), and analytic memos. For the second phase of the study I utilized students' end of year English and Spanish reading scores and initial English and Spanish oral language scores upon entering school in kindergarten.

Phase 1

Key informant interviews. These semi-structured interviews consisted of three parts: professional background of the informant, general description of each school and successes and challenges of each school in regards to its dual language program.

State education agency data. I collected and analyzed the demographic and performance data of each school over the 2007-2013 school years, the six years of program implementation that include the 2012-2013 student cohort at each campus. These reports included demographic data on each school's staff including years of experience, ethnicity, positions and student data including ethnicity and scores on standardized tests.

Teacher observation protocols. In order to assess the level of implementation of best-practice instructional strategies for language learners, I utilized the Howard and colleagues' (2007) Two-Way Observation Protocol to observe classroom instruction. Based on the Sheltered Instruction Observation Protocol (SIOP), this tool encompasses the thirty-two instructional strategies to observe for two-way dual language programs. I operationalized each strategy by assigning a score of "not present" if a strategy was not seen in the 45-minute observation, "minimally present" if the strategy was observed 1 to

2 times, “present” if the strategy was observed 3 to 4 times and “highly present” if the strategy was observed 5 or more times.

After scoring for each of the thirty-two strategies, I transformed the qualitative data to quantitative data by assigning 0 points for a strategy that was not present, 1 point for a strategy that was minimally present, 2 points for a strategy that was present and 3 points for a strategy that was highly present. Afterwards, I added up the points for each category in the observation protocol: preparation, building background, comprehensible input, strategies, interaction, lesson delivery, practice/application and review/assessment and divided the total by the total possible number of points to get a percentage of implementation for each category.

Teacher surveys. This electronic survey consisted of four parts: general teaching and dual language teaching background, general dual language program questions, professional development, and instruction. The general teaching background and dual language program sections consisted of short answer and extended answer questions, while the sections on professional development and instruction included short answer, extended answer, 5-point likert scale and multiple-choice questions.

Teacher focus groups. A semi-structured focus group protocol was created based on the major findings from the key informant interviews, dual language implementation ratings (used as part of the large study), and teacher surveys. It consisted of two sections: general dual language program information and an open ended discussion based on the following emerging themes: management of classroom materials with coordinating teacher, professional development, support with resources, overall workload and teacher retention.

Dual language program implementation rating. For the purpose of this study, the strands of curriculum, instruction, staff quality and professional development and program structure were examined by each school's administration. Each strand consists of 3 to 5 principles where practitioners can select "minimal", "partial", "full" or "exemplary" implementation for each strand. I transformed the qualitative scores and interviews with each campus' administration into a numerical score. A score of "minimal" was assigned a score of 1, "partial" was assigned a score of 2, "full" was assigned a score of 3 and "full" was assigned a score of 4. Then, by adding the number of point scored and dividing by the total possible points, I created a percentage of implementation for each strand.

Phase 2

DRA and EDL. The DRA (Developmental Reading Assessment) (Celebration Press, 2007a) and EDL (Evaluación del desarrollo de lecto-escritura) (Celebration Press, 2007b) are informal reading inventories given to all bilingual students in the district at the beginning, middle and end of each school year. They are parallel English and Spanish instruments that show valid and reliable measures of reading in each language (Weber, 2001). Each grade level score represents students' end of year reading level for that year.

Woodcock Munoz Language Survey—Revised. This norm-referenced test assesses bilingual students' oral language development in English and Spanish upon entering school and then at the end of each school year (Woodcock, Muñoz-Sandoval, Ruef, & Alvarado, 2005). It is used to determine eligibility for bilingual services as well as monitor progress for students in bilingual programs. Initial oral English and initial oral

Spanish levels are determined based on this instrument for the split plot MANOVA.

Table B.1 shows how each data collection instrument addresses each of the research questions during each phase of the study.

Table B.1

Alignment of Research Questions and Instruments

Research Question	Phase 1 Data Collection Methods	Phase 2 Data Collection Methods
How does each elementary school understand and implement their dual language programs in relation to it's 1) curriculum, 2) instruction, 3) staff quality and professional development, and 4) its program structure?	Semi-structured key informant interviews (3) Teacher surveys (33) Teacher focus groups (2) Teacher observations (12) Principals' reflection on dual language implementation (2) Analytic memos State agency campus data (12)	
What are the second through fifth grade English-Spanish biliteracy trajectories for fifth grade dual language students at each school? Specifically, a. What are students' reading trajectories in English? b. What are their reading trajectories in Spanish? c. What is the correlation between the English and Spanish reading levels in each grade? d. What percent of students are in the biliteracy zone at each grade?		Second through fifth grade DRA and EDL scores for fifth grade students.
3. How much variance in student biliteracy trajectories is explained by school of attendance, gender, initial oral language in English, and initial oral language in Spanish?		Second through fifth grade DRA and EDL scores for fifth grade students. Pre-k or kindergarten Woodcock-Muñoz oral language score in English and Spanish.

Description of Participants

Both schools are dual language campuses that were part of the first pilot program in their districts. They both employed a 50/50 model of dual language, with a one-teacher, one-language design from kindergarten to fifth grade when possible. When it is not possible to have one teacher for one language, a single, bilingual teacher taught both languages to his/her class. Furthermore, both campuses shared the same rotation schedule, changing classrooms (language teachers) every other day in kindergarten and first grade, every two days in second grade and every week in third through fifth grades. As such, teachers taught all subjects in each language. Additionally, both campuses implemented the same campus initiatives, including balanced simultaneous biliteracy (to be discussed in depth later), sheltered instruction observation protocol (SIOP), explicit academic vocabulary instruction and Thinking Maps™, a set of graphic organizers that mirror the eight major thinking processes.

However, the similarities among the campuses end here. César Chavez Elementary is the oldest, largest and poorest school in the district with approximately 95% students receiving free or reduced lunch with a Hispanic population of 98%. Memorial, on the other hand, has approximately 60% of its students receiving free or reduced lunch and a Hispanic population representing of 70% of the total student population and so has a slightly more heterogeneous student population. Furthermore, almost the entire campus at César Chávez Elementary participates in a one-way dual language program, with between six to seven sections of dual language classes per grade level. At Memorial, the dual language program is a program within the school, with approximately 2-4 of the 5 to 6 sections in each grade level partaking in the dual

language program. Additionally, kindergarten through third grade has a two-way dual language program, while fourth and fifth grades have a one-way dual language program. That is, in kindergarten through third grade native speakers of both English and Spanish participate in their dual language program.

Procedure

There were 2 phases to the study. In Phase 1, I collected data in order to describe the demographic, academic achievement and campus similarities and differences. In Phase 2, I answered the remaining two major research questions, examining the biliteracy trajectories of fifth grade students at each school, after which determining factors that explain the variance of students' trajectories.

I began Phase 1 in September, 2014, by securing assent from my two key informants. After which, I created the semi-structured interviews that covered questions regarding the school demographics, academic achievement, school culture and key components of each campus' dual language programs. Next, I individually invited each key informant to lunch in order to conduct the semi-structured interview. Within a couple of days, I transcribed and compared the key informants' responses and conduct a follow-up interview with each one if necessary. In late September, I secured, reviewed and analyzed the state education agency school reports over the past six years for each campus.

From September to December of 2014, I visited each campus, described and analyzed campus data, using analytic memos to note my preliminary findings within and among each strand of the GPfDLE. During one of the visits in September, I spoke to the campus teachers, sharing the study's purposes and their potential involvement in it.

If teachers decided to participate in the survey portion of the study, they were entered to win a \$25.00 gift card. If teachers agreed to participate in the observations, they received a pizza lunch at the completion of the observations in December.

From November to the beginning of January of 2015, I began the second phase of the study, which aimed to explore the biliteracy trajectories of the fifth grade dual language students. At this time, teachers conducted their DRA and EDL inventories and imputed them into the district online data system. Subsequently, I collected the DRA and EDL for all students from second to fifth grade to begin data analysis for phase 2.

Data Analysis

To analyze the data in Phase 1, I used a combination of theoretical propositions (Yin, 2013) and grounded theory (Corbin & Strauss, 2008) as my general analytic strategies to code each campus' understanding and implementation of the DL program in general and the biliteracy program in particular, using the following data: the key informant interviews (3), state education agency data for each campus (12 total), classroom observations (12 at each campus), teacher surveys (33), teacher focus groups (2), and administrators' reflection on the principles of dual language implementation (2) . Tables B.2 and B.3 show samples of the major themes for two strands of the GPfDLE at each school.

Table B.2

Sample of Coded Themes for César Chávez

GPfDLE Strand	Emerging Theme	Description	Data Sources	Data Type
Across all Strands	César Chávez is a unique case.	This includes references to how staff, students, instruction, curriculum and the program needs are “different”, “special”, and “unique” at the campus.	Key informants Teacher Surveys SIOPI Observations Teacher Focus Group DL Implementation Reflection	Qual. Qual. and quant. Qual. and quant. Qual. Qual. and quant.
Staff Quality and Professional Development	Varied levels of understanding and implementation have historical, programmatic implications.	This refers to teachers’ varying readiness levels upon starting and continuing to teach at César Chávez over time, including reasons for being hired and reasons for leaving the campus.	Key informants Teacher Surveys Teacher Focus Groups DL implementation reflection	Qual. Qual. and quant. Qual. Qual. and quant.
Program Structure	Program-Instruction Nexus	Includes how the program structure affects teacher’s instruction, including which languages are used or not used, specific instructional strategies and teachers’ views on their ability to instruct for student success based on the program structure.	Key informants Teacher Surveys Teacher Focus Groups DL implementation reflection	Qual. Qual. and quant. Qual. Qual. and quant.
Program Structure	Program-Student Mismatch	Includes references to how the program doesn’t fit with students’ instructional needs and the resulting lack of academic achievement and bilingual language acquisition. References to teacher morale and sustainability are also included.	Key informants Teacher Surveys Teacher Focus Groups DL implementation reflection	Qual. Qual. and quant. Qual. Qual. and quant.

Table B.3

Sample of Coded Themes for Memorial

GPfDLE Strand	Emerging Theme	Description	Data Sources	Data Type
Staff Quality and Professional Development	Varying levels of staff understanding	This refers to teachers' readiness to teach DL upon entering and throughout the program, including the special characteristics needed as a dual language teacher. References to how the district PD meets these needs are also included.	Key informants Teacher Surveys SLOP Observations Teacher Focus Group DL Program Implementation Reflection	Qualitative Qualitative and quantitative Qualitative and quantitative Qualitative Qualitative and quantitative
Staff Quality and Professional Development	Heavy, complex work leading to high turn over	This refers to individual and groups of teachers' explanations of the qualities needed as a DL teacher, why teachers leave and how this affects program sustainability and the professional development needs of the campus.	Key informants Teacher Surveys Teacher Focus Groups DL program implementation reflection	Qualitative Qualitative and quantitative Qualitative Qualitative and quantitative
Program Structure	Need to Differentiate Program	Refers to responses concerning how the program structure does not meet individual students or groups of students' linguistic and academic needs.	Key informants Teacher Surveys Teacher Focus Groups DL program implementation reflection	Qualitative Qualitative and quantitative Qualitative Qualitative and quantitative
Program Structure	Program Consistency	Includes references to consistency in the separation of language in the classroom, instructional strategies, value for both languages and expectations for teachers.	Key informants Teacher Surveys Teacher Focus Groups DL program implementation reflection	Qualitative Qualitative and quantitative Qualitative Qualitative and quantitative

With the initial coding under each strand, I wrote analytic memos (Miles & Huberman, 2013) in conjunction with the constant comparative method (Corbin & Strauss, 2008) to test hypothesis within strand, resulting in emerging themes with a chain of evidence (Yin, 2013). Finally, I used the constant comparative method to create a logic model model (Funnell & Rogers, 2011; Wholey, 1979) in order to examine the relationship between strands and make meta-inferences across the strands. Lastly,

I allowed teacher and administrator participants to review the write-up for any misrepresentations in the representation of their quotations; I also asked colleague read and verify the coding of one of the study’s interviews until we reached consensus.

For Phase 2 of the study that sought to answer the second and third research questions, I solely used quantitative methods. To start, I conducted descriptive statistics for each language (English and Spanish) for each grade (second through fifth) for each campus. Then, I ran a correlation coefficient (Pearson) in order to assess the relationship between English and Spanish reading development for each grade level. Afterwards, I gathered descriptive statistics for the percent of students in each grade at each school that are in the biliteracy zone, as defined by Escamilla and colleagues (2014). Lastly, I examined the variance for students’ biliteracy trajectories through conducting a split plot MANOVA for the following variables: school of attendance, gender, initial English oral language and initial Spanish oral language. Table B.4 summarizes the steps in the data collection and analysis process.

Table B.4

Data Collection and Analysis Procedures

Phase	Action	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar
Phase 1 (QUAL (quan))	Introduce study to main potential participants: Key informants, administrators, teachers	x						
	Secure Consent: Complete Lewisville ISD Consent Complete UNT IRB Secure informed consent from campus teachers for survey Secure informed consent from	x						

campus teachers for observations			
Collect state education agency data for both campuses	x		
Conduct round 1 of interviews: Interview informants Informant One Informant Two Informant Three Transcribe Interviews Initial open coding of interviews	x		
Conduct surveys: Send out survey to teachers of both campuses Conduct descriptive statistics for teachers at each campus Look for trends across campuses Open coding for open responses of survey for teachers at each campus		x	
Conduct Round 1 of Observations: Observe 1 st , 3 rd and 5 th grade teachers at home campus Observe 1 st , 3 rd and 5 th grade teachers at partner campus Look for trends within each grade level, across each campus and across both campuses		x	
Have principals fill out campus self-evaluation of dual language implementation		x	
Conduct Second Round of Observations: Observe 1 st , 3 rd and 5 th grade teachers at home campus Observe 1 st , 3 rd and 5 th grade teachers at partner campus Look for trends within each grade level, across each campus and across both campuses			x
Invite teachers to campus focus groups and conduct			x x

focus groups.				
Conduct Initial Analysis of Phase 1: Code, re-code, categorize and look for themes across data collection tools. Use constant comparative method for each data piece	X	X		
Phase 2 (QUAN)				
Secure 2-5 trajectories for each campus	X			
Run analysis for: 2-5 English trajectory for each campus 2-5 Spanish trajectory for each campus correlation between English and Spanish trajectories for each campus percent of students at the biliteracy zone for each grade on each campus split plot MANOVA			X	
Interview key informants (if necessary) Informant One Informant Two Informant Three			X	
Craft narrative: District profile César Chávez Profile Memorial Profile Themes across cases		X	X	X
Fact check narrative with key informants.			X	X
Meta-Analyses				
Second analysis of phase 1			X	X
Second analysis of phase 2			X	X
Outline major discussion points			X	
Initial Write-Up				
Write findings for phase 2				X
Write discussion				X

APPENDIX C
UNABRIDGED RESULTS

Question 1

The first research question explored each school's understanding and implementation of its dual language program. These include curriculum, instruction, staff quality and professional development and program structure. Each strand is further composed of 3 or more principles with a corresponding qualitative explanation of minimal, partial, full, and exemplary implementation (see Table C.1). These qualitative scores were then transformed into a 1-4 point scale to provide a quantitative implementation score for each principle.

Using the definitions and explanations of implementation from GPfDLE, the researcher created interview, survey and focus group questions for administrators and teachers' input on their understanding and use of the dual language program. Additionally, for the strand of instruction, the researcher observed the use of SIOP™ strategies for six teachers on each campus, representing a range of teacher experience, grade levels taught, and language of instruction in order to corroborate administrators' reflection on campus instruction.

District Profile

The study took place in a suburban school district in the southwest region of the United States. Covering over thirteen municipalities and seventy campuses, the district is a large and diverse one. In the past, the district served mostly monolingual, English speaking students from European American backgrounds that were middle and lower-middle class. The last ten years has seen an increase in the number of English language learners (ELLs), with its two largest populations hailing from Mexico and Burma. In response to the change in student demographics, all teachers in the district

have been required to attain their English as a second language (ESL) certification. Additionally, schools with large Spanish-speaking populations provided transitional early and late-exit bilingual and ESL classes, depending on students' needs and parent preference on each campus.

Table C.1

Guiding Principles for Dual Language Education

Strand	Principle	Explanation
Curriculum	1	The curriculum is standards-based and promotes the development of bilingual, biliterate, and multicultural competencies for all students.
	2	The program has a process for developing and revising a high quality curriculum.
	3	The program is fully articulated for all students.
Instruction	1	Instructional methods are derived from research-based principles of dual language education and from research on the development of bilingualism and biliteracy in children.
	2	Instructional strategies enhance the development of bilingualism, biliteracy and academic achievement.
	3	Instruction is student-centered
	4	Teachers create a multilingual and multicultural learning environment
Staff Quality and Professional Development	1	The program recruits and retains high quality dual language staff.
	2	The program has a quality professional development plan.
	3	The program provides adequate resource support for professional development.
	4	The program collaborates with other groups and institutions to ensure staff quality.
Program Structure	1	All aspects of the program work together to achieve the goals of additive bilingualism, biliteracy and cross-cultural competence, while meeting grade-level expectations.
	2	The program ensures equity for all groups.
	3	The program has strong, effective, and knowledgeable leadership.
	4	The program has used a well-defined, inclusive, and defensible process to select and refine model design.
	5	An effective process exists for continual program planning, implementation, and evaluation.

Note. Adapted from Howard et al., 2007.

Starting in 2008, one elementary school with the largest Spanish bilingual population in the district began to pilot a one-way dual language program. Two years later, two other schools joined the one-way dual language pilot program. Each campus gradually introduced the program, starting with the kindergarten cohort, adding a grade level as the students matriculated through fifth grade. Starting in 2010, the dual language program expanded to a total of 14 campuses, including one-way, two-way, and Spanish immersion dual language programs.

For the original three cohort groups, the district chose to implement a 50/50, one-way dual language program with a one-teacher one-language model. That is, native Spanish speaking students had one teacher for Spanish instruction and another teacher for English instruction. Students received literacy and content area instruction from kinder to fifth grade in both languages. The frequency in which students switched languages and teachers depended on their grade level. In kindergarten and first grade, students switched languages every day; in second grade, students switched every two days and in third through fifth grades, students switched languages (and teachers) every week.

From 2008-2010, the district provided job-embedded professional development through the district program supervisor and two district coordinators. Training normally began a year before implementation, with prospective dual language teachers discussing different language models for emergent bilinguals, specifics of the district model, logistics of preparing for and managing two dual language classes, as well as on campus support for curriculum planning. Support for curriculum and instruction included Sheltered Instruction Observation Protocol (SIOP™) training, training in the use of

academic vocabulary in instruction (Tier three words according to Marzano and Pickering, color-coded by academic subject with a guide for classroom activities to ensure academic language acquisition), resources available in both languages of instruction through the district online curriculum scope and sequence and job-embedded support in integrating the use of these strategies through a district-created integrated planning guide shown in Table C.2.

Using this guide, grade level teams planned for transdisciplinary instruction using state standards and linguistic accommodations to ensure that teachers integrated not only several academic subject areas, but also content and language development instruction for their emergent bilinguals. Teams, with the support of the district dual language program supervisor and coordinators, would facilitate this planning during a half-day retreat or several consecutive extended planning times before the instructional unit. This collaborative planning also fostered instructional consistency between dual language partners.

Starting in 2010 when the program began to expand to include eleven additional campuses, the district dual language department centralized its professional development at the district level. The professional development began by including orientation sessions for those new to dual language and basic strategy sessions for those new to working with language learners (whether they be English learners or Spanish learners). Tables C.3 and C.4 give more insight into the content and duration of these sessions.

Table C.2

District Integrated Planning Guide

Overarching Topic: My World								
Weeks:	1: (10/28-11/1)	2: (11/4-11/8)	3: (11/11-11/15)	4: 11/18-11/22)	5: (12/2-12/6)	6: (12/9-12/13)	7: (12/16-12/20)	8: (1/6-1/10)
To Be Graded this 9 Weeks: *rules (assessed in WW), **needs vs. wants (assessed in WW).								
Content: Fiction / Poetry	procedural text	procedural text	informational text & identifying its topics, expository text, book	determine the purpose of reading, main idea, print	Poetry: rhyme & rhythm, similarity in word sounds, spoken	Poetry: rhyme & rhythm, similarity in word sounds, spoken	sentence is made up of a group of words	inferences based upon pictures, title, predictions
Social Studies Content:	rules, purpose of rules, identify rules that provide safety,	rules, authority figures in home, school & community, enforcing	family, similarities & differences among people	Freedom Week (9/17: Constitution Day), similarities &		basic human needs, how needs (food, clothing, shelter) can	jobs in the home, school, & community, why do people have	identify differences of human how ways to earn
Monday		X						X
Tuesday								
Wednesday								
Thursday								
Friday							X	
Vocab.:	rules	rules	author, illustrator, character, title, title page, front & back cover	author, illustrator, character, title, title page, front & back cover	poem, rhyme	poem, rhyme, needs, wants	sentence (oral), job	job
Ess. ?'s:			How do pictures help you understand the story? How does print work?	Why do you read? How does print work?	How do letters & sounds help you read and write?	How do letters & sounds help you read and write?		How do we learn listening to or reading book do the parts of book help us what might happen the story?
SS. EQs:	How do rules help you?	How do rules help you?	What makes us alike & different?	What makes us alike & different?		How do people get what they need? What is a need? What is a want?	How do people get what they need? Why do people have jobs?	How do people get what they need? Why do people have jobs? How do people work?

Reader's Workshop

Table C.3

Orientation Sessions

Session Title	Explanation	Duration	Sponsoring Department	Availability
“The Splash”	A general orientation to dual language, including the research and components of the program.	3 hrs.	Dual Language	2010-present
“The Waterfall”	A continuation of “the Splash”, including more time for discussion of the components of dual language in daily and weekly instruction. This session includes a panel of teachers from which new dual language teachers can ask questions.	3 hrs.	Dual Language	2010-present
Learning Walks	Performed a year before the program and during the first year of the program, central office staff lead dual language teachers through observations of instruction for dual language schools to look for language strategies and components of dual language which then leads into discussion afterwards.	3 hrs.	Dual Language and Curriculum	2010-present

Table C.4

Language Teaching Strategies

Session Title	Explanation	Duration	Sponsoring Department	Availability
SIOP™	Sheltered Instruction Observation Protocol strategies for instructing language learners.	6 full day sessions	Language Acquisition/ESL	2008-present
Kagan™ Structures	Shares cooperative learning structures to use in conjunction with SIOP™ instruction to ensure a high degree of interaction and practice of the four language domains: listening, speaking, reading, writing.	1 full day	Curriculum	2011-present

In 2013, the district developed a simultaneous balanced biliteracy (SBB) framework that includes balanced approaches to literacy with the explicit linguistic support necessary for second language learners in a paired literacy model. While some sessions were offered previously by other district departments, during this time, the district dual language department provided additional sessions on each component of the SBB framework, shown in Table C.5.

Table C.5

Biliteracy Strategy Sessions

Session Title	Explanation	Duration	Sponsoring Department	Availability
Overview of Simultaneous Balanced Biliteracy	Introduction into the district's components of a balanced biliteracy program, including instructional resources for teachers to use, possible scopes and sequences for beginning instruction using the school year and a daily schedule of literacy instruction.	1 day	Dual Language	2011-present
Words Their Way™	Introduction into the use of an English word study program provided by	1 day	Curriculum	2009-present
Estudio de palabras	Introduction to the use of a Spanish word study program that is compatible with the district's English word study program.	1 day	Dual Language	2009-present
Running Records	Overview and practice in conducting and analyzing running records for the English and Spanish language learner.	3 hrs.	Dual Language	2013-present
Literacy Workstations for Dual language	Overview and practice in setting up and conducting literacy workstations for the English and Spanish language learner.	3 hrs.	Dual Language	2013-present
Guided Reading in Dual Language	Practice in how to set up and teach reading groups and reading instruction for the language learner.	3 hrs.	Dual Language	2013-present
Poetry	Overview and practice in how to use poetry to teach vocabulary, phonemic awareness, and fluency for the language learner within the district's balanced biliteracy framework (grades k-5) and in alignment with state assessments (grades 3-5).	3 hrs.	Dual Language	2013-present

During the overview of the simultaneous balanced biliteracy training, district personnel share the components to typical language arts block, including the time allotment for each component. Table C.6 indicates the simultaneous balanced biliteracy components in a daily schedule.

Table C.6

Daily Schedule for Balanced Biliteracy

Major Time Block	Component	Time Allotment
Reading Workshop	Shared Reading	10 minutes
	Interactive Read Aloud/Social Studies	45 minutes
	Guided Reading/Literacy Workstations	45 minutes
	Instruction in Language Structure/Grammar	10 minutes
	Word Work	10 minutes
Writer's Workshop	Independent Reading	10-15 minutes
	Minilesson and independent writing	30 minutes

Each component of the SSB framework is intended to be used each day as part of the 2½ hour language arts block, as a general guideline to support dual language teachers in planning. Since language arts and social studies are integrated in kindergarten through third grade by the district, there are additional minutes in the 2 and a ½ hour language arts block to allow teachers to adjust instruction in any of these components as necessary. After the initial district and campus level trainings on this framework, the district provided follow up trainings on each of the components throughout the school year and during the summer in a dual language institute.

Campus Profile: César Chávez

César Chávez Elementary is the oldest, largest and poorest school in its area. According to the state education agency's academic performance reports (2007-2013),

over the past six years, César Chávez has served between 892 and 1,122 students, with an average of 93% Hispanic students; additionally, an average of 85% of the school population pre-k-fifth grade are classified as limited English proficient (LEP) and an average of 91% qualify for the free and reduced lunch program. As such, César Chávez serves a relatively homogenous population. Most students are first generation immigrants from Mexico who live in two major area trailer parks and two apartment complexes.

Teachers and administrators noted the uniqueness of the campus through interviews, surveys and focus groups. This sentiment emerged as a theme in discussions regarding instruction and professional development as well as general descriptions of the campus. Key informant Viviana Gómez (pseudonym), who has worked at César Chávez and currently works at Memorial states that César Chávez “is a very special place.” Key informant Margarita De los Santos, who previously worked at Memorial and currently works at César Chávez further explains, “We are a very unique campus. There is no one like us in our district and I would dare say [in the region]. The school is like a celebration of culture. You immediately feel that walking in the door, where if you are a parent of a student or a district personnel you’re automat---you’re embraced and you feel that nurturing environment coming from...and so our kids when you walk the hallways with them, I don’t hear any rudeness from them. They’re prim. They’re proper. They take pride in their school. They come in wearing uniform and I don’t see that at a lot of campuses. I’ve been on many, you know and they’re dealing with six disciplines a day, where last year I maybe dealt with three total all year. And so I think that’s what sets our campus apart. The teachers here they function like a team.

They're a family. They look out for one another...and again that's something that is rare—although we're large, we've been able to collaborate.”

In addition to being large, the staff at César Chávez more closely approximates the student demographics of the school with an average of 40% Hispanic and 60% white teachers and administrators than other schools in the district. Staff demographics are shown in Table C.7 for six years of instruction for the 2012-2013 fifth graders.

Additionally, the staff is also a relatively new one, with about 30% of its total faculty in its first five years of the profession. While the staff demographics show between 20-39% of staff have eleven or more years of experience, the vast majority of staff with this experience are paraprofessionals, administrators, specials and specialists that are not assigned an academic content area for instruction. Both teachers and administrators note that there is also a high level of turnover for both teachers and administrators.

Table C.7

César Chávez's Staff Demographics from 2007-2013

Cohort Group's Grade Levels by Year	2007-	2008-	2009-2010	2010-	2011-2012	2012-2013
	Kinder	First	Second	Third	Fourth	Fifth
# Staff	107	97.1	79.7	91.3	86.8	89.7
# Teachers	80.2	71.2	70.2	66.3	63.8	63.6
# Paras	17	16	1.5	16	13	16
# Admin	4	4	3	4	3	3
#Hispanic	32 (39.9%)	30 (42.1%)	27.3 (38.9%)	26 (39.2%)	26 (40.7%)	26 (40.9%)
#White	43.2 (53.9%)	35.2 (49.4%)	38.9 (55.4%)	38.3 (57.8%)	35.8 (56.1%)	36.4 (57.3%)
# beginning	6 (7.5%)	6 (8.4%)	7 (10%)	4 (6%)	1 (1.6%)	3.1 (4.9%)
# 1-5 yrs.	22 (27.4%)	19 (26.7%)	21 (29.9%)	32 (48.3%)	32.4 (50.8%)	32.2 (50.7%)
# 6-10 yrs.	19 (23.7%)	21 (29.5%)	18.5 (26.4%)	12.6 (19%)	13 (20.4%)	12.1 (19.1%)
#11-20	22 (27.4%)	17 (23.9%)	15.3 (21.8%)	11 (16.6%)	11.4 (17.9%)	8 (12.6%)
# 20+	11.2 (14%)	8.2 (11.5%)	8.4 (12%)	6.7 (10.1%)	6 (9.4%)	8.1 (12.7%)
Average Yrs of Experience	10.6	9.5	9.1	7.5	8.1	8.5

Campus Profile: Memorial

Memorial Elementary, located on the other side of the district, serves as the sole bilingual school for students in its area. As such, it has a large English-Spanish, Hispanic bilingual population. According to the state education agency's academic performance reports (2007-2013), over the past six years Memorial has served between 617 and 792 students, with an average of 70% that are Hispanic; additionally, an average of 55% of the school population pre-k-fifth grade are classified as limited English proficient (LEP) and an average of 70% qualify for the free and reduced lunch program.

While Memorial shares many similar demographic features with César Chávez, a closer analysis through interviews, surveys and focus groups reveal that this campus is more heterogeneous than César Chávez. Most of the Hispanic families at Memorial are of Mexican heritage, yet there are more students from other Spanish-speaking countries as well. Another difference between the two campuses, according to key informant, Margarita De los Santos, who has worked at Memorial and currently works at César Chávez, is "a cultural piece...where as there [referring to Memorial] the kids are more Americanized than at César Chávez. [At César Chávez] the majority of our communication has to be in Spanish and over there while the requirement is that the communication goes out in Spanish because it is a title one campus, many of the parents can survive with just the English."

In describing the school environment, key informant Donna Pierce says Memorial is "extremely engaging but it's also very...orderly. Her [speaking of Robin Wright, campus principal] campus classrooms are not chaotic; they are very respectful.

Teachers are very respectful of students; students are very respectful of teachers. You never hear teachers yelling. You never hear....you just, you know everyone in that room is so focused on learning—including the teacher. And there's just...a typical classroom has tons of student work in it. It has...so many resources and it's all about the kids.”

Viviana Gómez, another key informant who has worked at César Chávez and currently works at Memorial adds, “That’s the biggest difference between Memorial and César Chávez. At César Chávez you have a big, big, big population of Spanish speakers and more culture. They’re still attached to the traditional culture...where I think the kids at Memorial are not.” Viviana goes on to explain that the students at Memorial tend to be second and third generation Hispanics, as opposed to the first generation Mexican Americans at César Chávez.

Furthermore, while the Memorial represents a heterogeneous mix of staff, there are approximately 10% less Hispanic teachers at Memorial than César Chávez up until the 2012-2013 school year. This difference in staff demographics may be partially due to the change in dual language program at Memorial. In the early years, the dual language program began as a strand within the school, with only several sections of dual languages classes per grade level. In the 2011-2013 school year, Memorial opened one cohort (consisting of two classrooms of students) of two-way dual language students. Then, by the 2012-2013 school year, the dual language program expanded to include more sections within each grade level, creating a greater need for Spanish-speaking (and many times), Hispanic teachers. Staff demographics are shown in Table C.8 for six years of instruction.

What's more, all three key informants who have worked intimately on both campuses, note that until the past several years, Memorial has experienced a mostly stable staff with little turn over and high teacher retention. Memorial also has more staff with six or more years of experience than César Chávez does. Additionally, the principal has served the staff for over twenty years as both a teacher and campus principal.

Table C.8

Memorial's Staff Demographics from 2007-2013

Cohort Group's Grade Levels by Year	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013
	Kinder	First	Second	Third	Fourth	Fifth
# Staff	67	69.4	67	71	68	77
# Teachers	49	51.3	48	54	53	56
# Paras	3	10.5	12	11	10	12
# Admin	3	3	2	3	2	3
#Hispanic	14 (28.5%)	15 (29.2%)	15 (31.2%)	15 (27.8%)	16 (30.2%)	21 (37.5%)
#White	32 (65.4%)	34.3 (66.9%)	31 (64.6%)	36 (66.7%)	35 (66%)	33 (58.9%)
# beginning	3 (6%)	3 (5.8%)	1 (2.1%)	3 (5.6%)	1 (1.9%)	2 (3.6%)
# 1-5 years	14 (28.6%)	12 (23.4%)	11 (22.9%)	15 (27.8%)	16 (30.2%)	14 (25%)
# 6-10 years	11 (22.5%)	11.4 (22.3%)	10 (20.8%)	11 (20.4%)	11 (20.8%)	14 (25%)
#11-20	15 (30%)	16.9 (32.9%)	18 (37.5%)	18 (33.3%)	18 (34%)	23 (41%)
# 20+	6 (12.2%)	8 (15.7%)	8 (16.7%)	7 (13%)	7 (13.2%)	3 (5.4%)
Average Years of Experience	10.4	11.7	11.8	11	11.4	10.3

César Chávez’s Understanding and Implementation

“All the accessories that come along”: Curriculum as the Background

Perhaps it is telling that curriculum was the least discussed topic in all the interviews, surveys, and focus groups. Not discussing this topic much is just as significant as if it were much discussed. When curriculum was mentioned it was almost entirely related to Principle 1, before transitioning into instructional, professional development or program structure concerns: “The curriculum is standards-based and promotes the development of bilingual, biliterate, and multicultural competencies for all students”. Key informant Margarita De los Santos, who has worked at both campuses explains, “I think this [the curriculum] is where there is one of the weaker areas because whenever dual language started there was a prestige about it. It was cutting edge [...] The flaw of the system is that in all of the...accessories that come along with dual [...] the standards became the background.”

Standards’ place in the background is also apparent in César Chávez administrators’ reflection on the level of implementation (LoI) of each principle undergirding the curriculum strand, displayed in Table C.9.

Table C 9

César Chávez’ Reflection on Curriculum

Curriculum		
Principle	Explanation	LoI
1	The curriculum is standards-based and promotes the development of bilingual, biliterate, and multicultural competencies for all students.	44.00%
2	The program has a process for developing and revising a high quality curriculum.	58.00%
3	The program is fully articulated for all students.	69.00%

Next to program structure, curriculum was the lowest of the four strands in terms of implementation for César Chávez's principals. Two of the three key informants as well as teachers from César Chávez's focus group agreed that there has been a major focus on the components of dual language, language learner strategies and innovations that have made focusing on the curriculum a challenge. Several of the teachers in the focus group that were both new to campus and the dual language program the previous year stated what a heavy load it was to be off campus for training so much during the school year. Moreover, MaryBeth McGowen, a second year teacher at César Chávez, expresses a particular challenge in relation to Principles 2 and 3. She wonders aloud during the campus focus group, "Words their Way™ [a word study program] is required in [our district]. I've gone to tons of trainings. They tell us how to do it. They've given us the books. We've read the books, studied the books, delved deep in the books. We've had conversations, we made copies and tried to do them in our classrooms, but we switch every two days in first grade. So some weeks, I have my yellow group for three days and that week I have my red group for two days. When we switch to the next week it's flipped and that's when the problem comes in. I think that's one of the huge things in the district. We've discussed the model but the switching and all this stuff that they're throwing at us to implement [...] well how do we do it?"

At present, from MaryBeth and others' comments, it appears that the curriculum is moderately articulated for all students (Principle 3) and is in need of developing and revising its curriculum for emergent bilinguals (Principle 2). Both teachers and administrators concur with Suzanne Smith, another key informant who said half-jokingly, "No more distractors. I mean if there wasn't another iPad picked up until everybody

understood what that standard said and how that tool helps support that standard then no iPad would be picked up if [...] It's going back in and shoring it up, saying standards support this.”

Despite so many “accessories” vying for their attention, all of César Chávez’s teacher survey respondents confirmed that the standards were the most used resource in their weekly planning, followed by twenty-one of twenty two teachers who said the online district curriculum scope and sequence was important to their planning. Taken together, teacher and administrators’ responses point to a moderate implementation of curriculum, which is corroborated by the Lol average score of 52%.

“I can’t answer that exemplary now”: Turnover and high needs on instruction

César Chávez has several instructional non-negotiables as part of the district dual language program. Implementing SIOP™ throughout their lessons, in addition to utilizing academic vocabulary and Thinking Maps™ are the cornerstone instructional strategies for teachers that relate to Principle 1 of the GPfDLE. When asked which instructional strategies were the schools’ strengths all three key informants answered Thinking Maps™ and academic vocabulary, because it had been implemented for the longest period of time, with several yearly opportunities for job-embedded professional development. The other initiatives, they explained, did not have this kind of follow up professional development. Overall, the campus administrators at César Chávez scored the principles undergirding instruction as partially or fully used across the campus, shown in Table C.10.

Table C.10

César Chávez’s Reflection on Instruction

Instruction		
Principle	Explanation	Lol
1	Instructional methods are derived from research-based principles of dual language education and from research on the development of bilingualism and biliteracy in children.	63%
2	Instructional strategies enhance the development of bilingualism, biliteracy and academic achievement.	55%
3	Instruction is student-centered.	63%
4	Teachers create a multilingual and multicultural learning environment.	58%

Margarita De los Santos explains that if one walks the campus s/he would see “high energy—lots of movement—stations... hands on manipulatives—lots of rich literacy, word work, SIOP™ strategies being used...academic vocabulary being implemented—the teacher interacting with children, children being generators of learning—the teacher facilitating that type of learning...music...high levels of engagement”. In this way, the instructional strategies seem to support high levels of implementation in regards to each of the four principles in regards to instruction. The use of research-based strategies was also shown in the observations of six classroom teachers representative of staff demographics in relation to grade level, language of instruction and experience, shown in Table C.11.

As a whole, the twelve 45 minute observations show consistent SIOP™ use over the two observations, with 1 to 7% in variance between each observation. An observation was scored as low implementation if 0-25% of the components were observed, moderate implementation if 50-74% of the components were observed and high implementation if 75-100% of the components were observed at any one time.

Table C.11

Summary of Observations at César Chavez

César Chávez SIOPTM Observations													
Grade Level, Language, Years of Experience		1st Grade English (2 yrs.)		1st Grade Spanish (3 yrs.)		3rd Grade English (1 yr.)		3rd Grade Spanish (6 yrs.)		5th Grade English (4 yrs.)		5th Grade Spanish (6 yrs.)	
SIOPTM Component	Possible Points	Obs. 1	Obs. 2	Obs. 1	Obs. 2	Obs. 1	Obs. 2	Obs. 1	Obs. 2	Obs. 1	Obs. 2	Obs. 1	Obs. 2
Preparation	21	12	10	14	12	10	8	14	13	12	8	10	10
Building Background	9	7	9	7	9	6	7	9	9	7	9	7	9
Comprehensible Input	9	9	6	9	9	6	7	9	8	6	6	7	7
Strategies	12	10	8	10	10	9	11	10	12	8	8	9	10
Interaction	12	8	8	11	11	6	10	10	9	9	6	7	9
Practice/ Application	9	6	6	8	8	6	6	8	9	5	6	6	6
Lesson Delivery	15	10	11	12	10	8	12	12	12	8	8	11	10
Review/ Assessment	12	11	10	8	9	9	10	12	12	6	9	9	9
Total Points	93	74	68	81	76	60	64	87	84	53	57	69	70
Total Percentage		80%	73%	87%	82%	65%	69%	94%	90%	57%	61%	74%	75%
Overall Lol		High		High		Moderate		High		Moderate		High	

Afterwards, a final implementation designation of low, moderate or high implementation was designated after averaging the two observations. Moreover, this group of teachers also demonstrates moderate to high levels of implementation of SIOP™ strategies, with particular strengths in the areas of comprehensible input, strategies, and interaction. The “preparation” subcomponent was the lowest component implemented across the group, as during the observations few teachers wrote, discussed and referred back to the content and language objectives of the lesson.

Largely mitigating more full or even exemplary scores for these principles is the high teacher turnover. César Chávez’s principal muses, “I’m sure at some point—I could have answered exemplary—for example teachers use active learning strategies such as cooperative learning and learning centers. I can’t answer that exemplary now, but that has nothing to do with the model but everything to do with the high teacher turnover.” For each of the six years under study, anywhere between 15 to 35 teachers left at the end of each school year, providing another round of new teaches to train and serve students at César Chávez.

Teacher surveys and the campus focus groups report teacher turn over is due to the larger workload associated with dual language teaching. Teachers not only have two classes of students (most have around 44 students), but also claim to have students that need extra linguistic and academic support. Daniela Sánchez, a third year bilingual first grade teacher explains, “So you know, as a teacher how can I feel successful when I have so many kids and I don’t have the time to serve all of them? Like all the time that they need, I can’t provide them all the instructional time that they need based on their needs and so then that is a challenge for me and it’s kind of ...I

guess you know...I don't feel as successful as a teacher, because then I'm like well 10 kids are reading at a "c" [a kindergarten reading level] but part of it it's just like the time the model, the amount of students, that is disheartening being a teacher, knowing that so many kids are low but there's really nothing you can do. And I think that does discourage a lot of teachers and that is a reason they leave because they don't feel successful here at [César Chávez]."

Here, Daniela associates the larger workload to the number of students' with high needs in addition to not feeling like the program provides her with enough instructional time to meet all of her students' needs. Other challenges associated with instruction in the dual language program consisted of working with a partner teacher to coordinate instruction and assessment of forty or more students. Still another challenge was serving students new to the United States, with little or no schooling in their countries of origin. Several times throughout the focus group, teachers expressed not knowing what to do to serve newcomers in third, fourth and fifth grades in the confines of the current program structure, where students receive academic and literacy instruction in one of their two languages during alternating weeks. Overall, these instructional challenges in the confines of the current program structure are associated with a feeling of discouragement in the surveys, from which the other six teachers in the focus group concurred.

"They need to look at the campus specifically": Staff Quality and Professional Development

Staff development and professional development is a nexus for the uniqueness of César Chávez. Interviews, focus groups and surveys all point to the unique

characteristics of César Chávez teachers and professional development needs. Closely interwoven with the topic of staff quality and professional development is the issue of teacher retention due to the heavy workload of dual language in general and the campus students' needs in particular. Anna May Jones, a teacher with 22 of experience and two years in dual languages summarizes, "We have the people. We have the drive. I mean we have people who stay here, pulling our hair out, because we want to do it, it's just we've got a model that's not working for us so we're all trying not to get in trouble to go against the model." She along with the campus teacher focus group and the key informants agree that the teachers at César Chávez are devoted and hardworking; a lack of dedication is not the issue.

Rather, the issue is that this level of commitment combined along with the program model-campus mismatch is not sustainable. César Chávez principal Margarita De los Santos shares that the year she came to campus, she had 35 positions to fill in June and July. In response, this meant hiring many new teachers. Principal De los Santos reflects, "I can kind of pin point last year....I may have overworked new teachers...as far as professional learning and the expectations. As of this year we are being very careful what we roll out—they'll become experts....but what's going to give us our biggest bang for our buck—or biggest bang for our time." She goes on to explain that in addition to the district required professional development for new teachers, teachers new to dual language are required to attend a number of trainings their first year, creating an unbearably heavy load.

The challenge is that when you have the majority of staff that are new to campus, to dual language and/or teaching, then it starts to affect the entire program. In order to

mitigate these effects on the entire campus' program, De los Santos recommends the professional development plan be "tailored to fit their needs in a way that's going to impact the classroom immediately." Of the 22 teachers surveyed, twelve reported having classes that addressed dual language education. Of the 12, only four report having classes that directly addressed ESL instruction and another four report having classes that addressed teaching students in Spanish. Three other teachers report having classes that described the program in general, while one respondent reported having classes that addressed the philosophy of dual language. Daniela Sánchez, a third year bilingual first grade teacher explains, "I only learned about the different programs. They did not prepare me for teaching in a dual language program." Mary Beth McGowen's experience is similar to that of Daniela's: "My classes prepared me with the basic information about the different programs. I had the background information and other practices." In sum, of the 22 teachers, 12 had some pre-service exposure to dual language; yet that exposure was limited to general program information, ESL and Spanish instructional strategies, placing the majority of the burden for staff development on the district.

As such, the administrator focus group scored staff quality and professional development at the moderate level, with implementation scores spanning 55-75% of implementation. In other words, according to the reflection indicators, most responses for each principle are scored at "full implementation" shown in Table C.12.

Table C.12

César Chávez’s Reflection on Staff Quality and Professional Development

Staff Quality and Professional Development		
Principle	Explanation	LoI
1	The program recruits and retains high quality dual language staff.	75%
2	The program has a quality professional development plan.	63%
3	The program provides adequate resource support for professional development.	75%
4	The program collaborates with other groups and institutions to ensure staff quality.	55%

The administrator focus group scored Principle 1 at a full level of implementation, despite the teacher turnover challenge, because of the dedication and commitment of teachers. Furthermore, while the program has a quality professional development plan (Principle 2), both Principal De los Santos and teachers from the focus group share how the sessions don’t always meet the immediate needs of César Chávez teachers and students.

MaryBeth McGown, a second year teacher explains, “That’s another thing about the training. It’s a dual language training, but you have teachers from all across the district where we have multiple types of dual language.” She goes on to explain that what’s shared at the district does not always fit the model of the campus. Kim Lyons states, “And also with that the people who do the trainings, I think they mean well. But they’re not at [César Chávez]”. And even if it was specific to our campus, I feel, like, they need to spend time on our campus and see how it really works [...]. But if you haven’t been here, you don’t know what it’s like.”

As a group, the teachers reported feeling confused over district and campus expectations regarding dual language. While discussing whether teachers had enough support during the focus group, teachers overwhelmingly concurred that they have plenty of support; it is more an issue of mixed and changing district and campus messages regarding program implementation shared at professional development. New teacher Jane Sumpter explains, “I actually went to one [professional development] it was before all of our DRA scores had to be in. And they were talking about how this is the district requirement. I was there with another first-year teacher. And we’re asking questions, and, basically, the person running the development comes over and goes, ‘What campus are y’all in?’ And we said, “[César Chávez]” She goes, ‘Oh, you guys have a whole totally different model.’ And it’s like – and it was training we had been told we had to go to. But then she’s like, “You guys are just gonna listen to the information, but you’re gonna have to go talk to somebody on your campus to find out what they’re implementing.” So even people at the district are recognizing that we’re doing something different. [...] It feel like every week we’re told ‘this is the expectation. This is what we’re doing.’ So you get ready to implement it, and then it changes. And you get ready to do it, and it changes. And so, kind of, you get to a point where you’re like okay, I’m gonna wait and see.”

César Chávez is a unique case for several reasons, one of which is seen through the understanding and implementation of the staff quality and professional development strand of GPfDLE. Due to higher than average teacher and administrator turnover, there is a new group of dual language teachers that participate in the district’s dual language professional development sessions regarding orientation to the program,

language learner strategies and biliteracy components. Figure C.1 shows teacher attendance for the orientation and language learner strategies sessions.

Of the twenty-two teachers surveyed at César Chávez, 27% attended “The Splash”, 45% attended “The Waterfall” and 32% attended the dual language learning walks. This means that anywhere between 27 to 45% of teachers have had training in the general philosophy and components of dual language programs before beginning teaching in the program. This district training is especially critical, since few teachers had training in dual language in their teacher preparation programs.

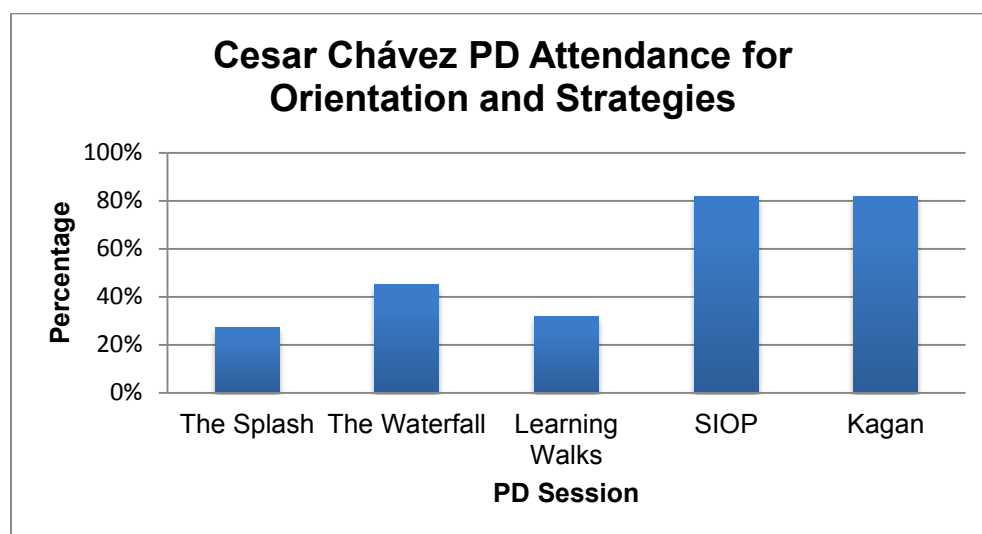


Figure C.1. César Chávez attendance for orientation and strategies.

Of the three professional development sessions, the language learners strategies sessions, SIOP™ and Kagan™ strategies, were the most highly attended (with 82% of all respondents attending each session). Since only eight of 22 teachers surveyed have received formal training prior to teaching in ESL and Spanish reading strategies, the biliteracy components professional development is the prime source for teacher training.

Figure C.2 shows teacher attendance for the professional development sessions regarding the biliteracy components.

The session on running records for the language learner was the most attended professional development on the biliteracy components with 68% participation, followed by the overview of the balanced biliteracy program (64% participation), guiding reading (64% participation) and Words Their Way (59% participation).

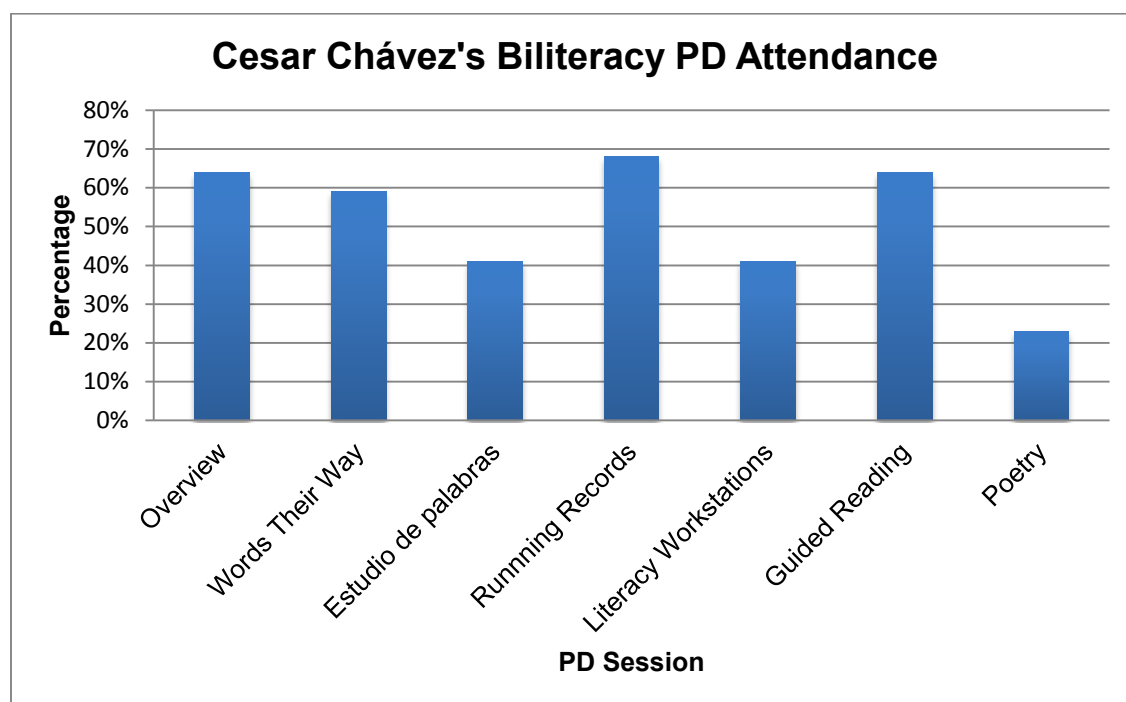


Figure C.2. César Chávez attendance for biliteracy sessions.

Interesting to note is that no one session was attended by all teachers and neither did one teacher attend all sessions. So though the district provides a comprehensive professional development plan, the full implementation of its plan is mitigated by teacher turn over. Principal De los Santos summarizes, “When a teacher signs on to be a teacher here at [César Chávez] yes they know they sign to be a dual language teacher and our district does a wonderful job of providing them the training;

however, it's new to them. Couple that with a brand new teacher teaching and it's very difficult. The learning is intense and sometimes there are people or teachers who cannot handle that intensity...so...that's been a challenge.”

This challenge then becomes systematic when there are anywhere from fifteen to thirty-five new teachers on a campus, ultimately undermining the effectiveness of the program over time. Anna May Jones shares from a teacher's point of view; “Teachers find it hard, they're stressed out so they leave. But then even if you're here three years, four years, you get a whole new set of teachers and it's already difficult to find bilingual teachers and then the training [...] Because teachers go to trainings all the time [...] They get the dual language from the district but that's specific to dual language in general not our school and our school is not like the rest of the dual language programs in the district.” In sum, César Chávez is a unique case, showing how high teacher turnover relates to teacher quality and professional development in an intricate, bidirectional relationship: a heavy workload leads to high turnover, leading to hiring new teachers, needing much specific professional development that doesn't completely meet teachers' needs, causing high turn over once again.

“In the model we've got, we have a bunch of kids that are falling through the cracks”:

Program structure

Of the four GPfDLE strands, program structure was the most discussed amongst principals and teachers at César Chávez. Furthermore, when discussed, it was always in relation to it being a major challenge, affecting other strands like staff quality and professional development, instruction and overall student success. In particular, two categories emerged in the discussions on program structure: 1) Program-student

mismatch and 2) the program-instruction nexus. Taken together, these two themes point to the need to differentiate the program model for this unique campus.

Program-student mismatch. Teachers explain in the focus group that while they support the ideal of dual language, they see that the current model does not meet all of their students' needs. When asked what their greatest challenges were in dual language, sixteen out of twenty-two teachers explained how students enter school struggling in their first language and then have trouble transferring to their second language. Paige Truman, a second grade ESL teacher, explains, "Poverty and the lack of opportunity associated with poverty impacts student learning [...] Sometimes students don't have a strong language or are strong in one language."

Teresa Méndez, a third grade bilingual teacher, continues to share how native Spanish speaking students "hardly master their native language which diminish [sic] their potential on transferring their knowledge in one language into another." In other words, the effects of poverty, combined with the need to develop a strong first language foundation, creates, according to Margartia De los Santos, a "greater mountain to climb to close the achievement gap for our students." Teachers and administrators alike are concerned about how the current program structure does not allow for greater differentiation based on students' needs, especially for new arrivals to the country, gifted and talented students and those with low proficiency in their native language, Spanish. Principal De los Santos summarizes this point: "I think we get so focused on the program itself that we forget about the kids. We need to look at each individual kid [...] We really need to stop looking at it as a program, but as a tool that we use for children and differentiate what that program looks like."

The program-instruction nexus. Closely related to the program-student mismatch is how the confines of the current program model affect teachers' instruction. According to teachers and administrators, the program model creates challenges in instruction in relation to teaching newcomers and working with a partner to instruct students. In relation to teaching newcomers in third through fifth grade, teachers express frustration at how to adhere to the separation of languages in each classroom while still meeting students' needs. Rebecca Turner explains, "One thing we were told is have his classmates translate for him and then we were told, 'No you can't translate for him at all.' So they took that away from him and now he's like 'I don't understand.' I just got told I can't let that happen. So it's like how to I bend the rule without breaking the rule? And how do I help my kid? Because that's what I'm here for." Three other teachers in the focus group expressed a similar concern: how to serve newcomers in providing the linguistic support they needed in order to access grade level curriculum without translations.

In addition to the challenge of teaching newcomers, teachers also expressed the challenge of working with a partner to instruct students. Since the model calls for a one-teacher, one-language model, teachers are expected to work closely to plan and implement instruction and assess student growth. Anna May Jones speaks of the necessity of partner-teacher collaboration to student success: "I think if you're not talking to your partner and discussing your kids about everything, it's not gonna work." Jimena Santos reflects on her dual language partnerships over the past five years: "I think the main challenge in this program is when you do not have a partner who has the same positive energy and the same dreams as you for our students. The year I had a

great and awesome partner, who respected our families and wanted to learn more about them, was the year we had 100% [passing] on our [state mandated] tests”.

Here, Jimena, relates overall student success to a shared vision and coordinating effort with her partner, which she laments she has since had in her years in the program. In this way, Jimena shows how teachers’ philosophies toward dual language affect the teaching partnership, instruction and the overall achievement of students.

Teresa Méndez expands on the importance of teacher philosophy and its affects on instruction in dual language: she explains that an additional challenge to the program is that teachers, whether they be native English or native Spanish speaking “barely know the purpose or anything else about dual language which means they are up to reducing the students’ exposure to Spanish and are just teaching them in English.” That is, without a deep understanding of bilingual and biliteracy development, teachers believe that teaching more in English will increase students’ English proficiency. As a result, they all too readily give up Spanish language development with the pressure of high stakes tests. Overall, teachers and administrators agree with Paige Turner who states: “Our English Language Learners are not acquiring English skills at the rate which matches state-wide expectations. Our dual language programming goes not fit the measures of ‘success’ dictated by [the state education agency].”

With this understanding of program structure in mind, the administrator focus group reflection of program structure coincides with teacher and administrator understanding. Average scores for each principle are low with a score of “partial”. Table C.13 shows the administrators’ reflection on program structure implementation.

The administrators' rating of Principle 1 coincides with teachers' concerns over the native language proficiencies of students when they enter the program and their ultimate level of attainment, as expressed by Paige Turner previously. Teresa Méndez's concern on the greater use of English due to a lack of understanding of bilingual and biliteracy development also underscores administrators' implementation score for Principle 1. Furthermore, at the core of the challenge to the program structure is Principle 2; both teachers and administrators don't feel that the current model meets the current subpopulations represented on campus.

Table C.13

César Chávez's Program Structure Reflection

Program Structure		
Principle	Explanation	LoI
1	All aspects of the program work together to achieve the goals of additive bilingualism, biliteracy and cross-cultural competence, while meeting grade-level expectations.	50%
2	The program ensures equity for all groups.	31%
3	The program has strong, effective, and knowledgeable leadership.	58%
4	The program has used a well-defined, inclusive, and defensible process to select and refine model design.	38%
5	An effective process exists for continual program planning, implementation, and evaluation.	25%

Fifteen out of twenty-two teachers surveyed mentioned that tweaking the model (Principles 4 and 5) would increase student success by allowing “more opportunities for students prek-1st to really build their native language, while providing some opportunity for exposure to the second language” according to Daniela Sánchez. Another need teachers explained was to strengthen “connections between concept taught in Spanish and English [...] to allow students to be successful in two languages,” according to third

grade ESL teacher Megan Frye. At present, campus administrators have been given the flexibility to departmentalize in fourth and fifth grade and switch from a one-day to a two-day rotation in first grade. However, while given this flexibility, teachers and parents have not been included in the process to refine the program, thus making Principles 4 and 5 one of the lowest areas of implementation.

In regards to Principle 3, the administrator focus group scored an average of moderate implementation with scores hovering between full and partial implementation. Although Margarita De los Santos holds several graduate degrees, including a doctorate, she explains that she understands the model needs a lot of tweaking for it to meet student needs. She muses: “So as a leader, there’s that frustration, because I know what has to happen and it can’t happen fast enough and so I would say yes, there is leadership here. I’m the leader and I know what needs to happen. But I have that frustration because as a leader, I’m used to taking the reins and more...getting in action mode, but I have to collaborate with others to make sure that what I’m doing for the school is not centered on me and my belief and my opinions but also district expectations [...] so yes it has leadership, but it’s morphed in terms of my perception as a leader.”

Conclusion

César Chávez teacher and administrator respondents describe its campus as a unique case with very specific needs. A heavy workload is a standard for staff members, due to students’ linguistic and academic readiness upon entering school. With many teachers being new to dual language or new to the campus, the workload becomes even heavier making it hard to retain a stable, highly qualified staff.

Subsequently, while teachers may be implementing best practice instruction for language learners at moderate to high levels, the curriculum has historically not been the focus of teachers. Instead, teachers and administrators focus on the instructional strategies and components' of the dual language program. Overall, teachers and administrators express concern that the current program model does not fit students' needs, as they believe students are not strong in either of their languages. Both stakeholders believe if they are able to differentiate the program, based on students' readiness levels, that teachers would be more adequately supported to foster student success. In sum, administrators and teachers believe in the ideal of dual language, if it can be differentiated for student needs.

Memorial's Understanding and Implementation

"We transitioned over the last couple of years": The dynamic curriculum

Like César Chávez, Memorial's interviews, surveys and focus groups included little discussion on the curriculum in relation to dual language. Furthermore, when it was mentioned, the topic of curriculum served as a springboard to discuss resources, instruction, and staff quality. Where the discussion with César Chávez's administration focused on Principle 1 of the curriculum (the curriculum is standards-based), the discussion with Memorial's administration focused on Principles 2 and 3 (the program has a process for developing and revising the curriculum; the curriculum is fully articulated for all students). The following scene from the administrator focus group illustrates the dynamic relationship between curriculum, resources, instruction and staff quality:

Robin Wright: We transitioned over the last couple of years as far as the curriculum goes. I didn't feel like it was equitable.

Nathanial Moore: {almost immediately responds} I would agree with you.

Robin Wright: I don't think anybody—no one was planning that. Just the materials, the resources weren't there. I see it moving in that direction much more than it was previous to it.

Nathanial Moore: And I'm looking at your answers (referring to Robin's responses to the GPfDLE), and I see that they are pretty similar to mine. I was a former dual language—bilingual teacher. That was four or five years ago when I stopped. So at that point, I would not have marked it so high. I think the district—has been working on having equal access to everything. I think where it starts to break down at times which is inevitable is when it comes to...getting them to teachers in a timely manner. Just for example: textbook warehouse, having everything but they do English first and then Spanish. Or the website from an outside vendor promised two languages but oh we don't have Spanish ready until November. The over all plan is very inclusive, very fair, but sometimes the implementation of the plan can break down. I don't think it's intentional, I think it's just...happens.

Robin Wright: I would say too you talk about the linguistic skills promote bilingualism. If we're just talking about curriculum then I get it. But then there's staff. If they don't understand that as well...

During the focus group, two of the three principals present seem to make the distinction between the written and the implemented curriculum, especially as Nathaniel Moore explains, “I don’t think anybody—no one was planning that. Just the materials, the resources weren’t there.” Both here and later in his extended speech, he differentiates the district’s intent and plan with the resource provision and furthermore teacher instruction. Robin Wright furthers this point, as she points to the importance of staff understanding how to develop linguistic skills that promote bilingualism.

Moreover, though Memorial administrators discuss the changing complexities surrounding the curriculum, they still score implementation of the curriculum strand as high, as shown in Table C.14.

Table C.14

Memorial’s Reflection on Curriculum

Curriculum		
Principle	Explanation	LoI
1	The curriculum is standards-based and promotes the development of bilingual, biliterate, and multicultural competencies for all students.	100%
2	The program has a process for developing and revising a high quality curriculum.	100%
3	The program is fully articulated for all students.	88%

Key informant, Donna Pierce, further clarifies the role of curriculum for Memorial administrators, “Robin Wright—along with [César Chávez’s principal]—revitalization of the standards is very intentional. She’s had to think about from the perspective of the teacher, what the teachers’ needs are.” In this way, both Robin and Donna consider not only the written curriculum, but also their teachers’ understanding and implementation of the curriculum. In turn, while little discussed, the strand of curriculum is significant in

pointing to the complex and changing relationships between curriculum, instruction, staff quality and resources for Memorial's dual language program.

Balancing fidelity of language and putting students first: Strategic instruction

Memorial shares the same instructional non-negotiables as César Chávez, as part of the district dual language program. Implementing SIOP™ throughout their lessons, in addition to utilizing academic vocabulary and Thinking Maps™ are the cornerstone instructional strategies for teachers that relate to Principle 1 of the GPfDLE. When asked which instructional strategies were the schools' strengths, all three key informants answered Thinking Maps™ for the same reasons that were given for César Chávez's implementation: it had been implemented for the longest period of time, with several yearly opportunities for job-embedded professional development. The other initiatives, they explained, did not have this kind of follow up professional development.

Donna Pierce and Viviana Gómez shared depth of academic vocabulary use as a growth point for Memorial. Donna explains, "I wish the teachers would language deeper academic vocabulary, but teachers don't talk with academic vocabulary. So many times when the vocabulary goes up, the teacher doesn't know how to use it in context or incorporate their own language." She goes on to explain that this strategy is especially key for title one students who are most likely only exposed to this higher-level vocabulary in the school context.

Overall, key informants and the administrator focus group scored the implementation of instruction as relatively high, with an average score of "full implementation" for Principles 2, 3, and 4, shown in Table C.15. Assistant principal, Nathaniel Moore explains, "I had some pretty high marks over there. I feel like our

bilingual teachers, we have diverse backgrounds themselves. A lot of them are in positions to understand the challenges that our students face, so I think they're very sensitive as they give examples, as they pull things into the class, as they role play. You know introducing the concepts that maybe they just didn't get outside of school. So I thought those were pretty good. "

Table C.15

Memorial's Reflection on Instruction

Instruction		
Principle	Explanation	Lol
1	Instructional methods are derived from research-based principles of dual language education and from research on the development of bilingualism and biliteracy in children.	67 %
2	Instructional strategies enhance the development of bilingualism, biliteracy and academic achievement.	80 %
3	Instruction is student-centered	81 %
4	Teachers create a multilingual and multicultural learning environment.	75 %

In this way, the administrator focus groups' responses support Principles 2, 3 and 4 of the GPfDLE reflection. In particular, Principle 1 and 2 are corroborated by two 45-minute observations of six dual language teachers across the campus, shown in Table C.16.

As a whole, the twelve 45 minute observations show consistent SIOP™ use over the two observations, with only 1-2% variance in scores between each observation for each teacher. As a group, the teachers demonstrate moderate to high levels of implementation of SIOP™ strategies like César Chávez's teacher observations.

Table C.16

Summary of SIOP™ Observations for Memorial

Memorial SIOP™ Observations													
Grade Level, Language, and Yrs. of Experience		1st Grade English (2 yrs.)		1st Grade Spanish (3 yrs.)		3rd Grade English (5 yrs.)		3rd Grade Spanish (8 yrs.)		5th Grade English (8 yrs.)		5th Grade Spanish (1 yr.)	
SIOP™ Component	Possible Points	Obs. 1	Obs. 2	Obs. 1	Obs. 2	Obs. 1	Obs. 2	Obs. 1	Obs. 2	Obs. 1	Obs. 2	Obs. 1	Obs. 2
Preparation	21	16	12	11	10	11	12	13	11	12	12	13	13
Building Background	9	9	9	6	9	5	9	7	9	7	9	9	9
Comprehensible Input	9	9	8	9	7	7	8	7	9	7	7	9	9
Strategies	12	12	11	9	9	9	10	12	12	8	10	10	12
Interaction	12	12	9	11	9	9	9	11	12	9	6	11	12
Practice/ Application	9	9	9	9	6	7	8	9	9	5	7	8	8
Lesson Delivery	15	15	13	11	12	15	11	9	15	10	15	12	15
Review/ Assessment	12	12	10	7	10	12	10	12	12	9	10	12	10
Total Points	99	79	78	73	72	75	77	80	82	67	69	84	83
Total Percentage		78%	78%	73%	73%	76%	78%	81%	83%	72%	74%	90%	89%
Overall Lol		High		Moderate		High		High		Moderate		High	

However, unlike César Chávez, these teachers represent a smaller range in scores, with more teachers at the high end of moderate implementation and high implementation. Moreover, the observations show consistent strengths in the SIOP™ components of building background, comprehensible input, strategies, interaction, practice/application, and lesson delivery. The “preparation” subcomponent was the lowest component implemented across the group, as during the observations few teachers wrote, discussed, and referred back to the content and language objectives of the lesson.

Still, despite these relatively high marks in the GPfDLE and SIOP™ observations a major theme that cut across surveys, focus groups, and interviews was the use of SIOP™ strategies for Spanish learners and the dominance of English in the program. Assistant principle Helen Grant explains that while she notices the kindergarten bilingual teachers show strengths in making content comprehensible for Spanish learners, it remains an area for growth campus wide. Classroom teachers in the focus group expressed similar concern on how to keep Spanish learners engaged in grade level content, without watering it down or losing the child completely due to lack of understanding.

Before including a two-way cohort, there use to be one or two students the Spanish teachers had to differentiate for, but now it’s forty or fifty percent of the classroom. From a macro view, administrators explain “pressure to expand the program, we probably let in [into the program] more students indiscriminately, causing some students to drop out of the program by second or third grade, when the content

gets more academic.” Adequately differentiating instruction for Spanish learners was a major concern for both administrators and teachers, but especially Memorial teachers.

Falling within the purview of strategic instruction at Memorial and closely related to the challenge of differentiating for Spanish learners, is the topic of English dominance in the campus program. For various reasons, whether due to students’ language dominance or pressure of high stakes testing, focus group teachers explain there is more English discourse in the classroom than the 50/50 program ideal describes.

Principal Robin Wright explains an incident that occurred the morning of the administrator focus group: “This morning I was doing some walkthroughs and I stopped at a classroom and I thought, ‘You’re supposed to be teaching in Spanish and it was being taught in English!’ I thought the instruction and the paperwork was in English too.” When asking the campus teachers if teaching Spanish during Spanish instruction was a non-negotiable, Juliana Pérez, a fourth grade bilingual teacher, responded, “It’s a non negotiable, but they still do it. It’s especially disheartening if their first language is Spanish.”

Viviana Gómez, key informant who was also present at the focus group, speaks of how English instruction during the Spanish time affects students over the course of the program: “it is a teacher thing [choosing to instruct in English rather than Spanish during Spanish instruction]. A teacher should know that I need to scaffold for this, and I need to assess maybe a little differently. But there’s no consistency. So maybe one year, this child will get a teacher that helps them in Spanish and scaffolds and does this, and in English, and it’s a great year for that child. But then they go to the next year and it’s like I’m teaching only in English, and that’s it and you have to deal with it.

Interestingly, while the administrator focus group and SIOP™ observations show high levels of implementation for Principles 2, 3 and 4 of the GPfDLE reflection, the teacher focus groups elucidate the programmatic implications for individual teachers' choices to use more English than the program stipulates in the Spanish class. This juxtaposition, between administration and teacher understanding of fidelity of implementation when it comes to instruction is partially seen through assistant principal Nathaniel Moore's explanation for the use of English in the Spanish classroom:

"I think across the board [we implement the instructional component of the program] extremely faithfully...at least through what we can tell through our walkthroughs and talks with teachers. That does not mean like Mrs. Wright said, some teachers depending on the grade level and what they feel they need to do...what we try to do is reiterate the importance of why [the program] is laid out the way it is, but it also needs to be student-centered first. If you have a kid crying breaking down, then you need to speak to him in the language that he understands. Then modeling your instruction in that language. If you have a kid that refuses to answer you in the language of the day, this is not something to get hung up on. What you need to do is to encourage him. Your input needs to be in the correct language but also we want them to enjoy school and do that. So it's kind of that balancing between being faithful, but being student-centered and I think we do a pretty good job."

Taken together, teachers' observations and teacher and administrators' responses demonstrate a general high use of strategic instruction. According to Nathaniel, even the use of English is strategic for some teachers; on the other hand, according to focus group teachers, the use of English during Spanish instruction is a

result of teachers' choice with programmatic systematic consequences on some students' Spanish development when it occurs across the program. Either way, there is a clear tension in regards to holding to the strict separation of languages and ultimately responding to students' needs in the language that the teacher feels the students need. "We fill in the gaps where there are training holes": Staff quality and professional development

Upon discussing staff quality and professional development, Principal Robin Wright comments, *"it's hard to answer this, because it's changed over the years.* Because of the growth of the program everyone is at different stages and different depths of understanding. This makes it difficult to set expectations equitably and with a time frame." She goes on to explain how over the six years of program implementation the district has worked to vet and then recommend quality Spanish speaking teachers. The challenge, the administrator group goes on to explain, is that a teacher candidate with high Spanish competence does not necessarily have a deep understanding of pedagogy or even contemporary American pedagogy. Taken together, this creates a great need for campus and district support of Spanish dual language teachers.

However, even those teachers who have ESL and bilingual teaching credentials in the United States report having little training in dual language prior to securing their teaching positions. Of eleven teachers surveyed at Memorial, only two reported having teacher preparation programs that addressed dual language. Then, for the two teachers whose preparation included instruction in dual language it was only described superficially. Maria López shares: "My classes explained dual language as an additive bilingual program where students learn in two languages. That's all the preparation I

received.” Laura Smith, the other teacher who reports receiving teacher preparation in dual language shares the general cultural needs of students she learned “culturally enriching, address[ing] the needs of ELL students.”

With little preparation of dual language at the college level, much of the responsibility of dual language teacher preparation falls on the district. Over the course of six years, the administrator focus group scored implementation for staff quality and professional development to be between moderate to high levels of implementation, with average scores for each principal being “partial” and “full”. Assistant Principal Nathaniel Moore explains, “I think we do what we can and we—especially this year to fill in gaps where there are training holes, but I think [...] that when there weren’t as many dual language programs we got a little more attention from the district. And not in terms of visiting, they still visit--but to actually come and meet with those teachers go over— but now that the garden is overgrowing [...]” The administrator focus group’s reflection on staff quality and implementation is shown on Table C.17.

Table C.17

Reflection on Staff Quality and Professional Development

Staff Quality and Professional Development		
Principle	Explanation	LoI
1	The program recruits and retains high quality dual language staff.	85%
2	The program has a quality professional development plan.	55%
3	The program provides adequate resource support for professional development.	75%
4	The program collaborates with other groups and institutions to ensure staff quality.	47%

Principles 1 and 2 are substantiated by the administrators' comments for how the district works with human resources and the campus to provide quality candidates. Furthermore, while the district primarily provided professional development and support through ongoing job-embedded professional development (as shown through Assistant Principal Nathaniel Moore's response), over the past four years it has transitioned to provide more centralized support at the district level. At present, the district provides three strands of professional development for dual language campuses: orientation to the program sessions, language learner strategies sessions and biliteracy components sessions. Figure C.3 shows the attendance rates of professional development sessions for Memorial's dual language teachers.

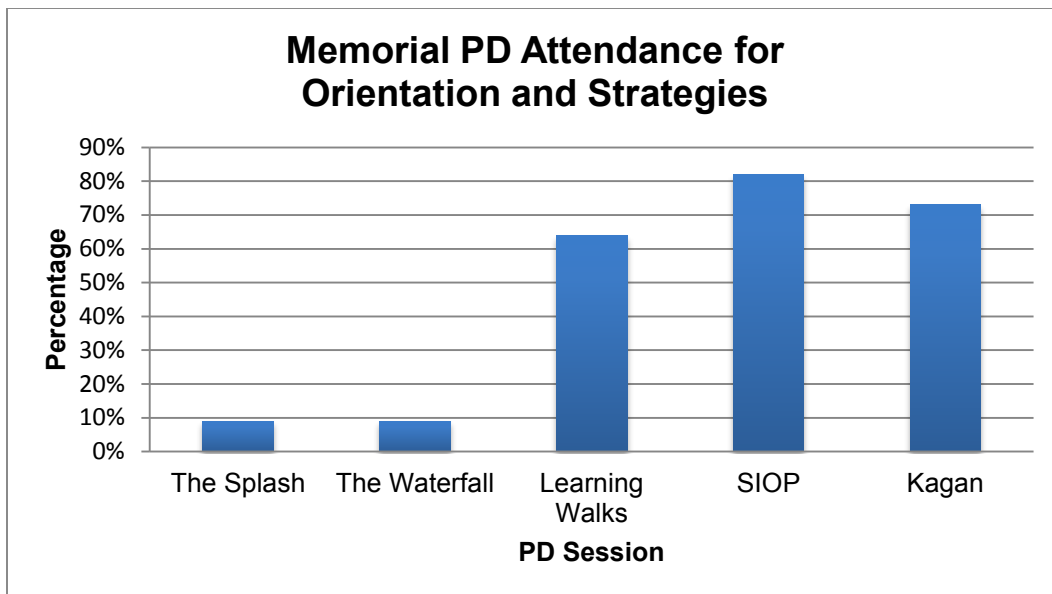


Figure C.3. Professional development attendance for orientation and strategies.

Of the eleven teachers surveyed at Memorial, only 9% had attended the overview sessions entitled “The Splash” and “The Waterfall”. Of the orientation sessions, the dual language learning walks were the most attended, with 64% of surveyed teachers partaking in walking other dual language campuses and discussing

the instructional practices specific to dual language. Of all three professional development categories the language learners strategies, which included SIOP™ and Kagan™ structures, were the most highly attended with 82% and 73% attendance respectively. Attendance for the third series of professional development sessions, components of biliteracy, are shown in Figure C.4.

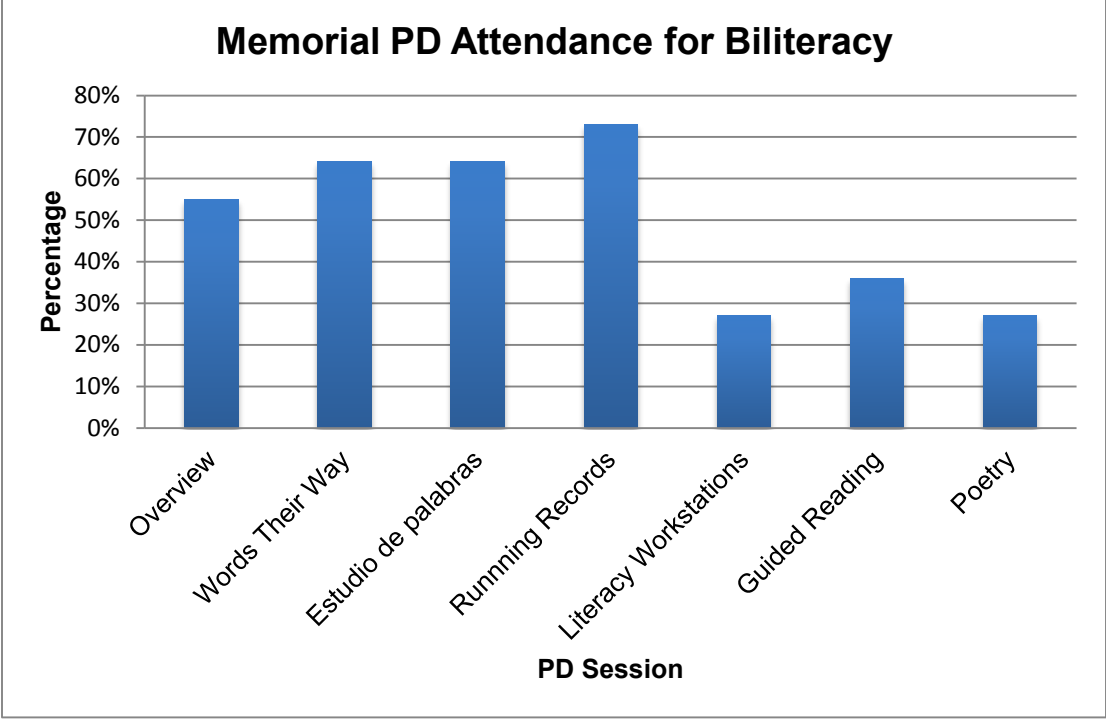


Figure C.4. Professional development attendance for biliteracy components.

The session on running records for the language learner was the most attended professional development on the biliteracy components with 73% participation, followed by Words Their Way (64% participation, Estudio de palabras (64% participation) and the overview of the simultaneous biliteracy model for the district (55% participation). Interesting to note is that no one session was attended by all teachers and neither did one teacher attend all sessions. So though the district provides a comprehensive professional development plan, the full implementation of its plan is mitigated by teacher

turn over. Key informant Viviana Gómez explains that there are two major cohorts of teachers at Memorial: those who have taught there for fifteen or more years and those who are new to teaching. Yet, whether it be an experienced teacher or a new teacher, Viviana goes on to explain the heavy load of a dual language teacher, “it was overwhelming for them [...] to understand what it is that they are doing, but they also have to understand the [...] the acquisition of language, the psychology of an English language learner, I mean it’s a lot to teach in a dual language program. It’s a lot.” As a result, many teachers leave, leading Assistant Principal Stacy Moreno to share “Although the program is older, the staff is newer”. With a new cohort of teachers coming in each year, campus teachers represent a range of dual language expertise and needs in terms staff quality and professional development.

“It’s just so hard to be equitable and keep up with everything we have to do”: Program structure

Like César Chávez, Memorial’s respondents report program structure to be the greatest source of challenge, especially by teachers. In particular, both teachers and principals agree that there is a need for a process to refine the program (Principle 4) to meet students’ needs (Principle 3). Two themes that emerged in regards to program structure are program consistency (especially in regards to language choice in instruction and program goals) and meeting the needs of a diverse group of learners.

During the teacher focus group, consistently teaching English and Spanish during the designated blocks was a heated issue. Hilaria Torres states: “Among grade levels, there’s not consistency on language of instruction.” In asking why teachers do this, Hilaria explains that having enough Spanish resources is not the reason for

teaching in English during Spanish instruction. She explains: “Resources that are easily, readily available in Spanish because we know they are very far and few between they still choose to do the English resource.” So a lack of Spanish resources is not the issue and neither is Spanish proficiency. Hilaria describes that for the teachers she’s thinking of, their first language is Spanish. When asked if administration was aware of this issue, teacher and key informant Viviana Gómez asserts that they are aware, causing a “big disservice to the kids”.

The focus group goes on to explain how English dominance in the language of instruction is even more prevalent during testing season. Alex Thomas, a fourth grade ESL teacher summarizes: “We want this dual language program and we want this dual language program to work but some teachers have the option around testing time if you feel you need to teach in English you go ahead and teach in English.[...]They are so focused on scores, that when it comes to scores, everything is kind of pushed aside.”

Subsequently, the increase in English instruction creates a change in values for the program. Instead of bilingual and biliteracy development being the goal, English test scores are heralded as king. These mixed messages continue to mount when by middle school the dual language program becomes an elective instead of a core instructional program like in elementary school. Juliana Pérez explains, “[The parents] were told: oh, it will be integrated just like it is in the elementary setting. Over the summer, they emailed me and asked me for a roster of my kids. When they got over there in August, they took an elective away from them and they were put into dual language, which is just a Spanish vocabulary/grammar.” Viviana Gómez and Robin Wright also expressed concerns about informing parents the dual language model

would continue to middle school, without really knowing if it would. Robin Wright shares: ““I understand that it’d be complicated, but once it gets to middle school it is difficult due to staffing and scheduling challenges. I think the middle school principals are making a valiant effort [towards making the dual language program work]. I think they should continue to make the program available in middle school.”

According to Memorial teachers, not consistently implementing instruction in both languages throughout the course of the school year and across the program is a major challenge for the campus dual language program. This combined with the mixed messages within the elementary program with English dominance and the middle school program being an elective instead of a fleshed out model serve as one half to the challenge regarding the dual language program structure on the campus.

The other half of the challenge in regards to program structure was how to adequately serve various groups of students with specific needs (Principle 2). Since Memorial has a two-way model in grades k-3, teachers are serving both English and Spanish learners in their classrooms. In addition to these two groups of students are those that don’t necessarily fall into either of these categories, as they’ve grown up with bilingual parents; that is, they are not limited English proficient and neither are they limited in their Spanish proficiency.

Each of these students displays their own set of academic needs. In regards to the English learners, Assistant Principal Nathaniel Moore explains, “At a campus that’s got to be primarily at risk kids that are lower income, you got to support them year around not just 9 months out of the year. And not just summer school—because summer school is [the state mandated test]. That is something that is killing the

program”. Then, Spanish learners have their own set of needs. First grade bilingual teacher Hilaria Torres states that some students are not motivated to learn Spanish or engaged in the lessons, causing “lots of behavior issues”. To help these students be successful, she and other teachers recommend having a screening process that allows students to qualify for the program. Still, students like Hilaria Torres’s son, Gerardo, who have grown up in bilingual homes different linguistic supports and challenges. She explains how he doesn’t need to review the colors in English and Spanish in kindergarten; he learned those at home. Instead he needs more challenge in both of his languages so he doesn’t regress. For these reasons, Memorial teachers who took the survey and participated in the focus group desire a differentiated program structure that can more consistently serve its diverse group of students in both languages. The administrators’ focus group reflection follows on Table C.18.

Table C.18

Memorial Program Structure Reflection

Program Structure		
Principle	Explanation	LoI
1	All aspects of the program work together to achieve the goals of additive bilingualism, biliteracy and cross-cultural competence, while meeting grade-level expectations.	100%
2	The program ensures equity for all groups.	65%
3	The program has strong, effective, and knowledgeable leadership.	92%
4	The program has used a well-defined, inclusive, and defensible process to select and refine model design.	73%
5	An effective process exists for continual program planning, implementation, and evaluation.	100%

Overall, administrators scored implementation of the program structure to be high with average scores of “exemplary”. In particular, the group found Principles 1, 3 and 5 to be their strengths. In triangulating the teacher, administrator, and key informant responses, Principle 2 of the administrators’ reflection coincides with the key informant and teachers’ responses in surveys and focus groups. However, the administrators’ response to Principle 1 stands in contrast to those of the teachers’ concerns of program consistency and its effects on students’ overall bilingual achievement.

Furthermore, in regards to Principle 3, both key informant Donna Pierce and the administrator focus group report the strong, quality leadership of principal Robin Wright. Donna Pierce, key informant, describes Memorials’ principal as “one of the best administrators I have seen [...] She is also someone who brings so much wisdom.” Donna pinpoints Robin’s key strength, which she believes has led to the success of Memorial’s program: “she’s really good at [eliminating] distractors and [has a] straight, laser focus. [...] So I think you see that in the success of her school, because they perform well.”

Despite this high praise, Principal Robin Wright admits her concern over maximizing student success three times throughout the administrator focus group: “I can tell you as an administrator, there are so many new staff members, I feel like the program has grown so rapidly that it is difficult to monitor. As a very large campus it is critical to monitor quality and not quantity. We have grown several hundred students and at least 2- to 3 staff members on each grade level over the last 3 years.” Later on she confesses in relation to meeting the needs of the different campus demographics with pressure to expand the program: “It’s just so hard to be equitable and keep up with

everything we have to do. I think we need to use Data more to monitor student progress and adjust according to the individual student's needs." In addition to being concerned about teacher training, she expressed concern over how the program will be implemented in middle school. Like the teachers in the focus group, she is concerned about the long-term success of students' academics and bilingualism.

Assistant Principal Nathaniel Moore explains the tension facing building principals as they balance their roles as building managers and instructional leaders: "As campus level administrators, we focus on everything that happens in this building. If someone comes in from the outside they can really hone in on the issues related to dual language. It's not that we can't. We try. It's just that we [have] other things. But if someone just comes in and I want to meet with those teachers and see how things are going and see if they need support, they can really focus on that."

Still, despite these tensions, campus leadership is firmly aware of the need to increase parental involvement in the program refinement (Principle 4). Both Key informant Vivana Gómez and the administrator focus group discuss how they try to hold parent meetings that meet the needs of Spanish and English learners; yet, they still long for more culturally responsive parental involvement. As such, an implementation score of 73% is in line with teacher, key informant and administrators' responses.

In relation to the school's journey toward including more stakeholders in the selection and refinement of the dual language program is the process for planning, implementing and evaluating the program (Principle 5). The administrator focus group scored this principle at exemplary or 100% implementation, supported by Nathaniel's comments in the focus group. He explains, "Anything where we have flexibility with, we

try to seek out teachers. Like do you want to try departmentalization? Do you want to try [a] one-day [or] two-day [rotation]? We get their feedback, but I don't know that it stretches to the community." At the time of the study, the district had given Memorial and César Chávez a choice to be departmentalized within the dual language model in fourth and fifth grade; additionally, campuses were able to choose between a one or two day rotation in first grade in order to provide more consecutive time for guided reading instruction. As such, in the last year, district leadership has provided some room for differentiation; however, campus teachers feel that much more differentiation for various student populations (i.e. Spanish learners, English learners, highly proficient Spanish and English bilinguals and gifted and talented students) is needed.

Conclusion

While overall having a more stable and experienced staff when compared to César Chávez, Memorial has seen greater diversity in its staff and students over its first six years of dual language program implementation. Administrators particularly notice the transition in staff from focusing on the dual language program components to refocusing on the standards in the curriculum. As such, Memorial represents a school on a journey towards equity for its language learners that are "almost" but "not yet" reaching the exemplary ideal of the program.

Even though few teachers have college preparation courses in dual language, those that were observed used moderately high levels of best practice instruction for language learners. As the program has expanded and teacher retention has waned, Memorial's staff has had various levels of training in the district's dual language professional development. Both principals and teachers notice this and particularly

teachers note that a lack of consistency in language instruction may be mitigating the lauded effects of dual language programs. Another major challenge teachers describe is how the current program structure does not adequately meet their diverse students' needs. Discussions with administrators and teachers alike underscore a desire for greater equity for students in the dual language program. Yet, like principal Robin Wright explains, "It's just so hard to be equitable and keep up with everything we have to do."

Question 2

Research Question 2 examined the biliteracy trajectories of each campus, including students' second to fifth grade English and Spanish reading scores. This question also examined the correlation between English and Spanish reading scores at each grade, before ascertaining the percentage of students in the biliteracy zone, according to Escamilla and colleagues' (2014) biliteracy zone chart. Figure C.5 displays the mean English and Spanish biliteracy trajectories for César Chávez Elementary from second to fifth grade.

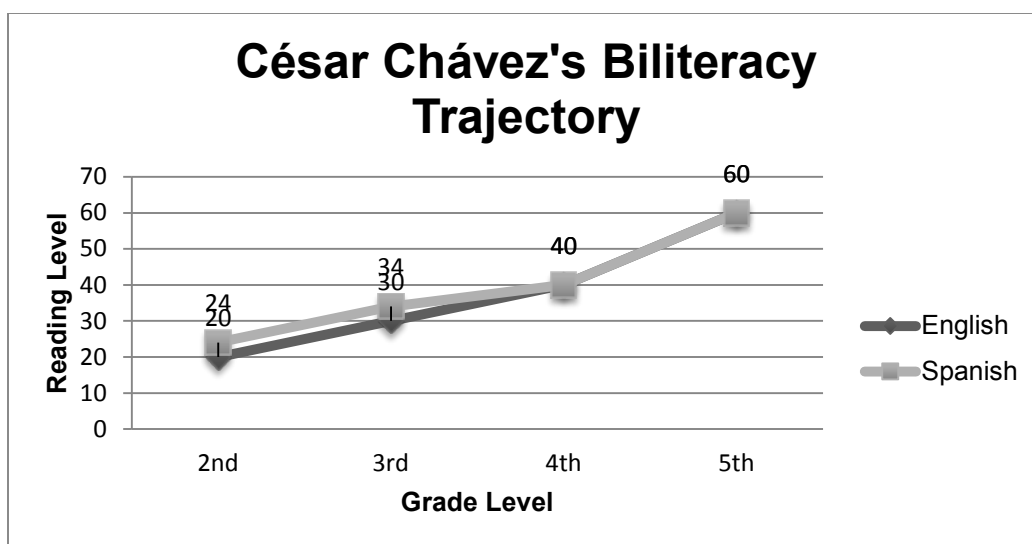


Figure C.5. César Chávez's biliteracy trajectory.

Overall, the mean biliteracy trajectory at César Chávez shows higher Spanish reading scores in second and third grade, with identical reading scores in English and Spanish by the fourth and fifth grades. Mean English (DRA) reading scores for second grade is a level 20 (equivalent to the middle of the year in second grade), followed by reading scores of 30, 40 and 60 at the end of third, fourth and fifth grades (equivalent to the beginning of third grade, the beginning of fourth grade and the end of fifth grade). According to Escamilla's Biliteracy Zone chart with a holistic view of emergent bilinguals, César Chavez's biliteracy scores are on or above target in each grade level. Moreover, mean Spanish (EDL) reading scores for second grade students at César Chávez elementary are slightly higher than English reading scores, but still fall within the grade level targets set by the biliteracy zone chart in second and third grade with Spanish EDL scores of 24 and 34 respectively. Mean fourth and fifth grade Spanish scores are identical to fourth and fifth grade English scores (40 and 60 respectively), with mean student reading scores being on level by fifth grade. Thus, the mean biliteracy trajectory at César Chávez confirms the assumption undergirding Escamilla and colleagues' (2014) biliteracy zone with the DRA and EDL: Students' reading scores in Spanish will be slightly higher than their English scores in the lower grades.

While the mean biliteracy trajectory gives an overall view of students' biliterate reading on each campus, shows the patterns in development of individual students. A frequency count of the individual English (DRA) scores show the spread of English scores from second to fifth grade in Figure C.6.

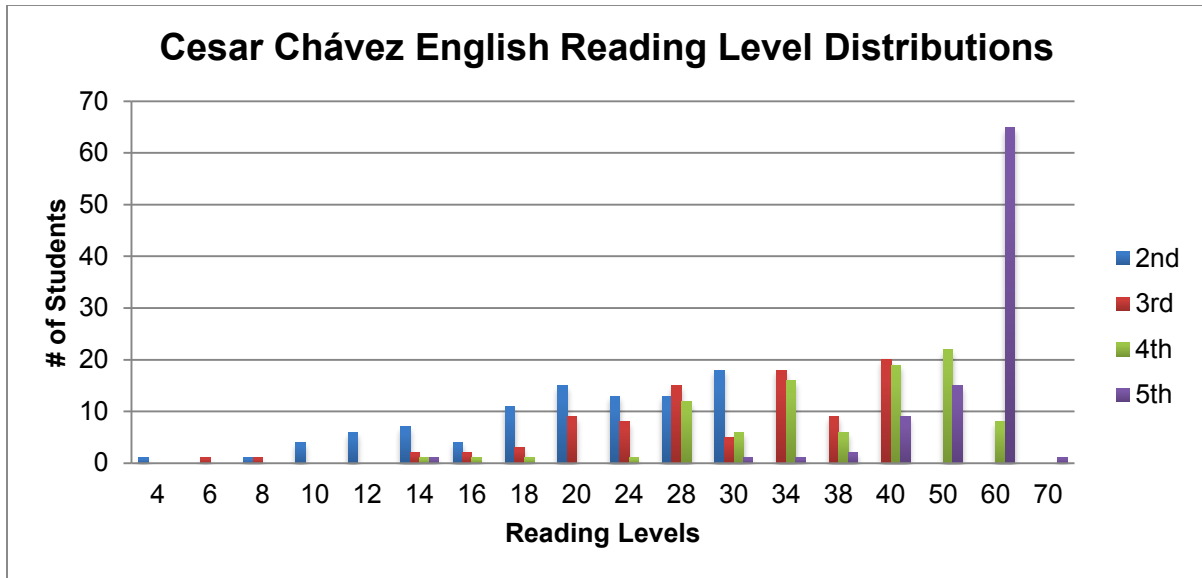


Figure C.6. English reading level distributions for César Chávez.

Second grade shows the greatest range in reading scores, as students fall into 11 different reading levels. English reading in third grade also shows a greater range in scores, as students' reading span 12 reading levels; in fourth grade, English reading scores span 11 reading levels. Fifth grade English reading scores, show the least variance, as students' reading scores span 7 reading levels, with the majority of students reading at a level 50 and 60 at the end of fifth grade ($n = 79$).

Figure C.7 shows the frequency counts at each grade level for students' Spanish reading scores. Though there is still a range of reading scores that span each grade, there is significantly less variation in the Spanish reading scores when compared to English reading scores. Still, like with the English reading scores, second grade shows the greatest range in reading scores, with students' Spanish scores spanning seven reading levels (as opposed to eleven English reading levels), with higher concentration around three reading levels (24, 28 and 30) ($n = 69$).

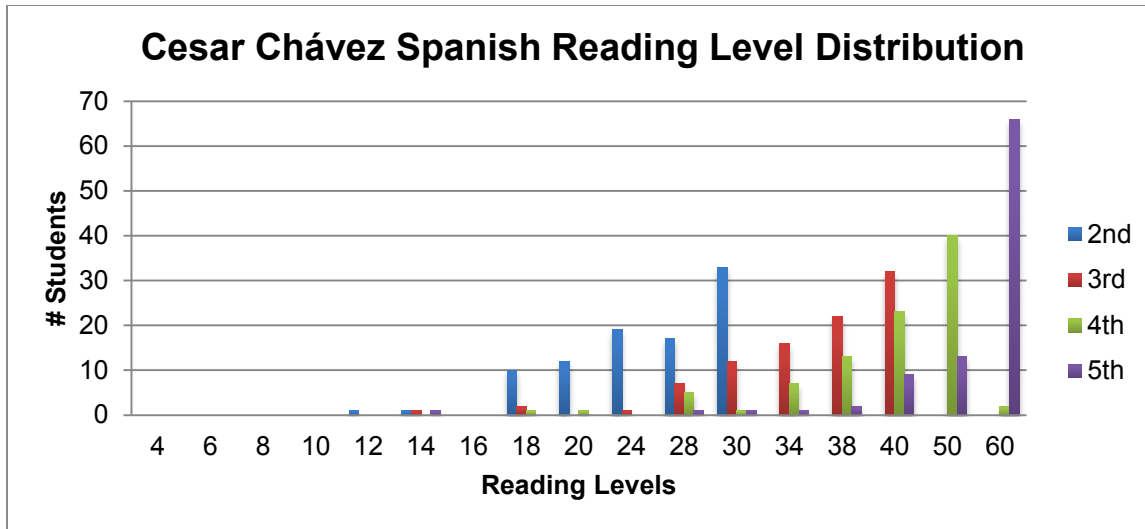


Figure C.7. Spanish reading level distribution for César Chávez.

In third grade, students' Spanish reading scores span eight reading levels, with higher concentration of scores around three reading levels (34, 38 and 40) ($n = 70$). Fourth and fifth grade Spanish reading scores also span nine and eight reading levels respectively, with higher concentrations of students at two reading levels (40 and 50) ($n = 63$) in fourth grade and one reading level in fifth grade (60) ($n = 79$). In general, there is wide variation in students' reading scores in both languages at each grade level with even greater variation in students' reading in English than in Spanish; yet, the range in reading scores in both languages decreases by fourth and fifth grade for students at César Chávez Elementary. Figure C.8 displays the mean second to fifth grade biliteracy trajectories for Memorial Elementary.

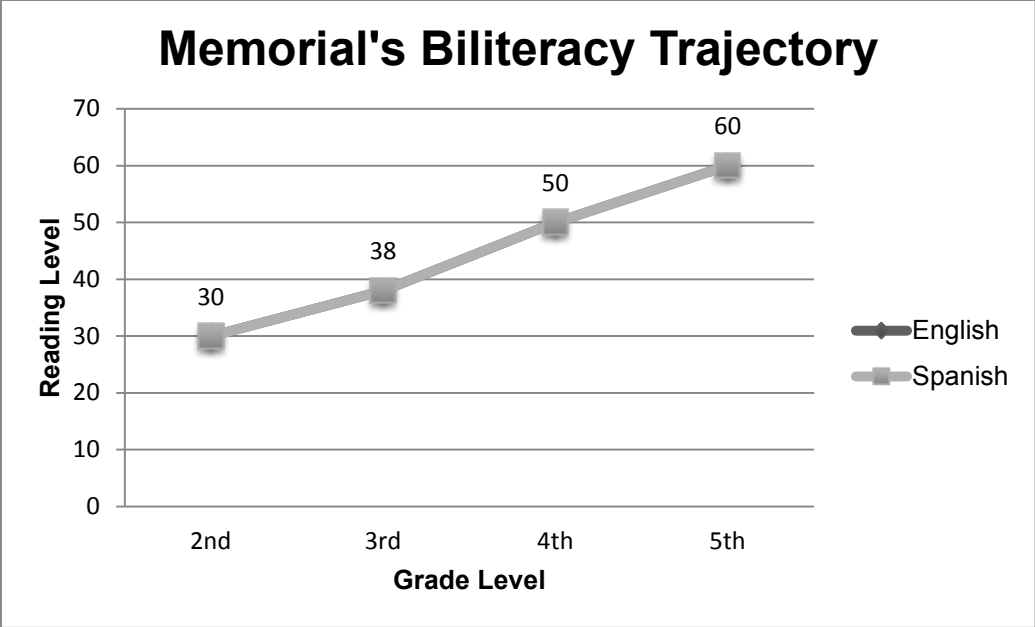


Figure C.8. Memorial's biliteracy trajectory.

Overall, the biliteracy trajectory at Memorial show identical means in English and Spanish reading scores second through fifth grade. Mean English (DRA) and Spanish (EDL) reading scores for second grade are a level 30, followed by reading scores of 38, 50 and 60 (equivalent to the beginning of third grade, the end of third grade, the end of fourth grade and the end of fifth grade) at the end of third, fourth and fifth grades. According to Escamilla’s Biliteracy Zone chart, Memorial’s biliteracy scores are at or above grade level in both English and Spanish. Subsequently, the mean biliteracy trajectory at Memorial Elementary does not follow the assumption underlying the biliteracy zone chart, with Spanish reading scores being slightly higher than English reading scores. Instead, there is no mean difference in scores. Figure C.9 shows the range of English (DRA) reading scores from second to fifth grade

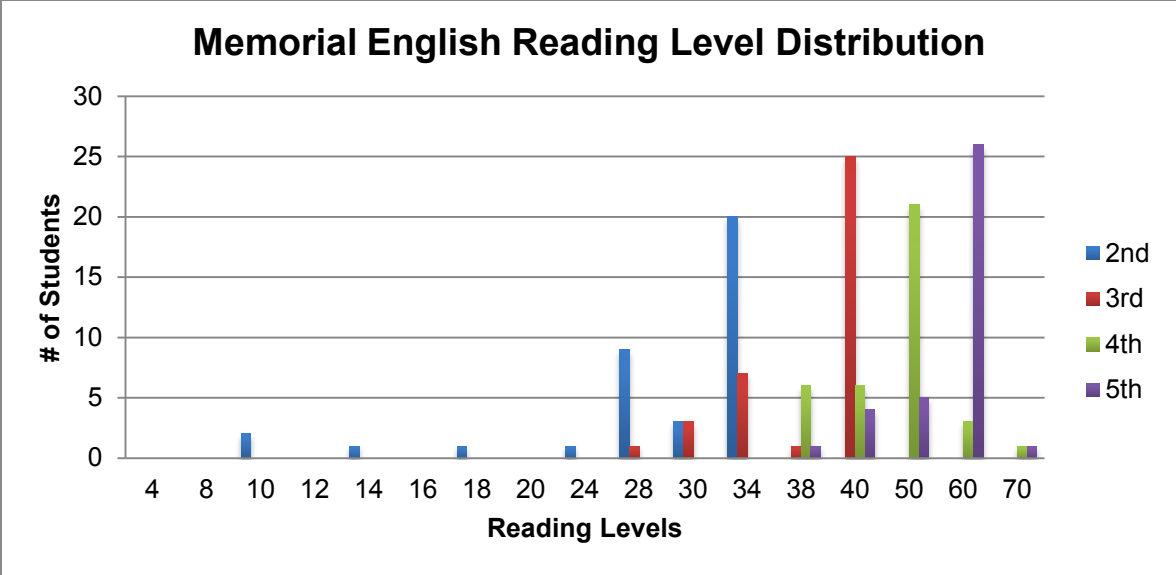


Figure C.9. English reading score distribution for Memorial.

Like César Chávez, Memorial’s second grade shows the greatest range in reading scores, as students fall into eight different reading levels. However, unlike César Chávez, English reading in third and fourth grade shows a lesser range in scores, as students’ reading levels span five reading levels in each grade, with the majority of students falling into two levels in second grade (28 and 34) ($n = 29$) and third grade (34 and 40) ($n = 32$). In fourth and fifth grades, most students’ English reading scores fall into two reading levels, levels 40 and 50 for fourth grade ($n = 27$) and levels 50 and 60 for fifth grade ($n = 31$). Figure C.10 shows the frequency counts at each grade level for students’ Spanish reading scores.

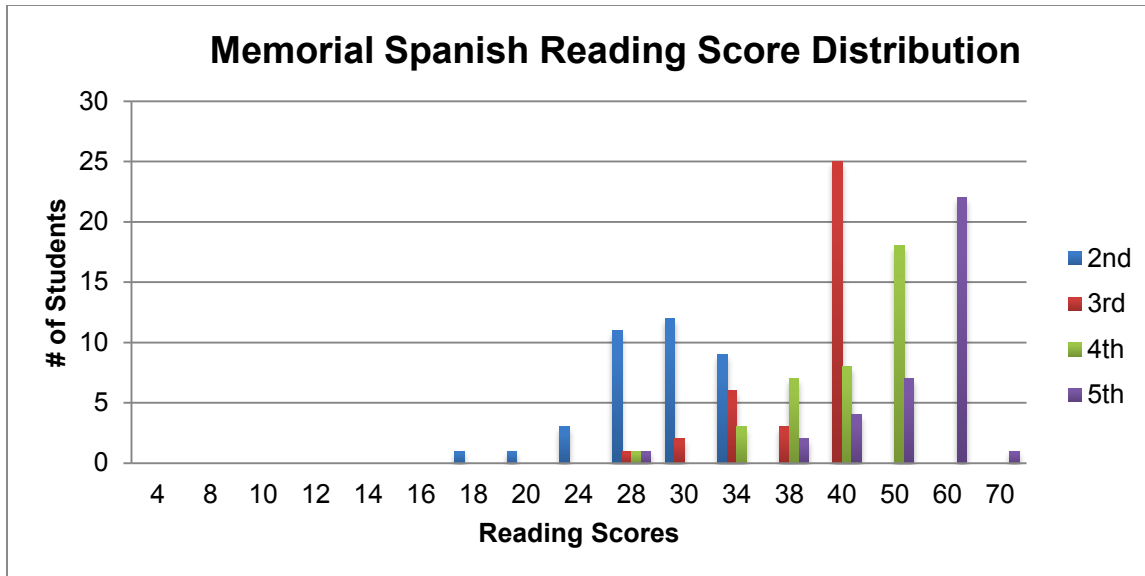


Figure C.10. Spanish reading level distribution for Memorial.

Memorial's mean Spanish reading scores show slightly more variation than its mean English reading scores (see Figure 20). In particular, second grade shows the greatest range in reading scores; students' scores only span six reading levels with higher concentration around three reading levels (28, 30 and 34) ($n = 32$). In third grade, students' Spanish reading scores span five reading levels, with higher concentration of scores around two reading levels (34 and 40) (31). Fourth and fifth grade Spanish reading scores also span five reading levels, with higher concentrations of students at two reading levels (40 and 50) ($n = 26$) in fourth grade and two reading levels in fifth grade (50 and 60) ($n = 29$).

In sum, the biliteracy trajectories at both campuses show a range of reading scores in English and Spanish at each grade level, with greater variations in student reading levels in second grade and less variation in each language in fourth and fifth grades. However, there was greater variance among the English and Spanish reading scores for César Chavez than there was for Memorial, with the exception of fourth and

fifth grades. Both schools demonstrated comparable variance in individual student school mean trajectories by these grade grades.

In addition to examining the biliteracy trajectories at each campus, question two explored the correlation between English and Spanish reading scores at each grade on each campus. Table C.19 shows the correlations for each campus by grade.

Table C.19

English and Spanish Reading Correlations

English and Spanish Reading Correlations*			
School	Grade	r	r²
César Chávez	2	0.76	0.58
	3	0.76	0.58
	4	0.78	0.61
	5	0.96	0.99
Memorial	2	0.54	0.29
	3	0.7	0.48
	4	0.57	0.33
	5	0.62	0.38

***All significant at $p < .01$**

Generally, English and Spanish reading scores are highly correlated at César Chávez Elementary, with high correlations in second and third grade, $r(91) = .76$, fourth grade, $r(91) = .78$ and a very high correlation in fifth grade, $r(91) = .96$, $p < .01$ (Dancey & Reidy, 2004). On the other hand, the English and Spanish reading scores are generally moderately correlated at Memorial Elementary, with moderate correlations in second grade, $r(35) = .54$, a high correlation in third grade, $r(35) = .7$, and moderate correlations in fourth, $r(35) = .57$ and fifth grades, $r(35) = .62$, $p < .01$. Subsequently, both schools' biliteracy trajectories show English and Spanish reading correlations that are in line with current research about biliteracy development. In addition, there are two salient

findings worth exploring further. First, is the higher correlation among English and Spanish reading for students at César Chávez. While both campuses show moderate to high correlations among reading scores, the scores at César Chávez are very highly correlated in each grade level. Another salient finding at César Chávez is the very high correlation of $r(91) = .96$ in fifth grade.

With an understanding of the biliteracy trajectories at each campus and the correlation between English and Spanish reading scores, the second to last sub-question in research question two examines the number of students in the biliteracy zone at each grade level. Table C.20 shows the percentage of students who are in the biliteracy zone at each grade at both campuses.

Table C.20

Biliteracy Zone by School

César Chávez's Biliteracy Zone			
Grade	Total N	BZ n	%
2	93	87	94%
3	93	79	85%
4	93	65	70%
5	93	80	86%
Memorial's Biliteracy Zone			
Grade	Total N	BZ n	%
2	37	35	96%
3	37	37	100%
4	37	27	73%
5	37	31	84%

Overall, many students are in the biliteracy zone on each campus with a greater percentage of student reading being in the biliteracy zone in second grade at both campuses. In fourth and fifth grades, both campuses experience marked changes in the percentage of students in the biliteracy zone, with the greatest decrease occurring

from third to fourth grade (-15% for César Chávez and -27% for Memorial). By fifth grade, increases at both campus (+16% for César Chávez and +11% for Memorial) result in a comparable percentage of students in the biliteracy zone. The greatest difference between schools occurs in third grade, with more students being in the biliteracy zone at Memorial than at César Chávez Elementary, with a difference of fifteen percentage points between campuses.

A student-by-student analysis for the biliteracy zone reveals that the biliteracy trajectories of students at César Chávez confirm the assumption of Escamilla’ and colleagues’ (2014) biliteracy zone: emergent bilinguals who speak Spanish at home will have slightly higher Spanish reading scores than English reading scores. However, the students’ biliteracy trajectories at Memorial did not follow this assumption. Instead, students’ English and Spanish scores were mostly equal in second and third grade and then changed in fourth and fifth grades, where a sub group of students’ English reading levels were slightly higher than their Spanish reading scores ($n = 9$). This pattern is displayed in Table C.21.

Table C.21

Memorial’s Student Biliteracy Trajectories that Don’t Follow the BZ Assumption

Student	2nd E	2nd Sp.	3rd E	3rd Sp.	4th E.	4th Sp.	5th E.	5th Sp.
106	34	28	40	40	50	38	60	50
107	10	24	30	28	38	34	40	38
108	18	18	28	30	38	34	50	40
114	14	28	30	34	40	38	50	38
118	28	28	34	34	38	38	50	50
121	28	28	38	40	40	34	60	40
122	34	28	40	34	50	38	60	50
123	28	28	34	34	40	38	60	50
126	34	34	40	40	50	38	60	50
128	24	24	34	30	40	28	40	28

Students' English and Spanish reading scores are shaded if they fall within the biliteracy zone benchmarks at each grade. In fourth grade, these nine students' Spanish reading scores do not fall into the biliteracy zone; instead, their English reading scores are higher than their Spanish reading scores. For five of the nine students, their Spanish reading increases in fifth grade to the point that their bilingual reading is in the biliteracy zone. Conversely, for four of these students, their Spanish reading scores lay outside of the biliteracy zone in fifth grade for the second year in a row.

Question 3

Question 3 examined if the biliteracy trajectories at each school were statistically significant and if so, how much variance in the biliteracy trajectories were explained by several key factors: school of attendance, student gender, initial English oral language (EOL) score, initial Spanish oral language (SOL) score in addition to any interactions between these variables. As a case, César Chávez had lower mean English and Spanish reading scores in second, third and fourth grade than Memorial Elementary. By fifth grade, as demonstrated in the percentage of students in the biliteracy zone in question 2, both campuses demonstrate commensurate English and Spanish reading scores. Figure C.11 demonstrates a comparison of school's mean English and Spanish reading levels by grade.

Since English and Spanish reading scores are theoretically and practically correlated (evidenced by the Pearson r coefficients in this study), the researcher preformed a slit plot MANOVA analysis using English and Spanish reading scores to determine if the difference in biliteracy trajectories at each campus was statistically significant. Mauchly's test of sphericity was significant for Spanish reading, $W = .54$, x^2

(5) = 67.60 , $p < .001$ and English reading, $W = .40$, $\chi^2 (5) = 102.24$, $p < .001$. The test of sphericity assesses the approximate equality of the model implied and the sample variance-covariance matrices. A significant test of sphericity violates the assumption that both variance-covariance matrices are equal; therefore, the Greenhouse-Geisser corrections are interpreted.

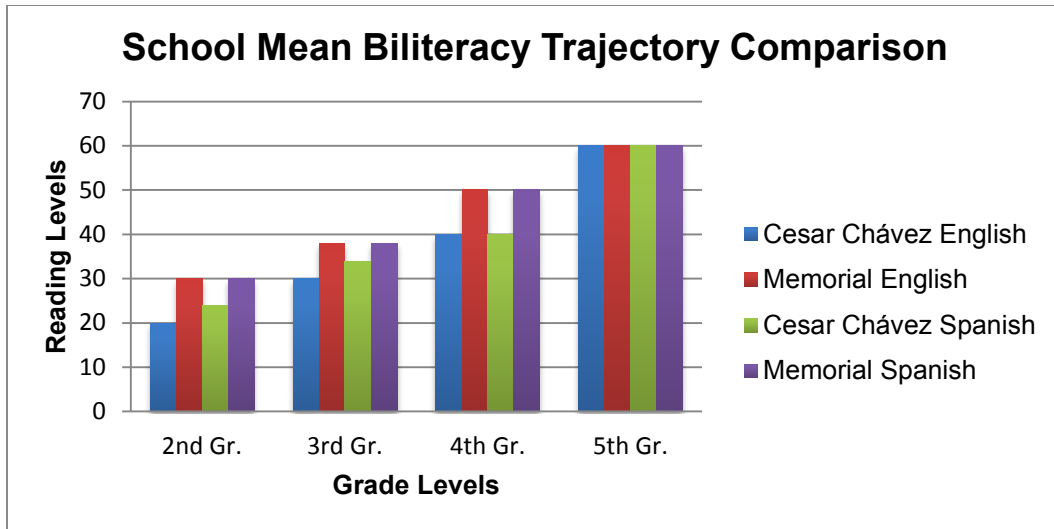


Figure C.11. Mean biliteracy trajectory comparisons.

Table C.22 displays the Greenhouse-Geisser corrections for grade and interactions for English and Spanish performance scores. The results revealed there is a significant change in English ($F(2.214, 248.022) = 11.298$, $p < .001$) and Spanish ($F(2.034, 227.806) = 17.971$, $p < .001$) across the four grades. There was also a significant interaction effect between grades and the school type for English scores ($F(2.034, 227.806) = 12.117$, $p < .001$). This suggests the effect of grade across time for English scores are different for Memorial and César Chávez Elementary.

Table C.22

*Repeated Measures Multiple Analysis of Variance for Grade and Interactions
(Greenhouse-Geisser Epsilon Correction)*

Effect		df	Mean Square	F
Grade	Spanish	2.214	291.047	11.298*
	English	2.034	558.585	17.971*
Grade * Initial_EOL	Spanish	2.214	26.587	1.032
	English	2.034	22.128	.712
Grade * Initial_SOL	Spanish	2.214	25.182	.978
	English	2.034	23.424	.754
Grade * School	Spanish	2.214	65.633	2.548
	English	2.034	376.641	12.117*
Grade * Gender	Spanish	2.214	23.115	.897
	English	2.034	18.208	.586
Grade * School * Gender	Spanish	2.214	20.087	.780
	English	2.034	6.173	.199
Error(Grade)	Spanish	248.022	25.760	
	English	227.806	31.083	

Note. * $p < .001$

Furthermore, the researcher used Pillai's Trace to correct for type one errors instead of Wilk's Lambda, because Box's M was statistically significant (Tabachnick & Fidell, 2001). Table C.23 summarizes the results of the split plot MANOVA analyses. The analysis revealed a main effect for Initial English oral language, $F(2, 111) = 3.53$, $p < .03$, $\eta^2 = .06$ and school, $F(2, 111) = 25.64$, $p < .001$, $\eta^2 = .32$. The η^2 suggest that 6% of the variation in biliteracy trajectories is explained by students' initial English oral language scores and 32% of the variation in biliteracy trajectories is explained by school of attendance.

Table C.23

Split Plot Repeated Measures of Analysis of Variance

Effect	Pillai's Trace	F	df₁	df₂	η²
Initial EOL	.06	3.53**	2	111	.06
Initial SOL	.05	2.75	2	111	.05
School	.32	25.64*	2	111	.32
Gender	.03	1.56	2	111	.03
School * Gender			2	111	
Grade	.33	8.69*	6	107	.33
Grade * Initial EOL	.59	1.13	6	107	.06
Grade * Initial SOL	.03	.60	6	107	.03
Grade * School	.20	4.38*	6	107	.19
Grade * Gender	.03	.53	6	107	.03
Grade * School * Gender	.04	.77	6	107	.04

* Significant at $p < .001$ **Significant at $p < .05$

Additionally, there was an interaction effect for grade and school, $F(6, 107) = 4.32$, $p < .001$, $\eta^2 = .20$, showing that the variables of grade level and school account for 20% of the variance in students' biliteracy trajectories. Initial Spanish oral language, gender nor any other of the interaction of variables displayed significant results to explain variance in students' biliteracy trajectories at these two campuses.

APPENDIX D
DATA COLLECTION INSTRUMENTS

Key Informant Interview

Background in Education

1. How long have you been a teacher/administrator?
2. What grades have you taught and for how many years?
3. What other schools have you taught/administered at?
4. What other districts have you taught/administered at?
5. How long have you been a teacher/administrator of DL?
6. What college(s) did you attend?
 - a. Did any of your classes talk about DL?
 - b. How did it prepare you?
 - c. In what ways did you not feel prepared?

General Dual Language

- 1a. How would you describe dual language in your own words?
- 1b. What makes dual language unique from other language programs?
2. What do you think the purposes of DL are?
- 3a. What specific challenges have you experienced with DL?
- 3b. Why do you think so?
- 3c. Do you currently have any ideas on how to make these challenges easier?
4. What specific successes have you experienced that you believe are due to dual language?

School Related Questions

1. Describe [each] school.
2. In your time there, what does/did a typical classroom look like?

3. Dual language campuses share several of the same initiatives: balanced biliteracy, SIOP, Thinking Maps, Academic Vocabulary. Are there any other non-negotiables on your (or each) campus?
4. Overall, which non-negotiables do you believe the campus implements very well?
5. From your point of view, why do you believe they do these so well?
6. Overall, which non-negotiables do you believe the campus could improve upon?
7. From your point of view, why do you believe these are areas for improvement?
8. Overall, what successes have [each school] had that you would attribute to dual language?
9. Overall what challenges does [each school] have that you would attribute to dual language?
10. (Show major components of the curriculum and instruction strands of CAL). How do you think [each school] compares to these for each item overall?

Dual Language Teacher Survey

Informed Consent Form Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose, benefits and risks of the study and how it will be conducted.

Purpose of the Study: You are being asked to participate in a research study, which aims to explore the implementation of the dual language programs at Lewisville Independent School District. This will serve as the backdrop to analyzing the 2-5 English and Spanish reading scores of the 2013-2014 fifth grade students at each campus. The specific purpose of the survey is to ascertain how teachers self-report their understanding and implementation of the dual language program on their campuses.

Study Procedures: You will be asked to respond to an electronic survey that will take about 20 minutes of your time.

Foreseeable Risks: There are no foreseeable risks in this study.

Benefits to the Subjects or Others: We expect the project to benefit you by increasing the self-reflection on your teaching and the efficacy of the school's dual language program. Your participation may aid our understanding of dual language teachers' implementation of dual language programs and its effects on students' biliteracy trajectories for your school, the district and wider bilingual educational community.

Compensation for Participants: If you so choose, you will be entered to win a \$25.00 gift card.

Procedures for Maintaining Confidentiality of Research Records: The confidentiality of your individual information will be maintained in any publications or presentations regarding this study. To ensure this, all documents will be locked in my

office. Additionally, no identifiable information will be included on the survey and/or the classroom observations; participants may choose a pseudonym of their choice.

Questions about the Study: If you have any questions about the study, you may contact Alexandra Babino at babinoa@lisd.net or Dr. Carol Wickstrom at carol.wickstrom@unt.edu.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants' Rights: Your selection below indicates that you have read, or have had read to you, all of the above and that you confirm all of the following:

- The study has been explained to you and all of your questions have been answered.
- You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits.
- The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.

Please print a copy of this form for your records.

- Yes, I agree to participate in this survey. (1)
- Click here to leave the study (2)

Q3 How long have you been a teacher?

- This is my first year. (1)
- 1 to 3 years. (2)
- 4 to 6 years. (3)
- 7 to 10 years. (4)
- 11 to 15 years. (5)

More than 15 years. (6)

Q5 What grades have you taught? How many years have you taught each grade?

Grade _____

Years Taught: _____

Grade _____

Years Taught: _____

Grade _____

Years Taught: _____

Grade _____

Years Taught: _____

Grade _____

Years Taught: _____

Q6 How many other schools have you taught in?

No other schools

1 other school

2-3 other schools

4 other schools

5 or more schools

Q7 What other districts have you taught at?

Q8 How long have you been a dual language teacher?

- This is my first year. (1)
- This is my second year. (2)
- This is my third or fourth year. (3)
- This is my fifth year. (4)
- I've taught dual language for more than five years. (5)

Q9 Which languages do you currently teach in?

- English only (1)
- Spanish only (2)
- Both (3)

Q10 If you teach Spanish, choose all that apply:

- I grew up speaking Spanish at home. (1)
- I took part in a bilingual program as a child. (2)
- I took part in an ESL program as a child. (3)
- I have taken Spanish classes in college. (4)
- I have taken advanced Spanish classes (as a minor, major, master's or other advanced degree). (5)
- I've attended school in a Spanish-speaking country for an extended period of time (two or more years). (6)
- Generally, I am confident in my academic Spanish. (7)

Q11 What teacher certifications do you have?

EC-4

EC-6

4-8 Generalist

ESL

Bilingual

Gifted and Talented

Master Reading Teacher

Special Education

Other

Q12 Do you have or are working toward a master's degree?

Yes (1)

No (2)

Q13 Did any of your teacher preparation courses address dual language instruction?

Yes (1)

No (2)

Q14 If you answered yes to the previous question, how did your classes prepare you for dual language teaching?

Q16 What do you think are the purposes of dual language programs?

Q17 How would you describe your school's dual language program?

Q18 Do you face any challenges implementing the dual language program?

- Yes (1)
- No (2)

If yes, what specific challenges do you face?

Q21 Why do you think you have these challenges?

Q22 What possible solutions do you have for these challenges?

Q19 What success do you believe you have had due to dual language?

Mark the area(s) in which you feel you have adequate resources and supports. (Check all that apply.)

- Classroom management
- Instructional strategies
- Assessment
- Planning time
- Time to collaborate
- Other (please specify): _____

Q20 What professional development have you had in relation to dual language? (Please check all that apply.)

- "The Waterfall" (1)
- "The Splash" (2)
- Simultaneous Balanced Biliteracy Training (3)
- Words Their Way (4)
- Estudio de Palabras (5)
- Running Records (6)
- Language Strategies for the Language Learner (7)
- Literacy Workstations for Dual Language (8)
- Guided Reading in Dual Language (9)
- SIOP (10)
- Kagan Structures (11)
- Learning Walks (12)
- Poetry (13)
- Other (please specify): _____

Q23 What professional development have you found most helpful to your daily practice? Please check all that apply.

	Not at all (1)	Somewhat helpful (2)	Mostly helpful (3)	Absolutely helpful (4)	Not Applicable (5)
"The Waterfall" (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"The Splash" (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Simultaneous Balanced Biliteracy Training (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Words Their Way (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Estudio de Palabras (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Running Records (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Language Strategies for the Language Learner (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Literacy Workstations for Dual Language (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guided Reading in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Dual Language (9)					
SIOP (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kagan Structures (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning Walks (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poetry (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q24 What kind of campus support have you found most helpful?

Q25 What kind of professional development would you like to have?

Q26 On a typical school week, how often do you accomplish the following:

	Never (1)	Once a week (2)	Twice a week (3)	3-4 Times a Week (4)	Everyday (5)
Shared Reading (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactive Reading (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choral Reading (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guided Reading (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Independent Reading (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Building Background (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vocabulary Development (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Word Work (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Literacy Stations (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Comprehension Toolkit (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reader's Response Journal (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Book Club (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shared Writing (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Interactive Writing (14)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Writer's Workshop (15)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentor Texts (16)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Word Banks (17)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentence Stems (18)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Graphic Organizers (19)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Author's Chair (20)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interactive Word Wall (21)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q27 What have been the easiest parts to implement from the district's simultaneous balanced biliteracy model?

Q28 What have been the more challenging aspects to implement from the district's simultaneous balanced biliteracy model?

Q29 Are there parts of the simultaneous balanced biliteracy structure that you have adapted to fit your students' needs? If so, how?

Q30 How do you normally plan for your literacy block (most times a month)?

- By myself (1)
- With my partner teacher (2)
- With my team (3)
- By myself and my partner teacher (4)
- By myself and my team (5)
- With my partner teacher and my team (6)
- Click to write Choice 7 (7)

Q31 What materials do you most often use to plan (used in most lessons in a week)?

- The TEKS (1)
- Eduphoria (2)
- Textbook adoption materials (3)
- Integrated Planning Guide (4)
- SIOP strategies and/or Kagan structures (5)
- Library materials (6)
- Personal materials (7)
- Background knowledge from years of experience (8)
- Pinterest (9)
- Teachers Pay Teachers (10)
- The English Language Proficiency Standards (ELPS) (11)
- Student assessment data (DRA/EDL, Woodcock Muñoz scores, TELPAS ratings, benchmarks, formative assessment) (12)

Q32 Of all the materials listed above, please rank the importance of each one in your planning.

	Not at all (1)	Somewhat Important (2)	Frequently Important (3)	Very Important (4)
The TEKS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eduphoria (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Integrated Planning Guide (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SIOP strategies and/or Kagan structures (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Library materials (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal materials (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Background knowledge from years of experience (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pinterest (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teachers Pay Teachers (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The English Language Proficiency Standards (ELPS) (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Student assessment data (DRA/EDL, Woodcock Muñoz scores, TELPAS ratings, benchmarks, formative assessment) (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q33 Is there anything else you'd like to add?

Q34 Are you interested in sharing more of your thoughts in a one-on-one interview?

- Yes, definitely. (1)
- Maybe; I'd need to think about it. (2)
- No, thanks (3)

DL Focus Group Questions

General Background

1. As we get started please share:
 - Your "number"
 - How many years you've taught total
 - How many years you've taught in dual language and
 - Which languages you've instructed in.
2. If you want to explain our school to someone who had no clue about it, what would you say?
3. Many teachers say that the purposes of DL are to provide students with the opportunities to become bilingual, biliterate and bicultural. Do you agree or disagree? Would you add anything else?
4. Do you believe DL is best for all students, most students or some?
5. What successes do you believe our school has had directly because of DL?
6. What challenges do you believe our school has experience directly because of DL?

Major Themes

The following topics emerged as recurring themes in the surveys and interviews. First, which do you believe are most impactful on the campus DL program? Then, what would you like to share about each theme?

- Management of Classroom Materials and Coordinating with a Partner
- Professional Development
- Support with Resources (Materials, Planning, and Assessment Time)
- Overall Work Load
- Teacher Retention

Two Way Instruction
Observation Protocol

Teacher Name: _____ Date: _____ Time: _____

School: _____ Lang.: E S

Key: NP=Not Present MP=Minimally Present (1-2 times)
P= Present (3-4 times) HP= Highly Present (5+ times)

NP MP P HP

Preparation

1. Clearly state (orally and in writing) **content objectives** for students. Work to develop complementary or overlapping content objectives across languages.
2. Clearly state (orally and in writing) **language objectives** for students. Work to develop complementary or overlapping language objectives across languages.
3. Clearly state (orally and in writing) **cultural objectives** for students. Work to develop complementary or overlapping cultural objectives across languages.
4. Choose **content concepts appropriate for age** and educational background level of students.
5. **Use supplementary materials to a high degree** to make the lesson clear and meaningful (e.g., graphs, models, visuals).
6. **Adapt content** (e.g., text, assignment) to all levels of student proficiency.
7. **Plan meaningful activities that integrate lesson concepts** (e.g., surveys, letter writing, simulations, constructing models) with language practice opportunities for reading, writing, listening, and speaking.

Building Background

7. Explicitly link concepts to students' backgrounds and experiences.

9. Explicitly **link past learning and new** concepts.
10. Emphasize **key vocabulary** (e.g., introduce, write, repeat, and highlight) for students.

Comprehensible Input

11. Use **speech appropriate for students' proficiency level** (e.g., slower rate, enunciation and simple sentence structure for beginners).
12. **Explain academic tasks clearly.**
13. Use a **variety of techniques** to make content concepts clear (e.g., modeling, visuals, hands-on activities, demonstrations, gestures, body language).

Strategies

14. Provide ample opportunities for students to use learning strategies (e.g., problem solving, predicting, estimating, organizing, summarizing, categorizing, evaluating, self-monitoring).

Provide ample opportunities for students to **use and reinforce strategies** they've learned in the partner language as well as in the current language of instruction.

15. Use **scaffolding techniques consistently throughout lesson.** Encourage students to use scaffolding techniques themselves when they are serving as peer models.
16. Use a variety of question types including those that promote higher order thinking skills throughout the lesson (e.g., literal, analytical, and interpretive questions).

Interaction

17. Provide **frequent opportunities for interaction and discussion** about lesson concepts between teacher and student and among students, and encourage elaborated responses.
18. **Use group configurations** that support language, content, and cultural objectives of the lesson, and provide sufficient scaffolding (such as participation structures and language frames) to enable students to interact effectively.
19. Provide **sufficient wait time** for student responses throughout

the lesson. Explicitly teach this strategy to students for use in peer interactions as well.

NP MP P HP

20. As appropriate, **allow students to clarify key concepts** in L1 for strategic purposes with an aide, peer, or L1 text.

Practice/Application

21. Provide **hands-on materials or manipulatives** for students to practice using new content knowledge.

22. Provide **activities for students to apply content, language, and cultural** knowledge in the classroom.

23. Provide activities that **integrate all language skills** (i.e., reading, writing, listening and speaking).

Lesson Delivery

24. Support the **content objectives** of the lesson.

25. Support the **language objectives** of the lesson.

26. Support the **cultural objectives** of the lesson.

27. **Engage students 90 to 100% of the period** (i.e., ensure all students are taking part and are on task throughout the lesson).

28. **Pace the lesson** appropriately to the students' ability level.
An Introduction to the TWIOP

Review/Assessment

29. Give a **comprehensive review of key vocabulary**.
Ensure cross-linguistic vocabulary transfer by reviewing core vocabulary during instructional time in each language

30. Give a **comprehensive review** of key content concepts.
Ensure deep understanding by reviewing key concepts during instructional time in each language, thus allowing students access to key concepts in L1 and L2.

31. **Provide feedback to students regularly** on their output (e.g., speech, writing).

32. Conduct **assessments of student comprehension and learning**

throughout the lesson on all lesson objectives (e.g., spot checking, group response). Use similar types of assessments and share assessment results across languages.

Additional Notes/Observations

Overall Strengths

Questions

APPENDIX E

GUIDING PRINCIPLES FOR DUAL LANGUAGE (GPfDLE; Howard et al., 2007)

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Principle 1: The curriculum is standards-based and promotes the development of bilingual, biliterate, and multicultural competencies for all students.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A The curriculum meets or exceeds district and state content standards regardless of the language of instruction.				
B The curriculum includes standards for first and second language development for all students.				
C The curriculum promotes equal status of both languages.				
D The curriculum is sensitive to the cultural and linguistic backgrounds of all students.				

Principle 2: The program has a process for developing and revising a high quality curriculum.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A There is a curriculum development and implementation plan that is connected to state and local standards.				
B The curriculum is based on general education research and research on language learners.				
C The curriculum is adaptable.				

Principle 3: The curriculum is fully articulated for all students.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A The curriculum builds on linguistic skills learned in each language to promote bilingualism.				
B Instruction in one language builds on concepts learned in the other language.				
C The curriculum is coordinated within and across grade levels.				
D The curriculum is coordinated with support services such as English as a second language, Spanish as a second language, special education, and Title I.				

Principle 1: Instructional methods are derived from research-based principles of dual language education and from research on the development of bilingualism and biliteracy in children.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A Explicit language arts instruction is provided in both program languages.				
B Academic content instruction is provided in both program languages.				
C The program design and curriculum are faithfully implemented in the classroom.				
D Instruction incorporates appropriate separation of languages according to program design.				
E Teachers use a variety of strategies to ensure student comprehension.				
F Instruction promotes metalinguistic awareness and metacognitive skills.				

Principle 2: Instructional strategies enhance the development of bilingualism, biliteracy, and academic achievement.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A Teachers integrate language and content instruction.				
B Teachers use sheltered instruction strategies, such as building on prior knowledge and using routines and structures, to facilitate comprehension and promote second language development.				
C Instruction is geared toward the needs of both native speakers and second language learners when they are integrated for instruction.				
D Instructional staff incorporate technology such as multimedia presentations and the Internet into their instruction.				
E Support staff and specials teachers coordinate their instruction with the dual language model and approaches.				

Principle 3: Instruction is student-centered.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A Teachers use active learning strategies such as thematic instruction, cooperative learning, and learning centers in order to meet the needs of diverse learners.				
B Teachers create opportunities for meaningful language use.				
C Student grouping maximizes opportunities for students to benefit from peer models.				
D Instructional strategies build independence and ownership of the learning process.				

Principle 4: Teachers create a multilingual and multicultural learning environment.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A There is cultural and linguistic equity in the classroom.				
B Instruction takes language varieties into consideration.				
C Instructional materials in both languages reflect the student population in the program and encourage cross-cultural appreciation.				

Principle 1: The program recruits and retains high quality dual language staff.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A A recruiting plan exists.				
B Selection of new instructional, administrative, and support staff takes into consideration credentials and language proficiency.				
C Staff members receive support.				
D Retaining quality staff is a priority.				
E Staff evaluations are performed by personnel who are familiar with dual language education.				

Principle 2: The program has a quality professional development plan.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A A long-term professional development plan exists that is inclusive, focused, and intensive.				
B Action plans for professional development are needs-based, and individual staff plans are aligned with the program plan.				
C Professional development is aligned with competencies needed to meet dual language program standards.				
D All staff are developed as advocates for dual language programs.				

Principle 3: The program provides adequate resource support for professional development.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A Professional development is supported financially.				
B Time is allocated for professional development.				
C There are adequate human resources designated for professional development.				

Principle 4: The program collaborates with other groups and institutions to ensure staff quality.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A The program collaborates with teacher and staff training programs at local universities.				
B Program staff partner with professional organizations.				
C Program staff engage in networking with staff from other programs.				

Principle 1: All aspects of the program work together to achieve the goals of additive bilingualism, biliteracy and cross-cultural competence while meeting grade-level academic expectations.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A There is a coordinated plan for promoting bilingualism and biliteracy.				
B There is a coordinated plan for promoting cross-cultural competence.				

Principle 2: The program ensures equity for all groups.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A All students and staff have appropriate access to resources.				
B The program promotes linguistic equity.				
C The program promotes cultural equity.				
D The program promotes additive bilingualism.				
E Whether the dual language program is a whole-school program or a strand within a school, signs and daily routines (e.g., announcements) reflect bilingualism and multiculturalism.				

Principle 3: The program has strong, effective, and knowledgeable leadership.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A The program has leadership.				
B Day-to-day decision making is aligned to the overall program vision and mission, and includes communication with stakeholders.				
C Leaders are advocates for the program.				

Principle 4: The program has used a well-defined, inclusive, and defensible process to select and refine a model design.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A Sufficient time, resources, and research were devoted to the planning process.				
B The planning process included all stakeholders (teachers, administrators, parents, community members).				
C The program meets the needs of the population.				
D The program design is aligned with program philosophy, vision, and goals.				

Principle 5: An effective process exists for continual program planning, implementation, and evaluation.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A The program is adaptable.				
B The program is articulated within and across grades.				

Principle 1: The program is supported by all program and school staff.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A Administrators are knowledgeable about and supportive of the program and provide leadership for the program.				
B Teachers and staff are knowledgeable about and supportive of the program and provide leadership for the program.				

Principle 2: The program is supported by families and the community.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A The program communicates with families and the community.				
B Families and community members are knowledgeable about and supportive of the program and provide leadership and advocacy for the program.				

Principle 3: The program is adequately funded.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A Funding allocations match the goals and objectives of the program.				
B Funding provides sufficient staff, equipment, and materials to meet program goals and objectives.				

Principle 4: The program advocates for support.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A The program seeks the tangible support of the state, district, school board, and local business community.				
B The program engages in public relations activities to promote the program to a variety of audiences (e.g., publicizing assessment results or outside recognition).				
C The program participates in coalitions of similar programs.				
D Program staff network to strengthen support for dual language education.				
E The program advocates for funding based on its needs.				

Principle 5: Resources are distributed equitably within the program, school, and district.

	MINIMAL	PARTIAL	FULL	EXEMPLARY
A The dual language program has equitable access to state, district, and school resources.				
B Equal resources exist in both languages within the dual language classroom and in school-wide facilities (e.g., library, computer lab, parent center, science lab).				

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