INVESTIGATING THE ENGLISH ORAL READING FLUENCY DEVELOPMENT OF SPANISH-SPEAKING ENGLISH LANGUAGE LEARNERS

A Dissertation

by

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ABSTRACT

This is a quantitative study derived from a five-year longitudinal federal experimental research project targeting Spanish- speaking English language learners (ELLs) receiving language services across four different program models: control/experimental structured English immersion (SEI) and control/experimental transitional bilingual education (TBE). The purpose of this study was to: (a) investigate the L2 oral reading fluency trajectories from grade 1 to grade 3 for a sample of Spanish-speaking ELL students participating for the fourth year in the enhanced/experimental TBE (TBE-E) and the enhanced/experimental SEI (SEI-E) program models; (b) investigate to what extent English (L2) initial oral reading fluency status impacts L2 reading fluency growth rate and (c) compare instructional models, SEI-E and TBE-E, in their ability to promote L2 oral reading fluency development. Participants consisted of 244 students with at least one time point of the six oral reading fluency measures used over the span of the three years.

Structural equation modeling was utilized. A Piecewise growth model was specified and estimated. The time-invariant covariate of group membership was added to investigate whether there were statistically significant differences in L2 oral reading fluency development for ELLs in SEI-E and TBE-E. All three estimates were found to be not statistically significant. That is, variations on the average initial score and the growth trajectories at both stages of development were not attributed to students being in different program models. In regards to the impact the intercept had on the growth rates,

the results show that there was no statistically significant relationship between the intercept and growth during the first timepiece, but there was a statistically significant relationship between intercept and growth on the second stage of development. The -0.506 estimate indicates a moderately strong statistically significant negative relationship between initial score and growth. Students with the lower scores on intercept, middle of grade 1, experienced the greater growth from end of grade 2 to the end of grade 3.

The findings in this study support the existent literature that indicates non-linear trend of L2 ORF trajectories for ELLs. In this study, ELLs in SEI-E and TBE-E followed a two-stage linear oral reading fluency trajectory. Students on average were reading 21.270 word read correctly per minute, wcpm, at the initial status. The trajectory consisted of statistically significant positive linear growth for the first stage of development, with an average increase of 23.993 wcpm. Although there was a deceleration in growth rate from the first to the second stage in the trajectory, it still consisted of a statistically significant positive growth rate. ELLs in both groups were still making gains, but their growth rate decelerated past the middle of grade 2. On average students grew at a rate of 10.338 wcpm during this part of the trajectory.

This study provides empirical evidence that when controlling for research-based intervention, native language instruction does not hinder the acquisition of English literacy development as it applies to the area of oral reading fluency development. Students in TBE-E were able to achieve the same levels of oral reading fluency in English while maintaining levels of proficiency in their native language.

DEDICATION

Para mi punto de partida y mi llegada,

Irene Rodríguez Taboada

la ilustre diseñadora de todos y cada uno de mis sueños

For you *madre,*

YOU stand with me and I for you, always

and

for Xuy and Yahir

my ever after

Our love is my life's most important work, a story written for the ages

and

for my father

Marco Antonio Taboada Garcia

trabajaste de sol a sol en construcción, petróleos, y despachos

siempre con el afán de darnos la herencia que jamás podrán quitarnos

Eres la materia prima de cada uno de nuestros logros

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Mami, I am because you are. All of my life you have loved me and believed in me beyond even my own understanding. In everything, you believed that I could, so I did. My greatest lessons have come from your heart. You've tailored me with integrity, valor, kindness, and compassion. And you dance with me, every single time I see you, and we laugh, and we dream; no greater joy. I am my mother's daughter and that is more than I'll ever deserve.

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In 1876, St Augustine, Bishop of Hippo, reflected:

> "This is to me a subject of great wonder. I stand astonished at it. And men go a great way to see and admire the heights of mountains, and the vast billows of the sea, and the courses of great rivers, and the compass of the ocean, and the motions of the heavenly bodies, and leave themselves and wonder not at themselves." (p. 347).

Today as I conclude this chapter of my life I reflect on the journey. I would like for each of you to know and always remember that indeed your kindness has not escaped me, I stand in awe and complete wonder of each and every one of you. Collectively and individually you are my grace like rain.

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CHAPTER I

INTRODUCTION

The presence of a rapidly- growing, linguistically- diverse population in the elementary and secondary public school classrooms is unquestionably challenging educational practices in the United States. From 1996 to 2006, the English language learner (ELL) student population was found to be the fastest growing, about 57 % in comparison to the general growth in student population of 3.7 % (National Clearinghouse for English Acquisition, 2007). In the 2003-2004 academic school year services were provided to an estimated 3.8 million ELLs enrolled in public schools across the country, constituting an 11% of the total enrolled student-population. Accounting for 42% of these students, were the states of California and Texas with 1.6 million and 0.7 million students served respectively (NCES, 2006). By 2012, the number of ELLs enrolled in public school classrooms increased to 4.7 million students, with the majority of students still residing in California, Texas and Florida (Department of Education, 2014). Although there are a vast number of native languages other than English spoken within the ELL population, in 2001 the largest group was the Spanish-speaking, constituting 79 % of the ELLs (Kindler, 2002).

The Elementary and Secondary Education Act as reauthorized by the No Child Left Behind Education Act (2001) holds states accountable for meeting the educational needs of limited English proficient children under Titles I and III by commissioning them to ensure that:

> all children who are limited English proficient, including immigrant children and youth, attain English proficiency, develop high levels of academic attainment in English, and meet the same challenging State academic content and student academic achievement standards as all children are expected to meet.

Due to its continual increase enrollment of ELLs, the state of Texas is a vested stakeholder in obtaining quality research regarding the learning of ELLs. According to the Texas Education Agency, the number of ELLs enrolled in Texas public schools during the 2007-2008 academic school year was 775, 645, with Spanish- speakers comprising 92% of these ELLs. ELLs made up 16% of the total EE- twelfth grade student enrollment. Some type of bilingual program served 422, 377 ELLs, while 297,553 participated in some type of English as a second language (ESL) program (2008b). A look at the dropout rate and completion-rate for ELL students confirms that Texas too is struggling to adequately meet the needs of these learners. The ninth- twelfth grade ELL dropout rate reported for the 2006-2007 school year was 7.6% compared to 5.8% for the African American sub-population, 5.4% Hispanic sub-population, and 1.9% for White students. Similarly, the graduation completion rate for LEP students of 39% is dismally below the 70.7% attained by the African American sub-population, 68.5% Hispanic and 88.2 % White (Texas Education Agency, 2008). Coupling this with the findings of the U.S. Department of Education (2007), that there are higher unemployment rates and lower annual earnings amongst the non-high school completers, the reasons for making the investigation regarding the education of English language learners a national priority are self-evident. As the enrollment figures for ELLs in the

Texas classrooms are projected to continue to increase from 2000 to 2040 as much as 188%, educators in Texas must be better prepared to meet the challenges associated with the adequate education of ELLs (Murdock, et al., 2002).

Undeniably so, the ELLs as a growing population within public education posits challenges. More so than ever, practitioners are in need of best practice research as applicable to the ELL. Instruction needs to be designed to help the ELL excel in both attaining the language while mastering the content.

Definition of Terms

Language- minority students

Students who speak a language other than English at home (NCES, 2004). Term is found interchangeably in the literature with limited English proficient students (LEP), and English language learners (ELLs).

English language learners (ELLs)

Those students who have not yet demonstrated English language proficiency. For the purpose of this study, ELLs will include all those students who have met classification criteria, are currently being served by a language instructional program, and have not yet met exit criteria in accordance with the TAC (TAC Title 19, Part II, Chapter 89, subchapter BB).

Language proficiency assessment committee (LPAC)

The language proficiency assessment committee (LPAC) reviews all pertinent information on all limited English proficient (LEP) students upon their initial enrollment

and at the end of each school year as identified in accordance with §89.1225 (TAC Title 19, Part II, Chapter 89, Subchapter BB).

L1

L1 refers to the native language. For purposes of this study, L1 is Spanish.

L2

L2 refers to the second language. For purposes of this study, L2 is English.

Typical transitional bilingual education (TBE-T) model

Typical Transitional Bilingual Education is an instructional program model that uses a combination of both native language, and English instruction (Lara- Alecio, Irby, & Meyer, 2001). For the purpose of this study, native language instruction is Spanish, and is utilized to assist ELL students in concept development while English instruction increases as the student progresses through the grade levels (Lara-Alecio, Irby, & Mathes, 2003).

Enhanced transitional bilingual education (TBE-E) model

An alternative kinder – third grade model to the existing district implemented Typical Transitional Bilingual Education Model (TBE-T), defined above, that utilizes native language instruction (Spanish for the purpose of this study) to assist ELL students in concept development while English instruction increases as the student progresses through the grade levels. This model is enhanced because it requires additional time spent by teachers in ESL Strategies, innovated curriculum, classroom observation, professional development, and parental training (Lara-Alecio, Irby, & Mathes, 2003).

Latent growth modeling (LGM)

Latent growth modeling is a statistical procedure within structural equation modeling, SEM, that allows for the modeling of growth trajectories including the initial status and rate of change among individuals or multiple groups (Kline, 2005).

Path analysis

Path analysis is a statistical technique in which the researcher has prior knowledge of causal relationships among variables (Kline, 2005).

Structural equation modeling

Structural equation modeling can best be defined as:

> a class of methodologies that seek to represent hypotheses about summary statistics derived from empirical measurements in terms of smaller number of structural parameters defined by a hypothesized underlying model (Kaplan, 2009, p. 1).

Statement of the Problem

English literacy plays a critical and vital role in the academic success of English language learners. As Genesee and Riches (2006) asserted:

> "literacy is both an end in itself and a means to other ends since, without formal education, most children would not learn to read and write and, without reading and writing skills, children would not be able to learn and function effectively in school and beyond" (p. 32).

The National Literacy Panel on Language-Minority Children and Youth (2006), however, concludes that second language (L2) reading is an area of difficulty ELLs as

early as the second grade. Cheung and Slavin (2012) concurred that ELLs tend to be at a higher risk of performing poorly on early literacy in comparison to native English learners. Lesaux and Geva (2006) highlight a need for more research on the specific skills that have the greatest influence on reading comprehension, including oral reading fluency, and the instructional practices that can enhance reading fluency in ELLs.

The vast majority of research informing the area of reading fluency development has been conducted with native English speakers (NESs) (Lesaux & Geva, 2006). Although it may be that ELLs and native English speakers have commonalities in their oral reading fluency development, research with the ELL population needs to either confirm or reject these assumptions (Lesaux & Geva, 2006). Specifically, researchers still need to investigate the development of components that contribute to the reading process, including oral reading fluency (August & Shanahan, 2010).

Although the number of studies investigating the role of L2 oral reading fluency in L2 literacy increases every year, the complexity of the ELL learning process still leaves many more questions than answers for educators, practitioners and investigators (August & Shanahan, 2010). ELL oral reading fluency has been investigated:

- as a component contributing to reading comprehension (Baker & Good, 1995; Crosson & Lesaux, 2010; Hoover & Gough, 1990; Kim, 2012; Proctor, Carlo, August, & Snow, 2005; Quirk & Beem, 2012; Wiley & Deno, 2005); and
- as a predictor on high stakes testing (Baker & Good, 1995; Jimerson, Hong, Stage, & Gerber, 2010; Wiley & Deno, 2005).

Less attention has been given to the development of oral reading fluency in ELLs even though ELLs are assessed with ORF measures designed to (a) progress monitor, (b) measure growth over time (c) identify reading difficulties (Fuchs, et al., 2001). Currently, there are no norms developed specifically for ELLs. Norms used to benchmark ELLs were developed with NESs (Sandberg & Reschly, 2011). Although it may be that norms developed for NESs are appropriate for ELLs more studies need to be conducted with ELL populations to determine growth patterns within and across the different stages of reading. Oral reading fluency in ELLs has been investigated:

- compared to NES groups (Al Otaiba, et al., 2009; Baker & Good, 1995; Dominguez de Ramirez & Shapiro, 2006);
- compared amongst ELLs of different native language backgrounds (Betts, et al., 2009);
- compared to NES norms with a mixture of results (Al Otaiba, et al., 2009; Betts, et al., 2009; Baker & Good, 1995; Baker Park, & Baker, 2012; Dominguez de Ramirez & Shapiro, 2006; Graves, et al., 2005; Treviño & Lara- Alecio, 2013);
- in a quasi-experimental design comparing ORF development in students receiving a comprehensive multi-tiered intervention in an enhanced transitional bilingual education model and ELLs in the typical/control transitional bilingual education model (Treviño & Lara-Alecio, 2013);
- longitudinally across two grade levels (Al Otaiba, et al., 2009; Treviño & Lara-Alecio, 2013).

In regards to oral reading fluency development of ELLs, findings from studies including NES samples (Al Otaiba, et al., 2009; Baker & Good, 1995; Dominguez de Ramirez & Shapiro, 2006) are mixed. There are studies that suggest that ELLs perform at lower levels than NESs (Al Otaiba, et al., 2009; Dominguez de Ramirez & Shapiro, 2006), while others have found that the performance is comparable (Baker & Good, 1995) between the two groups. Noteworthy of mention is that only one of the studies (Al Otaiba, et al., 2009) is longitudinal and tracked results for the same cohort of students across grade 2 and grade 3. Limitations beyond the cross-sectional design of the studies (Baker & Good, 1995; Dominguez de Ramirez & Shapiro, 2006) extend to the low number of ELLs included in the sample (Dominguez de Ramirez & Shapiro, 2006) and the lack of control for the instructional practices associated with the ORF development beyond program description (Al Otaiba, et al., 2009; Baker & Good, 1995; Dominguez de Ramirez & Shapiro, 2006).

One study indicates that there may not be a statistically- significant difference in oral reading fluency development amongst Somali-speaking and Spanish-speaking, ELLs (Betts, et al., 2009). However, the study was conducted with ELLs in grade 3 and was cross-sectional in design limiting the ability to see the development of oral reading fluency over time.

Comparing ELL oral reading fluency development against NES norms also produced a mixed result in the literature. One study found ELLs performing above NES norms (Graves, et al., 2005); three found ELLs performing comparable to NES norms (Baker & Good, 1995; Baker, Park & Baker, 2012; Treviño & Lara- Alecio, 2013); and

three studies reporting lower ELL ORF performance compared to NES norms (Al Otaiba, et al., 2009; Betts, et al., 2009; Dominguez de Ramirez & Shapiro, 2006).

Recurring limitations found in the literature stem from: sample composition; lack of control for the amount, type, and quality of English instruction delivered during the studies; and the cross-sectional design of most studies. Additionally, the type, amount, and quality of English instruction was not accounted for by most of the studies (Al Otaiba, et al., 2009; Baker & Good, 1995; Baker, et al., 2012; Betts, et al., 2009; Crosson & Lesaux, 2010; Dominguez de Ramirez & Shapiro, 2006; Gottardo & Mueller, 2009; Graves, et. al., 2005; Jimerson, et al., 2013; Proctor, et al., 2005); making it difficult to understand the specific instructional practices associated with the findings.

Most of the studies are cross-sectional in design in which researchers do not allow for the understanding of the development of oral reading fluency nor the changes in the role fluency explaining reading comprehension. Rather they simply provide a snapshot of fluency at a given time point. In order to better understand developmental trajectories and individual differences, Lesaux and Geva (2006) highlight the need to have studies with samples large enough to have subgroups and that examine individual growth modeling.

Genesee, et al. (2006) conclude, there is an overarching need to further investigate L2 literacy development through the use of multiple models including longitudinal experimental and quasi-experimental designs. The use of said designs "are an important way of testing educational theory; they are required to systematically examine, refine, and elaborate theoretical possibilities and to test applications" (p. 237).

Overcoming these deficits in ELL-specific literature is critical to the progress of educating a growing national population. Societal implications of an ill-educated population abound. The work of Murdock, et al. (2002) reports that in 2000 there was an approximate 16, 000 dollar difference in average household income in the US between a high-school graduate and a non-high school graduate householder, and "higher levels of education are related to socioeconomic success. Such success, in turn, tends to be associated with lower levels of participation in public services…" (p. 81). Thus, "the reading education of English language learners (ELLs) has become one of the most important issues in all of educational policy and practice" (Slavin & Cheung, 2005, p. 247).

Acknowledging the needs of the current body of literature, the present study aims to investigate literacy development by evaluating the L2 oral reading fluency trajectories in Spanish-speaking ELLs through the analysis of developmental data within the classroom context of two program models. Consequently, the present study will evaluate and compare program model effectiveness in promoting L2 literacy acquisition as measured by oral reading fluency in English language learners.

Purpose of the Study

The purpose of the present study is to: (a) investigate the L2 oral reading fluency trajectories among a sample of third grade Spanish-speaking ELL students participating for the fourth year in the enhanced/experimental transitional bilingual education (TBE-E) and the enhanced/experimental structured English immersion (SEI-E) program models; (b) investigate to what extent L2 initial oral reading fluency status impacts L2

reading fluency growth rate and (c) to compare instructional models (enhanced/experimental TBE-E and enhanced/experimental SEI-E) in their ability to promote L2 oral reading fluency development. For the present quantitative study, I will access archived data from a longitudinal five-year federal experimental research project entitled English and Literacy Acquisition (ELLA) (R305P030032). Principal investigators of the Project ELLA targeted the instruction of approximately 800 Spanish-speaking ELLs receiving language services, as determined by the district's LPAC committee in accordance with the Texas Administrative Code (TAC Title 19, Part II, Chapter 89, subchapter BB), provided quality intervention to the enhanced/experimental groups and tracked the language development from Kindergarten through the third grade for all students. The ELL students to be included in this study, received services through either of the following program models: (a) enhanced/experimental transitional bilingual education (TBE-E), or (b) enhanced/experimental structured English immersion education (SEI-E). Aligning with the definitions previously established, enhanced represents the interventions of the ELLA project.

Research Questions

Two research questions guide this study:

1. Is there a significant difference in the L2 oral reading fluency trajectories developed over a 3-year period for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual

education (TBE-E), when controlling for research-based English intervention?

2. To what extent does the L2 initial oral reading fluency status impact L2 oral reading fluency growth for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E)?

Significance of the Study

After conducting a best-evidence synthesis of existing research on the instruction of ELLs, Slavin and Cheung (2005) concluded that further research using longitudinal, randomized designs is needed to ensure the successful instruction of ELLs. In their report of the national literacy panel on language minority children and youth Lesaux and Geva (2006) also highlighted the need for future research in reading fluency to be longitudinal in design so as to see the development of the skill with the same sample over time. This study derives from a five-year longitudinal study that is quasi-experimental in design, and for which data were collected for intervention fidelity. It is significant to the body of literature as it provides empirical data to support the evaluation of L2 oral reading fluency development for ELL students. Additionally, its significance is two-fold because it compares the development of ELLs across two distinct program models for which native language plays a very different role, while receiving the same research-based intervention. It is of interest to see the effects of native language instruction on the development of L2 oral reading fluency when controlling for research-

based English instruction. Ultimately, because both groups comprising the sample of this study were the experimental/enhanced program models of Project ELLA, the findings of this study will empower educators to make well-informed decisions regarding the design, planning, and time of their L2 instruction for English language learners.

The intervention of this project will not be broken down into components and then analyzed for direct effects, but rather will be analyzed for effectiveness as a whole. Key characteristics of the intervention are aligned to recommendations in the literature for quality intervention: a defined amount of time, over a prolonged period of time, including components that address L2: oral language development, vocabulary instruction, reading fluency intervention, and academic language development, thus making a significant contribution to the limited body of research currently informing the instruction of English language learners.

NES literature indicates that fluency trajectories tend to increase at rapid growth rates from first to second grade, with a deceleration in growth rate around grade 2 (Fuchs, et al., 2001; Garcia & Cain, 2014). Because fluency in this study will be evaluated over time, specifically over the learning to read stage which typically begins in the first grade through grade 3, findings will give a clearer and more in-depth understanding of the process ELLs traverse to arrive at fluent reading stage. To my knowledge this is the only longitudinal quasi-experimental randomized study investigating the oral reading fluency development in Spanish-speaking ELLs across these three primary grade levels, contributing significantly to the literature a developmental perspective.

Delimitations

Although, Project ELLA was conducted across two additional model types, typical/control structured-English immersion (SEI-T) program model and typical/control transitional bilingual education (TBE-T) program model, data from these models will not be considered for this investigation. Such delimitation is associated with the fact that the interest of this study is to compare the L2 literacy development in two groups for which research-based English intervention was controlled, and by design those programs did not receive the intervention but rather the typical practice that was not controlled by the Project ELLA research team.

Another delimitation of the study is associated with the selection of fluency data points to be included in the analysis of this study. In their work Patton and Reschly (2009) and Treviño and Lara-Alecio (2013) found a regression on ORF levels for students in grade 2 and grade 3 after summer interruption of school instruction consistent with the findings in the literature. Therefore, for the purposes of this present study beginning of the year data points, although available, will not be included for analysis due to the interruption of instruction/intervention accounted for by the academic calendar adopted by the school district, in which students are on vacation for nearly two months in the summertime.

The last delimitation to consider is that the study is quasi-experimental, because random selection on the basis of individual students is prohibited by state law where the research project was conducted (Acts, 74th Leg., Ch. 260 §1, eff. May 30, 1995).

Organization of the Study

The current study is organized into five chapters. In Chapter I of this study I included: definition of terms, a statement of the problem, the purpose of the study, research questions, the significance of the study, and delimitations of the study are included. In Chapter II of this study I will review the historical policy that has governed ELL education, and the theoretical constructs supporting the program models that serve them. I will then presented a theoretical framework that establishes the importance of oral reading fluency on the reading process for native English speakers and will review studies that have investigated whether these constructs are appropriate for ELLs and the role oral reading fluency has in the L2 reading process. In the second part of the chapter I will review the literature presenting the findings on oral fluency development as it pertains to NESs as well as Spanish-speaking ELLs. In Chapter III of this study I will delineate the: context, research design, sampling, data collection, instrumentation, intervention procedure, data analysis, and a summary. I will report the data analysis and summary findings of this study in Chapter IV. Finally, in Chapter V I will present a discussion of findings, limitations, recommendations, implications, and conclusions of this study.

CHAPTER II

REVIEW OF THE LITERATURE

The presence of a rapidly- growing, linguistically- diverse population in the elementary and secondary public school classrooms is unquestionably challenging educational practices in the United States. In this chapter, an extensive review of the literature is presented in the area of oral reading fluency. In order to most closely identify and highlight the issues pertinent to the population of this study, this review is conducted solely within the context of Spanish-speaking ELLs.

In this review I begin with an historical view of federal language policy that has governed and shaped the educational programs serving ELLs until present. I present second-language acquisition theory as applicable to the design of programs serving ELLs as well as literature pertinent to defining "quality" literacy instruction. I then delineate the theoretical framework supporting the importance of the instruction in the area of oral reading fluency. Finally, I review current studies conducted with Spanish-speaking ELLs and the contributions they have made to the literature in the area of L2 oral reading fluency development.

Bilingual Education: An Overview

Federal policy and the education of ELLs

The instruction of English language learners has been a part of the history of education since the birth of this nation (San Miguel, 2004). However, succinct governing language policy promoting bilingualism has not. As Ovando (2003) illustrates, when it

comes to bilingual education the country has seen periods of permissiveness, restrictiveness, opportunity, and dismissiveness. This fluctuation of support is due in great part to the fact that the education of ELLs has not been exempt from the influences of political climates and agendas, historical events, and societal values (Ovando, 2003; San Miguel, 2004). From the inception of the nation up until the 1880's, mother languages other than English were permitted in the schoolhouse. However, with the desire of a national identity and cultural homogeneity, a restrictive approach to the use of instructional languages other than English dominated the latter part of the 19th century through the first half of the 20th century. During this time period, the burden of responsibility to succeed academically and assimilate to American –society was placed on the shoulders of the English language learner. The sink or swim, submersion, instructional method was the predominant approach to educating English language learners (Ovando, 2003).

The converging of two events in the 1960's gave rise to the promise of a new era for federal policy regarding bilingual education. First, there was a change in the literature. Research favoring the positive impacts of language on achievement, disproved the common held belief that bilingual education negatively-impacted the academic achievement of English language learners. On the contrary studies found that children instructed in another language other than English could be as successful as their monolingual counterparts (San Miguel, 2004). Second, the state of the nation was in pursuit of equality and defense against discrimination. This gave language scholars a national platform to advocate for the rights of the English language learner. The Civil

Rights Movement of the 1960's brought forth change in the support of linguistic diversity at a federal level. As activists advocated against the discrimination of the individual based on race, sex, or ethnicity, language experts, and bilingual education proponents broadened the scope of unconstitutional discrimination to include the linguistic needs of English language learners (San Miguel, 2004). The Civil Rights Movement not only fought for the rights for equality, but it was a movement that also held the federal government responsible for overcoming discrimination by ensuring such rights were protected (San Miguel, 2004). Thus, the enactment of The Civil Rights Act of 1964 is the impetus to bilingual education policy in the United States.

Federal legislation specifically recognizing ELLs as a population with specific linguistic and academic needs came forth for the first time as an amendment to the Elementary and Secondary Education Act of 1965, governmental policy put in place to overcome poverty through education. The act pertaining particularly to the needs of English language learners specifically was enacted in 1968, The Bilingual Education Act. Although proponents for bilingual education were not fully satisfied with the legislation due to its subtractive-view of linguistic diversity, small scope of funding, lack of mandatory participation, unspecified goals, and lack of commitment to curricular pedagogy (San Miguel, 2004), it was the first time, in the nation's history, that any federal dollars were disbursed for school districts and educational entities with the purpose of meeting the academic, linguistic, sociocultural, and emotional needs of linguistically-diverse students. Furthermore, The enactment of the Bilingual Education Act landmarked in policy a turn away from the sink or swim practices prevalent up until

that time (Ovando, 2003). It is the cornerstone policy in which the efforts of scholars, civil activists, and bilingual education proponents hinged onto in moving forward through the subsequent decades.

Continued definition of the rights of English language learners and the responsibilities of educational entities illustrate the succeeding decades following the enactment of the Bilingual Education Act of 1968. Bilingual education proponents and activists worked to clarify, strengthen and expand the legislation in favor of bilingual education. The involvement of the federal government also grew as the judicial branch began to interpret the intent of the law. The Supreme Court case Lau v. Nichols of 1974 was the first to uphold that the discrimination against the language of students was indeed violation of the Civil Rights Act. In its decision The Supreme Court upheld that equal treatment did not mean equal opportunity and that the educational agencies bore the responsibility of making education for ELLs meaningful beyond resources. As Supreme Court Justice Douglas stated:

> There is no equality of treatment merely by providing students with the same facilities, textbooks, teachers, and curriculum; for students who do not understand English are effectively foreclosed from any meaningful education. (Lau v. Nichols, 1974)

The Lau v. Nichols case established grounds for the Equal Educational Opportunities Act of 1974 (Ovando, 2003). The Equal Educational Opportunities Act is significant to the education of ELLs for it not only affirmed the Supreme Court decision in Lau v. Nichols, but it also importantly expanded its jurisdiction to include all public

school districts regardless of their partaking of federal funds (Ovando, 2003). Bilingual education policy experienced tremendous growth in the 70s. By the time the Bilingual Education Act was reauthorized in 1974 funding had exponentially increased and the primary goal of the Act was clarified as providing equal educational opportunities through bilingual education programs and a goal (San Miguel, 2004). Although the language of legislation called for bilingual education programs in both the 1974 and 1978 versions of the Bilingual Act, the programs were always intended to be a means to an end of facilitating the acquisition of English and not maintaining the native language (San Miguel, 2004). The role native-language instruction was to play in bilingual education was still ambiguous and became one of the greatest points of contention the growing opposition held in the decades to come (Ovando, 2003; San Miguel, 2004).

The growth of legislative support and federal involvement experienced during the 1970's for bilingual education did not go uncontested. In the 1980's well into the 1990's bilingual education saw an increase in organized opposition. Groups that opposed the use of native language and demanded English only instruction surfaced across the nation. Their arguments centered primarily on: the lack of effectiveness of bilingual programs, the lack of benefits native-language instruction had on learning English, the fiscal burden, the culture of separatism created delaying assimilation and the heavy-handed involvement of the federal government (San Miguel, 2004). Additionally, the 1990's were a time that saw rise to political conservatism in the federal government. The political climate was governed by a desire to see the reduction of the role of federal government, and bilingual education was not exempt from this. The 1980's through the

mid 1990's saw a decrease role in support for bilingual education. Again the converging of at least these two factors, brought about impactful changes to the education of English language learners. In 1984 the reauthorization of The Bilingual Act had two major policy changes that once again impacted the education of ELLs. The first was the elimination of the mandate of native language instruction and the emphasis on English proficiency. As a result the federal budget allocated for helping school districts fund bilingual programs and train professional educators decreased. The second was the allocation of federal monies for the funding of Special Alternative Instructional Programs, or English-only alternatives, to programs that used native-language instruction. These provisions were unprecedented (San Miguel, 2004).

In 2001 the nature of education as a whole was impacted by the re-authorization of the Elementary and Secondary Education Act of 1965 as the No Child Left Behind Act. The Bilingual Education Act of 1994 was reauthorized as Chapter III of this bill, The English Language Acquisition, Language Enhancement, and Academic Achievement Act. NCLB mandates increased accountability and standards for both academic achievement and the attainment of English proficiency for the English language learner. However, under NCLB native language instruction is neither prohibited nor promoted. Much of the decisions of program design, models and instructional practices are left up to the discretion of the States diminishing the role of the federal government outside of the rigorous realm of accountability. States are required to demonstrate adequate yearly progress for all students using the same standardized tests. In regards to English language learners it is permissive that they test

in their native-language for three years, because this allows them to demonstrate mastery of the content. Additionally, States are required to ensure ELLs are tested annually and their progress is tracked over time (NCLB, 2001).

The NCLB Act has been met by mixed sentiments by proponents of bilingual education. On the one hand advocates of ELLs favor the accountability imposed on the States and local education agencies in meeting the needs of English language learners. However, the main contentions with the policy revolves around: the time restrictions placed on English proficiency, the lack of validity of measures used to evaluate progress and the disregard of the role of native language in acquisition of the English language (Crawford, 2000).

Policies affecting bilingual education for ELLs have been subject to historical changes and the volatile political culture of this nation. Bilingual education has fallen in and out of favor over time. However the amount of ELL students instructed in public education classrooms continue to rise. Thus, there has never been a more crucial time to investigate how ELLs acquire language and develop skills.

Program models serving ELLs

Historically central to the debate of bilingual education has been the role of native language instruction (Slavin & Cheung, 2005). Opponents of bilingual education contest the benefits of native-language instruction with the premise that the time spent in native language instruction is time detracted from the acquisition of English (Rossell, 2000). Proponents of bilingual education dispute that argument asserting that: (a) native language literacy is a strong predictor of English language performance; (b) bilingualism

does not interfere with academic achievement; (c) there is a benefit in the transfer of native language literacy skills to English; and (d) without native language instruction English language learners will lose their native language proficiency a resource within itself (Francis, Lesaux, & August, 2006; Slavin & Cheung, 2005).

Some studies evaluating the effectiveness of native language instruction have found contradictory results (Slavin & Cheung, 2005). However as noted by Francis, et al. (2006), even those reviews considered anti-bilingual education found not that English-only instruction was better than native language instruction, but rather that there was no overall differences. Bilingual program models serving ELLs are inherently complex to evaluate for even within models there is a wide-range on the extent to which native language instruction is used (Francis, Lesaux, & August, 2006). Consequently, any conclusions drawn from evaluations comparing academic performance of students receiving native language instruction versus English-only instruction should be interpreted with caution. Program models serving ELLs typically fall within two broad categories: English immersion and bilingual education programs (Slavin & Cheung, 2005).

English immersion programs. English immersion programs are those serving ELLs in which English is used to teach content from identification and the native-language of students is very sparingly, if at all, utilized. Students may receive language support through one, a combination, or none of the following: an instructional aide, language acquisition strategies embedded into the instruction or a separate English as a second language class (ESL) designed to help with the acquisition of the language. From

their identification, students in immersion programs may be placed in a class with their monolingual peers or may be educated in a separate class until the local education agencies deem their language skills appropriate to enter a mainstream classroom (August & Hakuta, 1997; Slavin & Cheung, 2005; Slavin, Madden, Calderón, Chamberlain, & Hennessy, 2011). English Immersion programs are distinct from the submersion programs of the sink-or-swim philosophy, in that the needs of English language learners are taken into account and support, as deemed by the program design, is provided for the ELL.

Bilingual programs. The overarching difference between English immersion programs and bilingual programs is that bilingual programs utilize the native-language to teach reading and or part of the remaining content while the learner acquires English proficiency. Within bilingual programs there is a wide continuum of program designs in which the amount of time and duration of the native-language is dictated by the program goals. Programs on this continuum can be grouped into two broad categories based on educational goals: transitional and dual language programs (Francis, et al., 2006).

In transitional bilingual, TB, programs children are taught to read in their native language and then at some point transitioned into English. Early-exit models typically complete this transition within the first three years of a child's education while late-exit models ensure there is mastery of reading and content before completing transition in the latter part of the elementary school years (Slavin, et al., 2011). These programs are considered subtractive in nature because the goal of the program is English literacy and attainment regardless of the maintenance of native-language literacy.

Dual language programs, DL, are positioned on the other end of the spectrum. In such programs literacy in native language is not seen as a means to an end of second language acquisition but as an end itself. Dependent on the program model, students are taught reading and other content subjects in both languages (Francis, et al., 2006). One-way dual language models are those programs that are developing literacy in both languages for ELLs. While two-way dual language models are designed to meet the needs of both NESs and the ELLs in the classroom. Because the goals of the dual language program models are to develop and maintain literacy in both languages they are considered developmental in design.

Quality literacy instruction for ELLs

In response to policy, there has been a shift in research from finding a definitive answer to the quintessential question of the role native-language has in the programs serving ELLs, to identifying the effective instructional interventions in teaching English language learners (August& Hakuta, 1997; Cheung & Slavin, 2012; Mathes, et al., 2007; Slavin, et al., 2011). More than program type, the literature highlights program quality as the key to the academic success of ELLs. Under such direction, greater ground can be covered in purporting effective intervention strategies, inclusive of native-language, that will truly begin to bridge the ELL achievement gap.

In contrast to the amount of literature inform the effective literacy instruction of NESs, there is a dearth of research informing the second-language literacy acquisition of the ELL population (Lesaux & Geva, 2006; Shannahan & Beck, 2006). For NESs research suggests that reading failure can be avoided by teaching critical content within

the 5 strands of literacy: phonemic awareness, alphabetic knowledge and skills, connected-text fluency, vocabulary and comprehension through a tiered approach (Foorman & Torgensen, 2001; National Reading Panel, 2000). Similarly, Mathes, et al., (2007) found that a tiered intervention focused on developing the 5 literacy strands over time, shown to be effective with struggling NESs, was also effective with struggling Spanish-speaking ELLs that were learning to read in English. Tong, Lara-Alecio, Irby, Mathes, and Kwok (2008) found that Project ELLA's three-tiered oral language intervention improved the growth rate of L2 oral language development from Kindergarten to first grade for a group of Spanish-speaking ELL students in both the enhanced/experimental transitional bilingual classroom as well as the enhanced/experimental structured immersion classroom. Similarly, Treviño and Lara-Alecio (2013) found that Project ELLA's intervention improved the growth rate of L2 oral reading fluency from grade 2 to grade 3 for a group of Spanish-speaking ELL students in the enhanced/experimental transitional bilingual classroom. Tong, et al., (2010, 2011) reported that the Project ELLA intervention accelerated L2 literacy development in the areas of: oral language acquisition, phonological awareness, decoding, and reading comprehension.

Theoretical Framework

Because there is no theory that specifically applies to the development of reading fluency and its role on the reading process for English language learners (ELLs), in the present section I first present a theoretical framework that supports the importance of the development of reading fluency and its role on the reading process of native English

speakers (NESs). I then conduct a review of the literature investigating the role of reading fluency on reading as well as the development of oral reading fluency specifically with Spanish-speaking ELLs.

Reading fluency and its role on the reading process

In the *Simple View of Reading* (1986), Gough and Tunmer defined the reading process as a complex and dynamic framework dependent on individual and interacting contributions of two major components: decoding and linguistic comprehension. Linguistic comprehension refers to the skills necessary to understand language, while decoding is efficient word recognition from print. They stressed that although neither of the components is of sole sufficiency, decoding is of foundational importance, for without it linguistic comprehension is of no use (Gough & Tunmer, 1986; Hoover & Gough, 1990).

LaBerge and Samuels' (1974) automaticity model of reading theoretically supports the manner in which reading fluency, defined as the speed and accuracy of translating written text to its oral representation, becomes of foundational importance in the reading process. The premise of the model is that reading is a complex construct, and the key to the execution of any complex skill hinges upon the automaticity of the subcomponent processes. If all of the subcomponent processes required attention this would lead to an attention capacity overload, and ultimately the failure to perform the complex skill. In contrast, if the subcomponent processes are automatized this frees up attention capacity increasing the ability for the complex skill to be executed successfully. LaBerge and Samuels (1974) deemed that the construct of reading comprehension

processes required attention and could not be automatized; lexical processes, however, could. In their model then the goal of a skilled reader would be to make decoding an inherent process, so that mental attentiveness could be spent on comprehension.

LaBerge and Samuels' automaticity model (1974) has been challenged in recent years for its "bottom-up" model that assumes that higher level skills such as reading comprehension must await the completion of lower-level lexical skills, oral reading fluency. Other models (Perfetti, 1985: 2007; Stanovich, 1980: 2001) present reading as a more interactive approach rather than a serial-process. Stanovich's (1980: 2001) interactive-compensatory reading model proposes that higher-level skills do not need await the completion lower level skills. In fact, the premise then becomes that a deficit in any knowledge source results in a greater dependency on other knowledge sources regardless of their place in the hierarchy processes. Thus, higher-level skills can play a compensatory role in the deficiencies of lower-level processes. An example of this is that the less skilled reader will rely more on the context to facilitate word recognition than a more skilled reader. Similarly, in the verbal efficiency theory Perfetti (1985: 2007) purports that the outcome of reading, comprehension, requires cognitive resources that are limited by the efficient operations of local processes including word level reading. He emphasizes that the lexical quality of a word's representation is key to efficient word- reading fluency.

The models differ in terms of what types of processes occur when readers interact and struggle with text at the word recognition level. The interactive models (Perfetti, 1985: 2007; Stanovich, 1980: 2001) purport that the lower level-skills are

influenced by the higher-level skills, while LaBarge and Samuels' automaticity model (1974) does not take context into account. However, both the automaticity model (LaBarge & Samuels, 1974) and the interactive-compensatory models (Perfetti, 1985: 2007; Stanovich, 1980: 2001) converge on the notion that well developed lower –level lexical skills free up mental attentiveness for more complex processes.

Both theoretical perspectives provide a framework supporting text- reading fluency as a performance indicator of overall reading competence (Fuchs, Fuchs, Hosp & Jenkins, 2001). Pikulski and Chard (2005) purported not only the necessity of reading fluency, but that reading fluency is the bridge between decoding and comprehension.

Literature Review

In contrast to the vast amount of research conducted on NESs, few studies have investigated: the contributions oral reading fluency has on reading comprehension (Crosson & Lesaux, 2010; Gottardo & Mueller, 2009; Hoover & Gough, 1990; Jimerson, Hong, Stage & Gerber, 2013; Kim, 2012; Proctor, et al., 2005; Quirk & Beem, 2012; Wiley & Deno, 2005) or the development of oral reading fluency (Al Otaiba, et al., 2009; Baker, et al., 2012; Baker & Good, 1995; Dominguez de Ramirez & Shapiro, 2006; Graves, Plasencia- Peinado, Deno & Johnson, 2005; Treviño & Lara-Alecio, 2013) with a significant amount of ELLs (August & Shanahan, 2006; Lesaux & Geva, 2006; Sandberg & Reschly, 2011). When considering the English language learner, an additional set of influences impact the reading process posed by native language proficiency and literacy development (August & Shanahan, 2006). Consequently, literature findings on the development of oral reading fluency conducted with NESs,

although beneficial in guidance and comparison, cannot be generalized to the ELL population; doing so would disregard the unique learner characteristics of the ELLs (Lesaux & Geva, 2006). When it comes to investigating the development of oral reading fluency and its role on reading comprehension for ELLs the findings can be organized into two broad areas: findings focusing on within L2 language effects and those exploring the cross-linguistic effect of native language skills (L1) influencing English (L2) reading. Due to the objectives of this study, for the purpose of this review only L2 within-language effects findings will be considered.

Reading fluency and its role on the L2 reading process

I begin this section of the review by looking at the studies (Gottardo & Mueller, 2009; Hoover & Gough, 1990; Proctor, et al., 2005) that have investigated the validity of the theoretical constructs purported in the simple view of reading (Gough & Tunmer, 1986) with ELLs. I then present the findings of cross-sectional studies (Crosson & Lesaux, 2010; Kim, 2012; Quirk & Beem, 2012) that have investigated the relationship between oral reading fluency and reading comprehension. Finally, I review the studies (Jimerson, et al., 2013; Wiley & Deno, 2005) that have investigated the relationship of oral reading fluency and reading comprehension longitudinally.

Simple view of reading and ELLs. In 1990, Hoover and Gough tested the Simple View of Reading (SVR) (Gough & Tunmer, 1986) with a Spanish-speaking ELL population. Their study is of significant importance as it was the first time a model explaining the reading process was tested on an ELL sample (Proctor, August, Carlo & Snow, 2005). Their longitudinal design tracked 254 elementary schooled students in

transitional bilingual programs from the first to the fourth grade. Decoding was measured by a pseudo-word reading task; listening comprehension was measured by; reading comprehension was measured by passage comprehension.

Their findings were cross-sectional in analysis as the components influencing reading comprehension were reported yearly at each grade-level and analyzed over time. At every grade-level they found reading comprehension to have the strongest correlation with the product of decoding and listening comprehension. Looking at the correlations made by each individual component, decoding or linguistic comprehension, decoding had the stronger correlation at the first and second grade measures. However, although still significant, in the third and fourth grade the decoding component accounted for lesser of the variance in reading comprehension suggesting that decoding skills indeed play a foundational role in the initial process of reading. The weakest of the correlations at every grade level was between decoding and listening comprehension supporting the hypothesis that the two components make individual contributions and are independent of one another.

Hoover and Gough's (1990) findings were consistent with those of the Simple View of Reading (Gough & Tunmer, 1986), and of interest because they suggest that the L2 reading framework is comparable to that of native English speakers in that L2 reading can be characterized as the product of two broad categories, decoding and linguistic comprehension, comparable to that of the monolingual learner. Since then there have been several studies (Gottardo & Mueller, 2009; Proctor, et al., 2005) that continue testing The Simple View of Reading (Gough & Tunmer, 1986; Hoover &

Gough, 1990) and use it as an initial platform of understanding of the L2 reading process.

In *Native Spanish-Speaking Children Reading in English: Towards a Model of Comprehension*, Proctor, Carlo, August and Snow (2005) used structural equation modeling to test an L2 reading model whose basis was derived from The Simple View of Reading. In regards to the decoding component, their work expands on that of the SVR (Gough & Tunmer, 1986; Hoover & Gough, 1990) by including a real-word reading rate in addition to the pseudo-word reading task. In this way, decoding is evaluated as a distal measure through alphabetic knowledge and fluency. The study was cross-sectional in design; applied to 135 Spanish-speaking fourth grade ELLs across three cites in Boston, El Paso, and Chicago. They had two groups of students those instructed in Spanish initially and then transitioned into the English language and those instructed solely in English. The curriculum at all cites was highly structured and the same in order to minimize variations in instruction. However, since students were not randomly assigned to the model of instruction, the researchers replicated their model with the Spanish instructed students to ensure that the combined sample was appropriate. The results of this model indicated similar results to the overall model and thus the researchers concluded it was appropriate for all students in the sample.

Proctor, et al.'s (2005) findings aligned with those of the SVR (Gough & Tunmer, 1986; Hoover & Gough, 1990), in that the decoding skills, measured by alphabetic knowledge and text fluency, predicted reading comprehension in significant ways. However, although significant, in comparison to the contributions made by the

oral language component measures, listening comprehension and vocabulary knowledge, decoding was less predictive. Based on these findings, the researchers concluded that an adequate decoding ability is critical, as a necessary context, for L2 listening comprehension and L2 vocabulary knowledge to contribute to reading comprehension. These results resonate the findings in the literature with monolingual samples that upper elementary decoding variables will exert a lesser effect on reading comprehension. A limitation to this design is that the design of the study was cross-sectional and provides a snapshot at the fourth grade of contributions made by fluency on reading comprehension. Their proposed framework suggests appropriateness at this time point. However, to determine appropriateness at other time points in the education of ELLs longitudinal data would be needed. More so, a longitudinal study would reveal the development of fluency and its effects on reading comprehension over time. Additionally the mixed composition of the sample, students who received initial literacy instruction in Spanish or English, poses another limitation. There is merit in the sample composition, because to an extent it represents the variance within the ELL population across the nation, however this variance limits the ways in which findings can inform specific instructional practices. Nonetheless, the results found by Proctor, et al. (2005) further the understanding of the role of fluency in the L2 reading process, at a later point in elementary school, indicative that the L2 reading process for ELLs may be more similar than different to that of their monolingual peers.

Gottardo and Mueller (2009) use structural equation modeling to investigate whether or not the SVR (Gough & Tunmer, 1986; Hoover & Gough, 1990) is an

adequate model for younger ELL readers. Their study utilized longitudinal data from first and second grade for an initial sample of 131, full- sample of 79, Spanish-Speaking ELLs. Students were instructed in English with variance in the type of instruction. Authors did not collect data on the specific instruction received. Although they do note that a systematic phonics program was not implemented. L2 word reading, decoding, was used to predict L2 reading comprehension. Decoding was measured by, Word Identification and Word Attack, two of the subtests of the Woodcock Reading Mastery Test –Revised. Reading comprehension in second grade was measured by Reading Passage Comprehension subtest from the Woodcock Language Proficiency Battery-Revised. Using structural equation modeling, the researchers specified several models to investigate several aspects of the L1 and L2 oral language and decoding variables. First the authors wanted to see if L1 and L2 variables had independent contributions or were skills that could be combined regardless of language. All the models specified that did not have skills separated by language had a poor fit. The model with the best fit was the one that separated variables by skill and language. That is English decoding was a separate but related construct to Spanish decoding and their contributions should be analyzed separately. Thus, indicating that L1 and L2 skills have independent contributions to reading comprehension. Next the authors wanted to ensure that as proposed by the SVR (Gough & Tunmer, 1986; Hoover & Gough, 1990) neither listening comprehension nor decoding were sole sufficient in the prediction of reading comprehension. They specified two separate measurement models that deleted the paths

either from decoding or linguistic comprehension to reading comprehension. Both models had worse fit than the model that included both of the paths.

Gottardo and Mueller's (2009) results are consistent to those in the NES literature. English word reading, decoding, was found a strong predictor for reading comprehension. Of additional interest, L2 reading comprehension was predicted solely by English only measures, oral language and decoding. The researchers concluded that the SVR (Gough & Tunmer, 1986; Hoover & Gough, 1990) is an appropriate framework in understanding reading comprehension in younger ELLs. A limitation of the study is that it did not account for specific aspects of instruction. Thus the findings of the study cannot directly translate into informing instruction for ELLs.

Oral reading fluency and comprehension: Cross-sectional studies. Crosson and Lesaux (2010) used hierarchical regression models to investigate the factors that contribute to L2 reading fluency and the role of L2 reading fluency on L2 reading comprehension. Their model was cross-sectional in design, using a sample of 76 Spanish-speaking ELLs in the fifth grade. The sample was taken from 3 schools in a large urban southeastern school district. All students in the fifth grade participating in biliteracy programs, across the three cites, were asked to participate. However, only those that had complete data on the entire battery of assessments were included in the study. During their first step, the influence of word-level and text-level fluency on reading comprehension was investigated. The second step was used to analyze whether text-reading fluency explains a unique variance in reading comprehension beyond the interaction effect of oral language skills and word-level fluency. The final step of their

analyses was used to determine whether L2 oral language skills influenced the relationship between text-reading fluency and comprehension.

The descriptive statistics of the reading comprehension, vocabulary knowledge and listening comprehension measures revealed that the sample was at least one standard deviation below national norms in each. In contrast, students performed above the national mean on the decoding task. In regards to fluency, the researchers found that both word-reading fluency and decoding were significant predictors in text-reading fluency, explaining 60% of the variance. This finding implies that faster word reading and accurate decoding skills are associated with faster rates of text oral reading fluency.

In turn, the hierarchical regression analysis indicated that text-reading fluency was strongly related to reading comprehension performance. However, this relationship was only so when moderated by English oral language skills. Alone, the fluency variables, word-fluency and text-fluency, explained under 20% of the variance in reading comprehension. When word-fluency and text-fluency where entered into a model with oral language variables the combination explained 54% of the variance in reading comprehension. This interaction is indicative of strong text-fluency being associated with better reading comprehension outcomes especially for students who have strong oral language skills.

A limitation to consider when interpreting the findings of this study is that the development of the relationship between fluency and reading comprehension over time was not observed due to the cross-sectional design. In such design, fluency and reading comprehension are limited to the specific snapshot of time analyzed, in this case grade 5.

Research suggests that by this time the role of fluency on reading comprehension has diminished.

Quirk and Beem (2012) investigated the role of reading fluency on reading comprehension using a cross-sectional sample consisting of 49 second-graders, 60 third-graders, and 62 fifth-graders from a single mid-size school in southern California. Their sample included a mix of former ELL students, 14%, with 86% of the sample being classified ELL at the time of the study. Spanish was the native language for 100% of the sample. Subtests from the Test Of Word Reading Efficiency were administered to measure students' ability to decode sight words and non-words. Aimsweb- RCBM passages was administered to determine Words Read Correctly. The reading fluency score was comprised of both the score on the word-level and the text-level measure. The Gates-MacGinitie Reading test used to assess reading comprehension. The levels corresponding to the students' grade level were administered. The reading comprehension scores as well as the fluency scores were standardized. Using descriptive statistics, the researchers found that compared to the monolingual students the ELL students were reading with average fluency but below-average comprehension. That is that the possession of average fluency ability did not guarantee average comprehension.

However, this study has several limitations that need be noted when interpreting the findings and generalizing to the ELL population. First of all, this study was cross-sectional, limiting the ability to observe developmental trends of the components and their interactions. Secondly, the sample was also a composite of ELLs and former ELLs therefore convoluting the findings. Lastly, a limitation to consider is that the study did

not account for the amount or type of English instruction. Without this contextual information it is difficult to understand and unpack the significance of the findings as they apply to the instruction of ELLs.

Kim (2012) investigated the relationship between L1 and L2 literacy skills, including oral reading fluency, and reading comprehension using confirmatory factor analysis. The sample consisted of 150 Spanish-speaking ELLs in grade 1 instructed in English immersion programs that received pullout ESL services. The sample was divided into skilled (N=80) and less skilled readers (N=70). Two measures were used for measuring reading comprehension, a cloze task through the WRMT-R Passage Comprehension subtest (Woodcock, 1987) and a passage with multiple-choice questions through the Stanford Achievement Test (10th edition, SAT-10, Harcourt Brace, 2003). Oral reading fluency was assessed with DIBELS- 5th edition (Good, Kaminski, Smith, Laimon & Dill, 2001). Students were administered the DIBELS assessment at the end of grade 1. Kim (2012) found that oral fluency plays a statistically significant role in reading comprehension for both skilled and less skilled readers. Descriptive statistics on the DIBELS measures revealed students were reading at 39 wcpm at the end of grade 1. Limitations with the study are related to the design of study; since design was cross-sectional findings are limited to providing a snapshot of ELLs during grade 1.

Based on findings of cross-sectional studies (Crosson & Lesaux, 2009; Kim, 2012; Quirk & Beem, 2012l Proctor et al., 2005) oral reading fluency seems to have a statistically significant relationship with reading comprehension. However, the strength of this relationship depends on the time in which students are in their literacy

development. In the upper grade-levels, grade 4 (Proctor, et al., 2005) and grade 5 (Crosson & Lesaux, 2009) findings indicate that oral reading fluency might be mediated by vocabulary knowledge and other oral language skills.

Oral reading fluency and comprehension: Longitudinal studies. Findings from cross-sectional studies have investigated the effects of L2 oral reading fluency on L2 reading comprehension at given time points. However, as mentioned throughout, a limitation inherent to their design is the inability to observe the development of the component contributions and interactions of oral reading fluency with reading comprehension over time. Some research has been conducted longitudinally investigating the predictive nature of reading fluency on reading comprehension over time.

Jimerson, Hong, Stage and Gerber (2013) investigated the predictive nature of L2 oral reading fluency on reading high-stakes testing. They applied latent growth modeling to compare reading growth trajectories between ELLs and monolingual students. Longitudinal data for a group of 85 Spanish-speaking ELLs and 70 low SES monolingual students from a school in a California school district was collected beginning in the first grade through the fourth grade. The predictive nature of oral reading fluency was investigated using annual oral reading fluency measures from the Oral Reading Assessment Level (*ORAL-J*: Jimerson, 1997: 2000) and the reading comprehension was assessed using the Stanford Achievement Test - 9th edition (Harcourt Brace & Company, 1997).

Jimerson, et al. (2013) found that the oral reading fluency growth decelerated slightly over time, with their third and fourth grade fluency rate approaching asymptote. They found reading growth trajectories for ELLs to be best fit with non-linear models. Although the first grade through fourth grade oral reading fluency growth rate had a moderate effect size (r= .254) on reading comprehension, the correlation was not as strong as the first grade reading fluency measure (r= .666). Taking this finding into account, Jimerson, et al. (2013) concluded that standing on the first grade oral reading fluency measure can be a predictor on the fourth grade high-stakes reading comprehension test and highlight the importance of intervention. A statistically significant weak negative correlation (r=-.201) between the intercept and slope factors was found; indicative that individuals with lower initial scores had the higher growth rates over time. No significant differences were found between ELL and monolingual groups indicative of group similarities in their relation of fluency and comprehension.

Wiley and Deno (2005) conducted a cross-sectional study investigating the predictive nature of oral reading fluency on high stakes testing. Their sample consisted of a cohort in grade 3 and a cohort in grade 5. The investigators selected these grade levels because it is during these times that students are formally assessed with state level high stakes testing. Wiley and Deno (2005) found evidence indicative of a predictive nature of oral reading fluency measures on high stakes testing for ELLs. However, said results are to be interpreted with caution as ELL sample consisted of only 15 ELL students at grade 3 and 14 ELL students at grade 5; of which only 7% in the grade 3 sample were Spanish-speaking and none were Spanish-speaking at grade 5.

Reading fluency development in ELLs

Reading fluency has been defined in the literature as the ability to read words in text with speed and accuracy (Fuchs, et al., 2001). Although researchers have sought to expand the definition of reading fluency to include dimensions such as prosody (Dowhower, 1991) and comprehension (Pikulski & Chard, 2005), the assessment of the inclusion of such constructs has proven to be cumbersome (Fuchs, et al., 2001; Torgesen & Hudson, 2006). Thus, most fluency researchers evaluate reading fluency as the speed and accuracy of in-text reading. Due to the theoretical and empirical support highlighting reading fluency as a component contributing to comprehension, reading fluency measures are used as: (a) progress monitoring, (b) growth over time (c) identification of reading difficulties (Fuchs, et al., 2001; Pikulksi & Chard, 2005).

The most promising of assessments for measuring reading fluency are oral reading fluency measures: number of words in connected text read correctly in one minute. Oral reading fluency scores are widely used for NESs for their reliability, validity, and sensitivity to growth (Baker & Good, 1995). However, there are few studies that have investigated oral reading fluency development patterns of ELLs (Sandberg & Reschly, 2011). Currently norms used to evaluate he progress of ELLs in oral reading fluency are norms developed with NESs (Fuchs, et al., 1993; Hasbrouck & Tindal: 1992, 2006). Although these expected rates of development may be appropriate, In this section I review the handful of studies that have investigated oral reading fluency development patterns with Spanish-speaking ELLs. I organize the studies and report their findings by design; beginning with the cross-sectional studies followed by longitudinal studies.

Cross sectional studies. Baker and Good (1995) were the first published study investigating ORF measures as appropriate assessment of ELLs. Their sample size consisted of 50 Spanish-speaking ELLs and 20 NESs in grade 2. They found that ORF measures were very reliable and valid for ELLs. Baker and Good (1995) found that over the course of the 13-week study, ELLs gained an average of 1.3 words per week. This growth rate they found to be consisted with NESs growth rates. Additionally, the researchers found the ORF measures to be statistically significantly correlated to reading comprehension.

Graves, Plasencia-Peinado, Deno, and Johnson (2005) used regression analysis to investigate the validity of using NES oral reading fluency progress norms to measure progress for ELLs. Their sample consisted of 77 students ELLs in grade 1. The study does not report the percentages for the L1 language backgrounds of the students, only that Spanish was among the 10 languages spoken by the students in the sample. The sample was divided into subgroups of high-, average-, and low achieving readers based on their classroom performance. The study was conducted for 6 weeks at the end grade 1. Graves, et al. (2005) found that all of their groups surpassed the first grade NES growth rates of 1.5 – 2.0 per week (Fuchs, et al., 2001). The high group (n= 27) gained 2.75 words per week and read on average 82.30 wcpm at the end of grade 1. The average group (n=23) gained 3.6 words per week and read on average 52.91 wcpm at the end of grade 1. The low group (n=27) gained 2.8 words per week and read on average 27.41 wcpm. However, their low group was below the end of year norms (Hasbrouck & Tindal, 1992: 2006) suggesting they are at some risk for reading failure.

I have reviewed this study, even though it is not a study conducted solely on Spanish-speaking ELLs, because it is one of two studies that includes grade 1 data. However, the heterogeneous sample composition limits the interpretation of the results as these were not disaggregated and reported by language group.

Dominguez de Ramirez and Shapiro (2006) compared the growth for ELLs and NES with a cross-sectional sample size (N= 68) that include Spanish-speaking ELLs in grade 1 (n= 12), grade 2 (n= 15), grade 3 (n=14), grade 4 (n= 14), and grade 5 (n= 13). ELLs were participating in a transitional bilingual education program. Dominguez de Ramirez and Shapiro (2006) found that overall NES read more fluently than ELLs at every grade level. ELLs read on average 26.08 wcpm by the end of grade 1 and gained .57 words a week. In grade 2 ELLs read on average 56.00 wcpm, with .75 words a week growth rate. In grade 3 ELLs had an on average weekly word gain of .48 words and were reading 77.64 words at the end of the year. The results were below the NES recommended weekly growth rate (Fuchs, et al., 2001) and below recommended end of year NES norms (Hasbrouck & Tindal, 1992: 2006). Aside from the cross-sectional limitations implied, the small sample size and research design limits generalizations that can be drawn about the ORF growth patterns.

Betts, Bolt, Decker, Muyskens, and Marston (2009) used multiple group latent growth curve modeling analysis to compare the ORF development of Spanish-speaking ELLs and Somali-speaking ELLs across grade 3. The sample consisted of 300 ELLs of which 207 were Spanish-speaking ELLs. The students were assessed three times during the year, and within-year growth for grade 3 for their sample was fitted with a linear

trend. Betts, et al. (2009) found no statistically significant difference in ORF development for the two ELL groups for grade 3. By the end of the year students were reading on average 83 wcpm and had an average weekly gain of 1.5 wcpm. Their results were comparable to NES recommended weekly growth rate (Fuchs, et al., 2001). However, end of year median scores were below recommended end of year NES norms (Hasbrouck & Tindal, 1992: 2006).

Baker, Park, and Baker (2012) used regression and path analysis to examine the developmental oral reading fluency patterns of Spanish-speaking ELLs as well as the ability of ORF initial status and growth to predict reading comprehension. Their sample was cross-sectional and included 173 students in grade 1, 156 students in grade 2, and 142 students in grade 3. However oral reading fluency was only evaluated in grades 2 and 3. Students were participating in a paired, dual language, bilingual program. Baker, Park, and Baker (2012) found that ORF initial status and growth were significant predictors of within-year reading comprehension. Additionally, students in grade 2 gained on average 1.52 words per week and read on average 74.06 wcpm by the end of the year. In grade 3 ELLs read 99.67 wcpm on average by the end of the year with a weekly growth rate of 1.54 wcpm. Their results were comparable to NES recommended weekly growth rate (Fuchs, et al., 2001) and end of year NES norms (Hasbrouck & Tindal, 1992: 2006).

Longitudinal studies. Two longitudinal studies have modeled the oral reading fluency trajectories of Spanish-speaking ELLs both studies were conducted on samples across grades 2 and grades 3. Al Otaiba, et al. (2009) investigated the reading fluency

development for 5,004 Latinos of which 1,767 received ESL services. Al Otaiba et al. (2009) found that the growth rate for grade 2 was strong linear with a deceleration towards the end. In grade 3 there was a strong positive linear trend during the first two months of the school year but then growth began to decelerate in a negative quadratic trend. Al Otaiba et al. (2009) reported on average weekly word gains of 1.23 and 1.31 for grades 2 and grade 3 respectively; below the NES recommended growth rate (Fuchs, et al., 2001). Additionally, it was concluded that the ESL group performed significantly below the Latino general education group not receiving ESL services.

Treviño and Lara-Alecio (2013) compared the oral reading fluency trajectories of 283 ELLs. Their sample consisted of 132 students in the typical transitional bilingual classroom and 151 students receiving the Project ELLA intervention. Treviño and Lara-Alecio (2013) used a piecewise latent growth model modeling separate growth rates for grades 2 and 3. Like Al Otaiba, et al. (2009), they found that non-linear models best fit the oral reading fluency trajectories for both groups with a deceleration after grade 2. The ELLA intervention was found to be successful to the extent that the intervention group read at higher levels and growth rates at grade 2 and higher levels at grade 3.

In grade 2 the control group on average read a fitted mean of 84.64 wcpm at the end of the school year with a growth rate of 1.18 words per week. On average, for the intervention group, students read a fitted mean of 96.8 wcpm and had a 1.56 wcpm growth rate. In grade 3 there was no statistically significant variance in group membership. At the end of the year control students on average read a fitted mean of 85.84 wcpm and intervention students read a fitted mean of 98 wcpm. For the

experimental group, the results were comparable to the end of year NES norms (Hasbrouck & Tindal, 1992: 2006).

Summary

In their 2006 report to the US Department of Education, The National Literacy Panel on Language-Minority Children and Youth asserted that there is a lack of research informing the development of specific skills, including reading fluency, that are expected to be critical for the development of literacy. They called for an increase in research in the area of reading fluency with a purpose of investigating: impacts of reading fluency on reading comprehension, examination of precursor skills to reading fluency, and the instructional practices that can enhance reading fluency development in ELLs. They also call for an increase in longitudinal studies, as most of the research included in their synthesis was cross-sectional (Lesaux, et al., 2006).

In this chapter I reviewed the historical policy that has governed ELL education, and the theoretical constructs supporting the program models that serve them. I then presented a theoretical framework that establishes the importance of oral reading fluency instruction in the reading process for native English speakers and reviewed studies that have investigated whether these constructs are appropriate for ELLs. In the second part of this chapter I reviewed the literature presenting the findings on oral fluency development as it pertains Spanish-speaking ELLs.

There has been some groundwork covered in some of these areas, but there is still much that is unknown about the development of reading fluency and its role in L2 reading comprehension. The role of oral reading fluency as a significant predictor of

reading comprehension is a recurring finding in cross-sectional (Baker & Good, 1995; Crosson & Lesaux, 2010; Kim, 2012; Proctor, et al., 2005; Quirk & Beem, 2012), as well as longitudinal studies (Jimerson, et al., 2013; Wiley & Deno, 2005).

However, some studies suggest that in the presence of other L2 oral language predictors this significance is diminished (Crosson & Lesaux, 2010; Proctor, et al., 2005; Quirk & Beem, 2012). Of considerable mention is that such studies were conducted with cross-sectional samples in upper elementary grade levels: fourth and fifth grades where the role of reading fluency on comprehension is expected to be diminished based on the NES literature (Garcia & Cain, 2014).

In regards to oral reading fluency development of ELLs findings from studies including NES samples (Al Otaiba, et al., 2009; Baker & Good, 1995; Dominguez de Ramirez & Shapiro, 2006) are mixed. There are studies that suggest that ELLs perform at lower levels than NESs (Al Otaiba, et al., 2009; Dominguez de Ramirez & Shapiro, 2006), while others have found that the performance is comparable (Baker & Good, 1995) between the two groups. Noteworthy of mention is that only one of the studies (Al Otaiba, et al., 2009) was longitudinal and tracked results for the same cohort of students across grade 2 and grade 3. Limitations beyond the cross-sectional design of the study (Baker & Good, 1995; Dominguez de Ramirez & Shapiro, 2006) extend to the low number of ELLs included in the sample (Dominguez de Ramirez & Shapiro, 2006) and the lack of control for the instructional practices associated with the ORF development beyond program description (Al Otaiba, et al., 2009; Baker & Good, 1995; Dominguez de Ramirez & Shapiro, 2006).

One study indicates that there may not be a statistically- significant difference in oral reading fluency development amongst Somali-speaking and Spanish-speaking, ELLs (Betts, et al., 2009). However, the study was conducted with ELLs in grade 3 and was cross-sectional in design limiting the ability to see the development of oral reading fluency over time.

Comparing ELL oral reading fluency development against NES norms also produced a mixed result in the literature. One study found ELLs performing above NES norms (Graves, et al., 2005); three found ELLs performing comparable to NES norms (Baker & Good, 1995; Baker, Park & Baker, 2012; Treviño & Lara- Alecio, 2013); and three studies reporting lower ELL ORF performance compared to NES norms (Al Otaiba, et al., 2009; Betts, et al., 2009; Dominguez de Ramirez & Shapiro, 2006).

Recurring limitations found in the literature stem from the variance of sample compositions in the research studies. Some studies have composed samples such as: ELLs initially instructed in Spanish or English (Proctor, et al., 2005) and ELLs of different language-backgrounds (Graves, et al., 2005). This heterogeneous sampling makes disaggregation of results difficult. Additionally, the type, amount, and quality of English instruction was not accounted for in most of the studies (Al Otaiba, et al., 2009; Baker & Good, 1995; Baker, et al., 2012; Betts, et al., 2009; Crosson & Lesaux, 2010; Dominguez de Ramirez & Shapiro, 2006; Gottardo & Mueller, 2009; Graves, et. al., 2005; Jimerson, et al., 2013; Proctor, et al., 2005). Thus, making it difficult to further the understanding on the specific instructional practices associated with the specific findings.

The review of the literature indicates that although there has been progress made on what we know about the way ELLs develop L2 oral reading fluency, much is still left unknown. In *Response to a review and an update on Developing literacy in second-language learners: Report of the national literacy panel on language-minority and youth* August and Shanahan (2010) concluded that although there has been an increase of research on the ELL development of reading fluency there still are not enough studies: exploring what works with English learners, confirming the effects of intervention over time, or the effects of students with different L1 and L2 proficiency levels.

CHAPTER III

METHODOLOGY

In this chapter I present a methodology y of the study. I include: context of the study, research design, sampling procedures, instrumentation, data collection, intervention procedures and data analysis. The purpose of the current study was to investigate the development of L2 and L1 oral reading fluency trajectories from first to third grade in Spanish-speaking ELLs instructed in the enhanced classrooms of two different program models, transitional bilingual education-enhanced (TBE-E) and structured English immersion (SEI-E). The objectives of this research were to:

- investigate the development of L2 oral reading fluency trajectories over a 3-year period for Spanish-speaking ELLs across two different program models TBE-E and SEI-E receiving the same quality English intervention from first to third grade;
- investigate the impact the initial status of L2 oral reading fluency on the growth rate over a 3-year period for Spanish-speaking ELL students across two different program models TBE-E and SEI-E receiving the same quality English intervention; and

Context of the Study

The current study is a part of a larger, federally- funded study, English Language Literacy Acquisition (ELLA) (R305P030032)[1]. Project ELLA was a five-year longitudinal project conducted in an urban southeast school district in Texas. The school district qualified 85% of its students for free and reduced lunch, measure used to identify

low socio economic status. The school district provides language services to over 45% of students whose L1 is Spanish. Project ELLA targeted approximately 800 native Spanish-speaking ELL students. All participants were identified as limited English proficient by the school district in accordance to State law. For students participating in ELLA, the Home Language Survey indicated that Spanish was a language either spoken at home or by the student and initial language testing conducted by the school district confirmed their limited English proficient status.

The district offered three different program models in which language support services were provided: structured English immersion (SEI) programs, late-exit bilingual education (TBE) programs and two-way immersion (DL) programs. The percentage of instruction delivered in L1 and L2 for TBE programs was structured as follows: 80/20 (Spanish/English) in the first grade, 70/30 (Spanish/English) in the second grade and 50/50 (Spanish/English) by the third grade. Additionally, the typical practice in the TBE classrooms was to provide 45 minutes of daily ESL instruction. For SEI programs all instruction was delivered in English, with a separate 45-minute ESL block. Native language clarification was seldom provided (Tong, et al., 2008).

[1] Data for this dissertation were extracted from a bank of data provided under the U.S. Department of Education, Institution of Education Sciences federal grant, Project ELLA, R305P030032.

The instructional purpose of Project ELLA was to provide alternative rigorous program models for Spanish-speaking English language learners acquiring the English language and literacy in TBE and SEI program models through a multi-tiered intervention designed to impact L2 oral language development, vocabulary and reading. The multi-tiered intervention will be discussed in greater detail later in this chapter.

Research Design

In Texas the randomization of individual students for program placement or research is against the law (Texas Education Code, 1995). Therefore, in the interest of maintaining an experimental design the principle investigators of Project ELLA randomly selected schools within the aforementioned school district. Originally 28 schools met the qualifying criteria of providing SEI, TBE or both types of program models within their school. However, five schools were eliminated due to a low amount of participating students. Of the resulting 23 campuses within the targeted school district, 11 were randomly assigned to the enhanced/experimental group and 12 were assigned to the typical/control group. The assignment of entire campuses to either the typical or enhanced condition ensured that there were no contamination effects from the enhanced intervention to the typical instruction. Additionally, teachers within the participating schools were randomly selected for participation. This randomization of schools and classrooms makes Project ELLA experimental at the school level and quasi-experimental at the student level.

The focus of the current study was to investigate the L2 and L1 oral reading fluency growth and development of students receiving the Project ELLA intervention

across different program models, transitional bilingual education TBE-E and structured English immersion SEI-E (e.g., students in the typical TBE or SEI condition were not included). Thus, for the present study archived data from both L1 and L2 oral reading fluency measures administered to students during Project ELLA were analyzed. Figure 1 is a graphic representation of the study's design. It includes the measurement occasions for the two groups in the present study, TBE-E and SEI-E. A curvilinear growth model was used to analyze students' growth in English oral reading fluency from grade 1 to grade 3.

	Kindergarten			Grade 1			Grade 2			Grade 3		
	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY
Intervention	X----------			X----------			X----------			X----------		
L2 ORF administered					*	*	*	*	*	*	*	*
L2 ORF time points used in present research design					1M	1E		2M	2E		3M	3E

Figure 1. Research design for SEI-E and TBE-E program models. BOY=Beginning of the (academic school) year, MOY= Middle of the (academic school) year, EOY=End of the (academic school) year, X= 3-tiered Project ELLA intervention, ---- comprehensive Project ELLA L2 intervention administered, * = DIBELS oral reading fluency, ORF, assessment administered to students in TBE-E and SEI-E, ORF=DIBELS oral reading fluency assessment used in present study.

Sampling

For the purpose of the current study data for 244 students enrolled in Project ELLA in the TBE-E and SEI-E classrooms at the administration of the first oral reading fluency measure were considered. Table 1 shows the breakdown of schools, students and instructional setting. The mean age of these students at the end of the first grade was 6 years, 9 months.

Table 1: Assignment of enhanced SEI-E or TBE-E programs grade 1

Group	SEI-E	TBE-E	Total n
Schools	8	8	16
Classrooms	8	10	18
Students	71	116	244

The first oral reading fluency measure was administered in the middle of grade 1 and the last oral reading fluency measure was administered at the end of grade 3. In this study I analyzed the oral reading fluency trajectory of students in the TBE-E and SEI-E classrooms using 6 data points: the middle and end of grade 1, the middle and end of grade 2 and the middle and end of grade 3.

As characteristic of longitudinal studies data were missing due to student mobility and attrition. By the end of grade 3 the TBE-E and SEI-E sample size consisted of 187 students, 71 enrolled in SEI-E classrooms and 116 enrolled in TBE-E classrooms. This represents a 23% attrition rate from grade 1. The 23% attrition rate is typical of

longitudinal studies (Tong, et al., 2010). Table 2 shows the breakdown of schools, students and instructional setting at the end of grade 3. The mean age of these students at the end of the third grade was 8 years, 10 months.

Table 2: Assignment of enhanced SEI-E or TBE-E programs grade 3

Group	SEI-E	TBE-E	Total n
Schools	8	8	16
Classrooms	8	10	18
Students	71	116	187

The number of those students with no missing data over the three-year period consisted of 154 students, 100 students in the TBE-E group and 54 students in the SEI-E. Table 3 shows the number of students with a score at each of the time points included in the study as well as those with no missing data.

Table 3: Number of students with ORF scores at each time point

Group	1M	1E	2M	2E	3M	3E	All 6 time points
SEI-E	69	70	89	86	73	71	54
TBE-E	139	143	131	137	117	117	100
Combined	208	213	220	223	190	187	154

Ideally, complete data sets with no missing values would be optimal. However, "in the real world missing values occur in many (if not most) data sets despite the best efforts of prevention" (Kline, 2005, p. 55). For the present study, missing data across the time points ranged from the lowest 8.61% on the end of grade 2 time point to the highest 22.95% on the end of grade 3 time point. Table 4 shows the percentage of missing information for each variable for the entire sample and then by group.

Table 4: Percentage of missing data at each time point

Group	***1M***	***1E***	***2M***	***2E***	***3M***	***3E***
Entire Sample (SEI-E and TBE-E Combined)	14.75	12.70	9.84	8.61	22.13	22.95
SEI-E	25.00	23.91	3.26	6.52	20.65	22.82
TBE-E	8.55	5.92	13.82	9.87	23.02	23.02

Bennet (2001) suggests that 10% or lower of missing values on a single variable is of little concern and the missingness can be ignorable. For the present study, Table 4 shows that the missing data percentages for the middle of grade 1 time point, the end of grade 1 time point, the middle of grade 3 time point and the end of grade 3 time point are all above the recommended 10% threshold. Schlomer, Bauman, and Card (2010) propose that the pattern of missing data be evaluated to determine whether missing data

patterns are systematic or ignorable. In quantitative studies there are two general patterns of missingness that are ignorable: missing at random, MAR, where missing data on a variable are differ from the observed score on that variable by chance; and missing completely at random, MCAR, where no patterns in the missing data and the missing values themselves are not related to any other variable (Kline, 2005; Schlomer, Bauman & Card, 2010). Although, there are no definitive empirical tests to determine whether the missing data pattern is MCAR or MAR (Kline, 2005), for the present study I followed the suggested steps for examining the plausibility of the MAR assumption in the data proposed by Schlomer, Bauman and Card (2010). First, for all variables with a missing data percentage above 10% (Bennet, 2001), I created a dummy-coded variable with two values, missing and nonmissing. Next, I ran One-Way ANOVA to compare means between the dummy- coded variable as the predictor and the remaining variables, with missing data above 10%, as the dependent variables using SPSS. Finally, I looked to see if the missing data on the predictor variable correlated or had a statistically significant difference on later time points. If it did then the missing pattern would not be at a minimum MAR.

There were no statistically significant in mean difference between dummy-coded variable and other time points with missing data percentages greater than 10%. That is, the dummy-coded variable is not related to the other variables in question and thus the missing data pattern for the variables in question is at a minimum, missing at random, MAR (Kline, 2005; Schlomer, Bauman & Card, 2010).

There are several ways missing data can be treated. The Full Information Maximum Likelihood (FIML) Estimator is favored over classical techniques such as: available case methods, that analyze only the data available through the deletion of incomplete cases (Schlomer, Bauman & Card, 2010); and single imputation methods, that replace each missing score with a calculated score (Kline, 2005). The advantages of using the Full Information Maximum Likelihood, FIML, Estimator over classical techniques for dealing with missing data is that FIML does not delete cases or impute missing observations. FIML partitions the cases in a raw data file into subsets each with the same pattern of missing observations. Parameter estimates and standard errors are calculated directly from the statistical information of each subset, thus allowing the full sample to be used (Kline, 2005). In order to be able to use the Full Information Maximum Likelihood, FIML, Estimator, the data have to be at least missing at random (Kline, 2005). Since the missing data pattern for this study was determined to be at least missing at random, MAR, as described previously, the FIML Estimator was used.

For the present study, all students in TBE-E and SEI-E conditions with at least one oral reading fluency score from the included time points- middle of grade 1, end of grade 1, middle of grade 2, end of grade 2, middle of grade 3, end of grade 3- in the research design were included. All missing cases in the raw data file were coded as 9999 and specified in the model. The total sample size used for the purposes of this study was of 244 ELL students, with 152 enrolled in TBE-E classrooms and 92 enrolled in SEI-E classrooms.

Instrumentation

This study used archived data collected from Project ELLA from the Dynamic Indicators of Basic Early Literacy Skills (*DIBELS*; Good & Kaminski, 2002). The DIBELS measures include subtests that are individually administered and assess: phonemic awareness, decoding, fluency and comprehension. For the purpose of this study, only scores on the DIBELS' subtest of oral reading fluency, ORF, in English and Spanish were used to measure L2 and L1 oral reading fluency respectively.

The ORF subtest is used to measure a students' ability to read grade-level text accurately and fluently. In this subtest test takers read aloud grade-level appropriate fictional passages with the number of words read correctly counted in one minute. Errors consist of omissions, substitutions and hesitations that extend a 3 second period. Errors are subtracted from the total words read per minute, thus the ORF score is the number of correct words read in 1 minute. Reliability and validity have been reported to be satisfactory .95 (Good, Kaminski, Smith & Bratten, 2001).

Data Collection

The DIBELS ORF subtest (Good & Kaminski, 2002) was first administered mid (January) first grade and at the end (May) of first grade. In second and third grade the subtest was given at the beginning (September), the middle (January), and the end (May) of each year. Trained paraprofessionals or testers administered each assessment individually. For the purpose of this study, the mid (January) and end (May) scores from first, second, and third grade measure will be used.

Intervention Procedures

The English language intervention embedded into Project ELLA's TBE-E and SEI-E classrooms was a three-tier approach. All TBE-E and SEI-E received an identical tiered-intervention with the distinction that SEI-E students received their Tier I instruction solely in English due to program design, in contrast to TBE-E that received native language instruction as described below. Tier I, the typical classroom instruction. The content curriculum was designed, maintained and implemented by the district. Tier II was the English intervention implemented into each TBE-E and SEI-E classroom. Tier III was small group intervention for students within the TBE-E and SEI-E classrooms that were struggling with language acquisition. Figure 2 is included to provide an overview of the multi-tiered intervention received by both the SEI-E and TBE-E groups. Detailed descriptions for each tier are then subsequently presented.

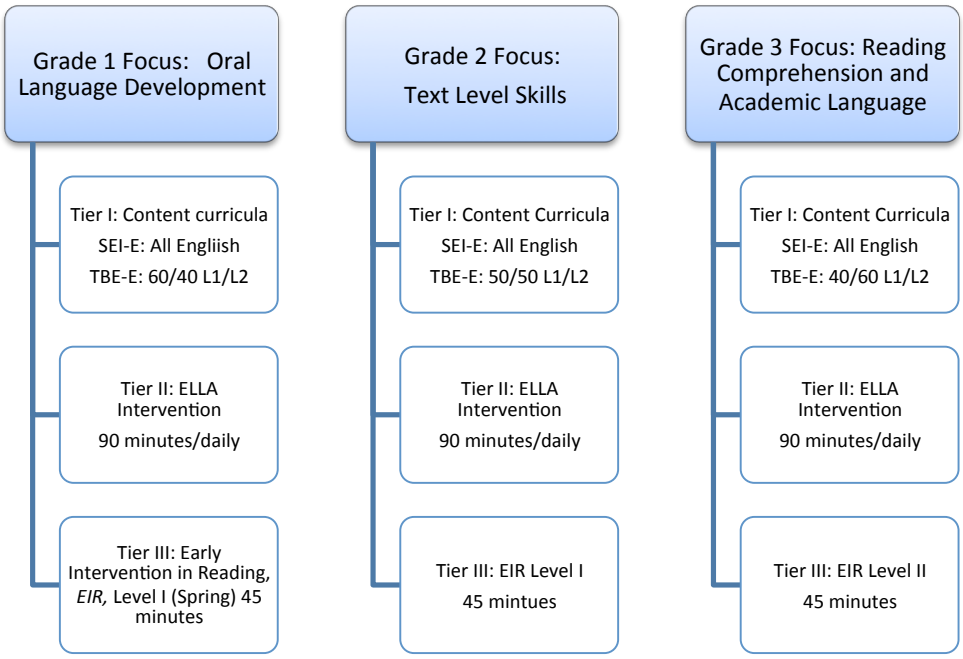

Figure 2. Overview of Multi-tiered intervention received by ELLs in SEI-E and TBE-E. Tier I differentiated across groups by program design. SEI-E used all English instruction (L2), while TBE-E included native language instruction (L1) as well. The time is reported in percentages. Tier II and III were identical in design and implementation for both groups.

Tier I

TBE-E. Tier I was the general content curriculum. Since students were taught in transitional bilingual programs, Project ELLA ensured the transition in content areas from L1 to L2 over the years. In the first semester of first grade all content areas were taught in L1 with formal L2 instruction commencing second semester. In second grade first semester, English language arts was added to formal English instruction with all other content areas taught in L1. In the second semester of second grade, Math was taught in English as well.

Project ELLA enhanced the typical curriculum by increasing the amount of instructional time spent in English. As previously described the typical TBE program model implemented by the district used an L1/L2 model of 70/30 percent of instructional time in the first grade, 60/40 percent of instructional time in the second grade, and 50/50 percent of instructional time in the third grade. Project ELLA's enhanced TBE model adjusted these percentages as follows: 60/40 first grade, 50/50 second grade, 40/60 third grade.

SEI-E. As mentioned previously, the SEI-E group received an identical tiered-intervention to the TBE-E group, with the exception that by program design the SEI-E group did not receive any native language instruction. Their Tier I instruction was provided solely in English at every grade level.

Tier II

Tier II was a three-component English intervention designed to provide highly effective ESL instruction for ELLs in both the SEI-E and TBE-E groups. The foci of the intervention paralleled the progression of second language literacy development. That is: in Kindergarten and first grade the focus was on oral language development; by grade 2 the focus shifted to reading skills including oral reading fluency development; and content-area reading was the main focus by grade 3. The English intervention totaled 90 minutes a day in first through third grade. The first component was a research-based curriculum designed to teach the content. The second component was intended to develop comprehensive and language skills through higher order thinking skills. The final component was included with the target of developing oral language skills.

Grade 1. In the first grade the 90 minutes of ESL instruction were allocated as follows: 40 minutes were spent in the intensive instruction of accessing the content through the English language using Santillana Intensive English/Interactive Writing Program (Ventriglia & Gonzalez, 2000), 40 minutes were designed for the promotion of higher order thinking skills through Story Retelling for English Language and Literacy Acquisition (STELLA; Irby, Lara-Alecio, Mathes, Rodriguez, Quiroz & Durodola, 2004) and 10 minutes to the developing of Science-based oral language through the use of Academic Oral Language in Science (AOLS; Lara-Alecio, et al., 2003).

Santillana's Intensive English/Interactive Writing Program (Ventriglia & Gonzalez, 2000) was utilized by the research team with a primary instructional focus of developing vocabulary knowledge in students. Structured lesson plans were organized into thematic units developed by the research team. Through out the course of the unit, new vocabulary was presented, stories were read aloud to students, comprehension questions were embedded, as well as opportunities to practice the vocabulary words with the teacher and in small group. The Santillana activity books were used as independent or group practice of the new vocabulary. The fifth day was reserved for reteach opportunities based on student needs.

STELLA (Irby, et al., 2004) was an intervention created by the research team to help students acquire higher order thinking skills while acquiring the L2 language. Lessons were developed authentic literature, with new books introduced weekly. Teachers were provided with scripted lesson plans that were carefully sequenced to

scaffold ELL learning through the different levels of Bloom's Taxonomy types of questions while introducing them to ESL strategies for making input comprehensible.

AOLS was an adaption of *Daily Oral Language: Question of the Day* (Lakeshore Learning Materials, 1997). The research team enhanced it by giving it a science focus. Oral language development in the first grade was designed to help ELLs access academic content through the use of AOLS (Lara-Alecio, et al., 2003).

Grade 2. In the second grade the 90 minutes of ESL instruction were allocated similarly. However, in place of Santillana Intensive English (Ventriglia & Gonzalez, 2000) the content-based instruction was delivered through The Early Intervention in Reading Level II Curriculum (EIR Level II; Mathes & Torgensen, 2005b). The focus of the intervention had shifted from developing oral language skills to reading skills including oral reading fluency. EIR Level II (Mathes & Torgensen, 2005b) is an intensive curriculum composed of 120 lessons designed to improve the reading fluency and comprehension of students through 6 strands: phonemic awareness, letter-sound correspondence, word recognition, spelling, fluency, and comprehension. During the phonemic awareness strand students were given time to practice phoneme identification and discrimination, segmentation and blending through a varied of activities. The letter-sound correspondence component was embedded into every lesson and was introduced once students had had an opportunity to audibly master the phonemic awareness content. Students were exposed to high frequency, regular patterned and irregular patterned words during the word recognition strand; while the fluency strand focused on exposing students to the use of the word recognition strategy in connected text. The reading

comprehension strand exposed students to the use of several pre-reading strategies (i.e. picture walk, setting a purpose, making predictions, activating prior knowledge) during teacher led activities. Students also engaged in post-reading activities to check for their comprehension and the structure and text level.

Another change in the Tier II intervention curriculum during grade 2 was the enhancement of AOLS (Lara-Alecio, et al., 2003) component used during grade 1. AOLS (Lara-Alecio, et al., 2003) was enhanced to include a written component. The research team developed Academic Oral and Written Language in Science (*AOWLS*; Lara-Alecio, et al., 2003) so that ELL students had a continued opportunity to develop academic language in the oral and written domains.

Grade 3. The last year students in SEI-E and TBE-E received the ELLA intervention was during grade 3. The focus of the intervention changed from text level skills, including oral reading fluency development, to content area reading. The AOWLS (Lara-Alecio, et al., 2003) curriculum included in grade 1 and grade 2 to promote oral language skills and the EIR Level II (Mathes & Torgensen, 2005b) curriculum used in grade 2 for the promotion of text level skills were replaced by Content Reading Integrating Science for English Language and Literacy Acquisition (CRISELLA; Lara-Alecio, et al., 2003) an adaptation of Scott Foresman's third grade science text. Additionally, students continued receiving 35 minutes of STELLA (Irby, et al., 2004) instruction as well.

Tier III

Tier III was designed for students struggling to acquire the English language based on low performance on DIBELS scores (Good & Kaminski, 2002). They were instructed in a small group setting. In grade 1 Tier III intervention consisted of 20 minutes. The struggling students were pulled out to receive the SRA Early Interventions in Reading Level I (*EIR Level I*; Mathes & Torgensen, 2005a) to target and improve their phonemic awareness, reading fluency and reading comprehension. In grade 2 EIR Level I was continued to be used for an increased time of 45 minutes. In grade 3 the Early Interventions in Reading Level II (EIR Level II; Mathes & Torgensen, 2005b) was used for a total of 45 minutes.

Intervention fidelity

To ensure validity of the intervention, Project ELLA coordinators conducted classroom observations three times per year (beginning, middle, end). A Likert- type rating scale assessing 5 areas: (1) lesson content and script knowledge, (2) leveled questioning, (3) student involvement (4) management of instructional materials, and (5) classroom management. The annual average observation time throughout the four years of the intervention was 73 minutes. The overall mean score was 83.5 (SD=12.13) out of a total of 96 possible points. There was a .98 inter-rater reliability rate (Tong, et. al, 2010; Treviño & Lara-Alecio, 2013).

Classroom observations were also conducted four times a year (September, November, February, April) using the Transitional Bilingual Observation Protocol (*TBOP*; Lara-Alecio & Parker, 1994). There was a .97 reported inter-rater reliability

rate. The TBOP evaluated distinct uses of language: (1) language of instruction, (2) language used by students, (3) language modalities, (4) light and dense cognitive content, and (5) activities and structures (Treviño & Lara-Alecio, 2013).

Typical practice

Typical practice for the TBE-T and SEI-T classrooms was the content area curricula designed by the district. It consisted of vertically and horizontally aligned student expectations, SE, aligned to state standards. Although teachers were granted the ability to determine how each SE would be taught and with what resources, the district ensured the curricula specified the time a skill was taught, the duration of the unit so that all students were being taught the same skill. In the typical TBE and SEI classrooms a 45-minute ESL was required. For the purposes of this current study no typical groups, TBE or SEI, were used.

Research Questions

Two research questions guide this study:

1. Is there a significant difference in the English oral reading fluency, ORF, trajectories developed over a 3-year period for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E), when controlling for research-based English intervention?

2. To what extent does the English initial oral reading fluency impact the L2 oral reading fluency growth for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E)?

Data Analysis

The purpose of the current study was to investigate the development of L2 oral reading fluency trajectories from first to third grade in Spanish-speaking ELLs instructed in the enhanced/experimental classrooms of two different program models, transitional bilingual education-enhanced (TBE-E) and structured English immersion (SEI-E). The objectives of this research were to:

- investigate the development of L2 oral reading fluency trajectories over a 3-year period for Spanish-speaking ELLs across two different program models TBE-E and SEI-E receiving the same research-based English intervention from first to third grade;
- investigate the relationship of the initial status of L2 oral reading fluency on the growth rate over a 3-year period for Spanish-speaking ELL students across two different program models TBE-E and SEI-E receiving the same research-based English intervention; and
- compare instructional models (enhanced/experimental TBE-E and enhanced/experimental SEI-E) in their ability to promote L2 oral reading fluency

development for Spanish-speaking ELL students receiving the same research-based English intervention.

Latent growth modeling LGM statistical procedures were used to investigate L2 oral reading fluency trajectories, separately, among students in SEI-E and TBE-E groups. The fluency research with native English speakers suggests that ORF trajectories are not linear but rather curvilinear; with steep slopes as students begin to learn to read in the early elementary grade levels and decelerating in the mid-elementary years once fluency is thought to be fully developed (Baker, et al., 2008; Fuchs, et al., 2001; Garcia & Cain, 2014; Nese, et al., 2013). Similarly, a few studies conducted with English language learners (Al Otaiba, et al., 2009; Dominguez de Ramirez & Shapiro, 2006; Jimerson, et al., 2013) suggest that for ELLs a non-linear development of ORF may also be applicable.

In addition to the evidence present in the literature as previously described in this chapter, I expected a change in growth rate as a result of the change in foci in the ELLA L2 intervention. The Tier II focus of the intervention changed following literacy developmental patterns. Specifically, in grade 2 the focus of the ELLA intervention was designed to address basic reading skills, including oral reading fluency, while in grade 3 the focus was on reading comprehension. A change in L2 ORF growth rate from grade 2 to grade 3 could be expected.

When different growth rates are expected for different periods of time, it is useful to breakup the growth trajectories into linear components. We can then compare growth patterns in the different stages of growth. Expectant of two separate growth rates for L2

ORF development over the three-year period, in this study, data were analyzed using piecewise growth models within structural equation modeling SEM.

In order to use SEM techniques a large same size is required. Kline (2005) makes reference to the N:q rule when using Maximum likelihood ML estimator and trying to determine the acceptable minimum sample size. The N:q rule states that an ideal sample size-to parameters ratio is 20:1, although a 10:1 ratio is acceptable. Anything below a 10:1 ratio decreases the trustworthiness of results. Our model had 18 freely estimated parameters. Under the N:q rule a minimum of 180 participants are required and 360 participants are ideal. Our sample size of 244 met the minimum required participants under the N:q rule.

The hypothesized model based on the literature was specified in MPlus version 7.3 (Muthen & Muthen, 2012), a latent variable modeling program with the analysis capabilities for growth modeling.

Model: L2 ORF

A piecewise growth model was built to address research questions 1 and 2*:*

"Is there a significant difference in the L2 Oral Reading Fluency Trajectories developed over a 3-year period for Spanish-speaking ELL students participating in two different program models, Transitional Bilingual Education- Enhanced and Structured English Immersion-Enhanced, when controlling for quality English intervention?" and

"To what extent does the L2 initial oral reading fluency status have on the L2 oral reading fluency growth for Spanish-speaking ELL students participating in the

enhanced/experimental models of two distinct program types, Transitional Bilingual Education and Structured English Immersion?"

The group membership data were added to the model as a time invariant covariate to investigate whether the effects of group membership on initial outcomes and growth rates were statistical significant. The piecewise growth L2 ORF model 1 is represented as:

$Y_{ij} = \eta_{i1} + \eta_{i2}t_{j1} + \eta_{i3}t_{j2} + \varepsilon_{ij}$

Where ηi_1 is the linear growth rate for first time period, η_{i2} is the linear growth rate for second time period, t_{j1} is the time variable for piece1 and t_{j2} is the time variable for piece1.

At time = 0 the expected outcome is $\alpha_1 + \alpha_2 (0) + \alpha_3 (0) = \alpha_1$

At time = 1 the expected outcome is $\alpha_1 + \alpha_2 (1) + \alpha_3 (0) = \alpha_1 + \alpha_2$

At time = 2 the expected outcome is $\alpha_1 + \alpha_2 (2) + \alpha_3 (0) = \alpha_1 + 2\alpha_2$

At time = 3 the expected outcome is $\alpha_1 + \alpha_2 (2) + \alpha_3 (0) = \alpha_1 + 2\alpha_2$

At time = 4 the expected outcome is $\alpha_1 + \alpha_2 (2) + \alpha_3 (1) = \alpha_1 + 2\alpha_2 + \alpha_3$

At time = 5 the expected outcome is $\alpha_1 + \alpha_2 (2) + \alpha_3 (2) = \alpha_1 + 2\alpha_2 + 2\alpha_3$

Time point 0 is the L2ORF score from the middle of the year grade 1, time point 1 is the L2ORF score from the end of the year grade 1, time point 2 is the L2ORF score from the middle of the year grade 2, time point 3 is the L2ORF score from the end of the year grade 2, time point 4 is the L2ORF score from the middle of the year grade 3 and time

point 5 is the L2ORF score from the end of the year grade 3. Also where α_1 represents the initial status, α_2 represents the average changes/increases at each time point from time middle of grade 1 to middle of grade 2 and α_3 represents average changes/increases at each time point from end of grade 2 to end of grade 3.

Summary

In this chapter I outlined the methodology used in this dissertation. I started by providing context of the study and providing a detailed description of the planned research design. I then detailed the sampling procedures, instrumentation and intervention procedures. Finally I detailed the data collection and data analysis methods. In Chapter IV, I will present the results of the study.

CHAPTER IV

RESULTS OF THE STUDY

The purpose of the present study was to: (a) investigate the L2 oral reading fluency trajectories among a sample of third grade Spanish-speaking ELL students participating for the fourth year in the enhanced/experimental transitional bilingual education (TBE-E) and the enhanced/experimental structured English immersion (SEI-E) program models; (b) investigate to what extent L2 initial status has on the L2 oral reading fluency growth rate; and (c) to compare instructional models (enhanced/experimental TBE-E and enhanced/experimental SEI-E) in their ability to promote L2 oral reading fluency development of ELLs.

In this chapter, I first present the descriptive statistics for each language by program model: structured English immersion- enhanced (SEI-E) and transitional bilingual education- enhanced (TBE-E). I then report the correlational data among the model variables. I conclude this analysis with the presentation of the results from the piecewise growth models reported by research question.

L2 ORF Descriptive Statistics and Variable Correlation Matrix

The descriptive statistics for L2 oral reading fluency are presented in this section by program type-- structured English immersion-enhanced (SEI-E) and transitional bilingual education- enhanced (TBE-E). They include: statistics of mean, standard deviation, skewness, and kurtosis for the scores on each of the variable time points included in the model. I then present the correlation matrix of variables for the two groups, SEI-E and TBE-E.

Group: Structured English immersion-enhanced (SEI-E)

Table 5 displays the mean, standard deviation, skewness and kurtosis of the L2 oral reading fluency scores collected at the 4 different time points and used for analysis in the piecewise growth model.

Table 5: Descriptive statistics for L2 ORF scores across six time points (SEI-E)

Variable	N Statistic	Proportion of data present	Mean Statistic	Std. Statistic	Skewness Statistic	Kurtosis Statistic
L2ORF 1M	69	0.750	24.522	19.734	1.786	3.846
L2ORF 1E	70	0.761	48.629	26.869	0.420	-0.829
L2ORF 2M	89	0.967	71.302	32.979	0.150	-0.156
L2ORF 2E	86	0.935	87.698	33.555	0.001	-0.047
L2ORF 3M	73	0.761	96.233	30.813	0.191	-0.323
L2ORF 3E	71	0.772	107.296	29.152	0.346	-0.208

Note. L2ORF= DIBELS English oral reading fluency score; 1M = data collected in the middle of grade 1; 1E = data collected at the end of grade 1; 2M = data collected at the middle of grade 2; 2E = data collected at the end of grade 2; 3M = data collected at the middle of grade 3; 3E = data collected at the end of grade 3.

The data in Table 5 shows the descriptive statistics for the SEI- E group. As previously reported in Chapter III, the sample size differed at each time point. The missing percentage for the SEI-E group was as low as 4% on the middle of grade 2 time point and as high as 25% on the middle of grade 1 time point. The absolute value of the

skeweness statistic is less than two and the absolute value of the kurtosis statistic is less than seven for each time point. Together, these values indicate that the data for each time point are normally distributed. The statistic mean increased as time changed. The variance in score increased from the end of grade 1 to the end of grade 2 and slightly decreased by the middle and end of grade 3. A correlation matrix follows (Table 6) for each of the variables in the piecewise growth model.

Table 6: Correlation matrix for variables (SEI-E)

Variable	1	2	3	4	5	6
1. L2ORF1M	1.00					
2. L2ORF1E	0.796**	1.00				
3. L2ORF2M	0.746**	0.845**	1.00			
4. L2ORF2E	0.632**	0.791**	0.861**	1.00		
5. L2ORF3M	0.642**	0.781**	0.844**	0.886**	1.00	
6. L2ORF3E	0.513**	0.717**	0.792**	0.842**	.902**	1.00
Means	23.290	46.670	70.880	86.971	90.136	102.804

Note. n = 92; * p<0.05; ** p< 0.01.

There was a total of 92 students in the TBE-E sample. As can be observed from Table 6 all correlations between variables were found to be statistically significant at the p <.01 level; support that the correlations amongst variables are highly unlikely to occur

by chance in the population. Additionally, the strength of these correlations are indicative of strong positive relationships.

Group: Transitional bilingual education- enhanced (TBE-E)

Table 7 displays the sample size at each time point, the proportion of the data present, the mean, standard deviation, skewness and kurtosis of the L2 oral reading fluency scores collected at the 6 different time points and used for analysis in the piecewise growth model.

Table 7: Descriptive statistics for L2 ORF scores across six time points (TBE-E)

Variable	N Statistic	Proportion of data present	Mean Statistic	Std. Statistic	Skewness Statistic	Kurtosis Statistic
L2ORF 1M	139	0.914	28.317	22.592	1.184	0.976
L2ORF 1E	143	0.941	51.726	25.044	0.497	-0.209
L2ORF 2M	131	0.862	75.031	26.634	0.383	0.367
L2ORF 2E	137	0.901	93.445	28.644	0.166	-0.230
L2ORF 3M	117	0.770	96.863	26.758	0.612	0.286
L2ORF 3E	117	0.770	109.581	26.230	0.628	0.518

Note. L2ORF= DIBELS English oral reading fluency score; 1M = data collected in the middle of grade 1; 1E = data collected at the end of grade 1; 2M = data collected at the middle of grade 2; 2E = data collected at the end of grade 2; 3M = data collected at the middle of grade 3; 3E = data collected at the end of grade 3.

The data in Table 7 shows the descriptive statistics for the TBE- E group. As previously reported in Chapter III, the sample size differed at each time point. The

missing percentage for the TBE-E group was as low as 6% on the end of grade 1 time point and as high as 23% on the mid and end of grade 3 time points. The absolute value of the skeweness statistic is less than two and the absolute value of the kurtosis statistic is less than seven for each time point. Together, these values indicate that the data for each time point are normally distributed. The statistic mean increased as time changed. The variance in score increased from the end of grade 1 to the end of grade 2, and slightly decreased from the end of grade 2 to the end of grade 3. A correlation matrix follows (Table 8) for each of the variables in the piecewise growth model.

Table 8: Correlation matrix for variables (TBE-E)

Variable	1	2	3	4	5	6
1. L2ORF1M	1.000					
2. L2ORF1E	0.797**	1.000				
3. L2ORF2M	0.718**	0.800**	1.000			
4. L2ORF2E	0.651**	0.740**	0.866**	1.000		
5. L2ORF3M	0.557**	0.702**	0.759**	0.755**	1.00	
6. L2ORF3E	0.429**	0.631**	0.672**	0.719**	.778**	1.00
Means	27.734	51.066	75.664	93.047	96.345	109.523

Note. * $p<0.05$; ** $p< 0.01$

There were a total of 152 students in the TBE-E sample. As can be observed from Table 8 all correlations between variables were found to be statistically significant

at the $p < .01$ level; support that the correlations amongst variables are highly unlikely to occur by chance in the population. Additionally, the strength of these correlations are indicative of strong positive relationships.

Results

In order to answer questions 1 and 2:

Q1: Is there a significant difference in the L2 oral reading fluency, ORF, trajectories developed over a 3-year period for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E), when controlling for research-based English intervention?

Q2: To what extent does the L2 initial oral reading fluency status have on the L2 oral reading fluency growth for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E), when controlling for research-based intervention?

a piecewise growth model (see Figure 2), was specified using MPlus version 7.3 (Muthen & Muthen, 2012). I will report the findings as follows. First, I will provide the specification, identification, and estimation findings—fit indices, model implied correlation matrix with means and standard deviations, mean structure, variance structure -- as they pertains to the hypothesized Piecewise Growth Model. Subsequently, I will present the estimation results— factor and time invariant covariate parameters and covariance structure-- as they answer each question.

Specification and identification of hypothesized piecewise growth model

Based on the review of literature presented in Chapter II there is evidence that suggests that English oral reading fluency trajectories are not linear among NESs nor ELLs. Additionally, the literature highlights a deceleration in oral reading fluency growth rate beginning in the second grade for NES students and the studies reviewed suggest this may be the case for ELL students as well. Thus, I did not anticipate a linear growth model to fit the L2 ORF trajectories for the SEI-E and TBE-E samples. Taking these two findings into consideration, I specified a Piecewise Growth Model (see Figure 2) in MPlus version 7.3 (Muthen & Muthen, 2012) anticipating change in growth after the fluency portion of the intervention was received in the second grade. I used L2ORF data from the DIBELS measure across six time points: middle of grade 1, end of grade 1, middle of grade 2, end of grade 2, middle of grade 3 and end of grade 3 as the dependent variables. There were 3 continuous latent variables intercept, slope 1-- from middle of grade 1 to middle of grade 2 and slope 2-- from end of grade 2 to end of grade 3. The grouping variable was added as a time invariant covariate to be able to determine to what extent group membership participation impacted the intercept, the growth rate from middle of grade 1 to middle of grade 2, and the growth rate from end of grade 2 to the end of grade 3.

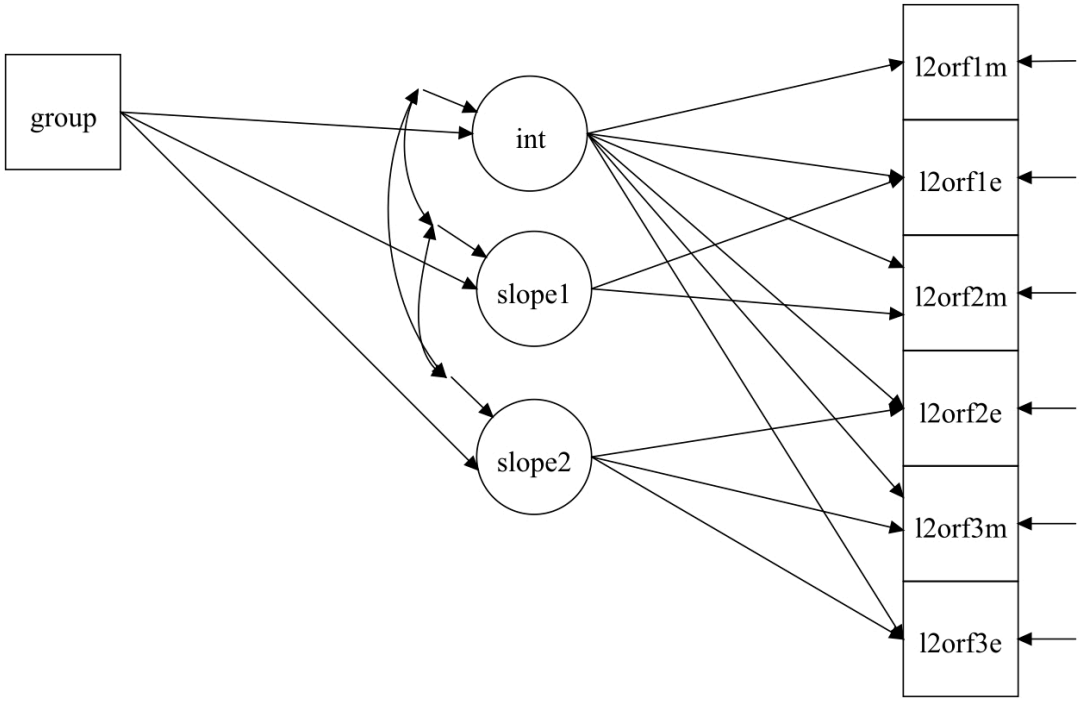

Figure 3. Hypothesized piecewise growth model: slope 1 from middle of grade 1 to middle of grade 2, slope 2 from end of grade 2 to end of grade 3, group variable introduced as time invariant covariate.

The hypothesized model displayed in Figure 3 was identified. The t rule, $t \leq [p(p+1)]/2$, necessary condition for identification (where t is the numbers of parameters to be estimated and p is the number of observed variables) was met. There were a total of 18 free parameters estimated and 7 were the number of observed variables.

Estimation of model

Fit evaluation. I first evaluated fit of hypothesized model with the global fit index Chi-Square. The Chi-Square Fit Index directly tests the null hypothesis, H0: $\Sigma = \Sigma 0$, an exact or perfect fit between the matrices. The alternative hypothesis, H1: $\Sigma \neq \Sigma 0$,

is not that there is a bad fit, but rather that there is not a perfect fit. Based on the p-value of 0.000 for the chi-square value of 53.14, I rejected the null hypothesis. There is not a perfect fit between the observed covariance matrix and the hypothesized covariance matrix.

Next I looked at the Comparative Fit Index, CFI. The Comparative Fit Index, CFI, compares the hypothesized model matrix not against the observed covariance matrix but rather against the covariance matrix of the null model. Based on the CFI estimate of 0.967, I concluded that there is sufficient contrast between the hypothesized Model 1 and the most restricted model. Based on these two indices, Chi-Square and CFI, the covariance matrix of the hypothesized model 1 did not have exact fit with the observed covariance matrix, but there was sufficient distance from the most restricted model. Therefore, I proceeded to look at local fit indices to determine what areas of the model caused the lack of perfect fit.

The two "goodness of fit" indices I looked at were: Root Mean Square Error for Approximation, RMSEA, and the Standardized Root Mean Square Residual, SRMR. The SRMR index is a test of close fit at the sample level. The hypothesis test on SRMR is: H_0: SRMR estimate $\leq .05$ and the alternative hypothesis is H_1: SRMR $\geq .05$. Based on the SRMR estimate of 0.034 the hypothesized Model 1 has good fit at the sample level. That is, the covariance matrix implied by the hypothesized model is close enough to the observed sample covariance matrix.

The RMSEA index is a test of close fit at the population level. The hypothesis test on RMSEA is: H_0 = RMSEA estimate $\leq .05$ and the alternative hypothesis is $H_1 \geq$

.05. Based on the results displayed in Table 9, the RMSEA estimate of 0.104 the hypothesized model 1 has poor fit at the population level. Table 9 shows the results of the fit statistics.

Table 9: Fit statistics for hypothesized model

Fit indices hypothesized model (15, n= 244)	Estimate
Chi-square	53.414, $p < 0.001$
SRMR	.034
RMSEA	.102
CFI	.967

Although not a perfect fit was found between the observed covariance matrix and the model implied covariance matrix, the model was found to have fair fit based on the SRMR and CFI indexes.

Correlation matrix with means. Table 10 displays the model implied covariance matrix.

Table 10: Model implied correlation matrix with means

Variable	1	2	3	4	5	6
1. L2ORF1M	1.000					
2. L2ORF1E	0.797**	1.000				
3. L2ORF2M	0.726**	0.823**	1.000			
4. L2ORF2E	0.646**	0.766**	0.865**	1.000		
5. L2ORF3M	0.587**	0.737**	0.799**	0.816**	1.00	
6. L2ORF3E	0.467**	0.671**	0.729**	0.777**	.836**	1.00
X	26.094	49.430	73.915	90.769	94.142	107.078

Note. n = 244 (SEI-E and TBE-E groups combined); ** p< 0.01.

There were a total of 244 students in the combined SEI-E and TBE-E sample. As can be observed from Table 10 all correlations between variables were found to be statistically significant at the $p < .01$ level; support that the correlations amongst variables are highly unlikely to occur by chance in the population. Additionally, the strength of these correlations are indicative of strong positive relationships.

Mean structure. In latent growth modeling the mean structure is evaluated. It is an area of structural equation modeling applications where the mean structure is always evaluated. Once covariates are added to the model the means of intercept, slope 1, and slope 2 will be estimated using the estimated regression intercepts and coefficients. Table 11 displays the intercepts for specified piecewise growth model.

Table 11: Intercepts for piecewise growth model

Intercepts	Estimate	p <
α_1: Intercept	21.270	0.001
α_2: Slope 1	23.993	0.001
α_3: Slope 2	10.338	0.001

As the data in Table 11 displays, all the intercepts were significant. The average L2ORF score at the initial status was 21.20 words per minute. The average growth rate for the first specified piece, middle of grade 1 to middle of grade 2, was positive. On average students grew 23.993 words per minute during the first piece. The average growth rate for the second specified piece, end of grade 2 to end of grade 3, was also positive, 10.388 words per minute, but lower than the average growth rate for the first piece. Figure 4 shows the sample versus estimated means for model.

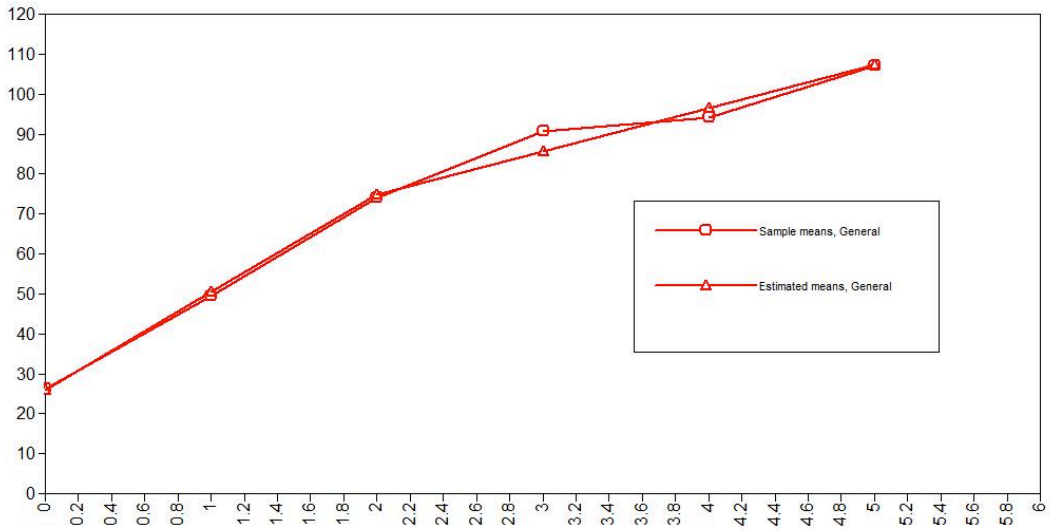

Figure 4. Sample and estimated means for piecewise growth model.

Figure 4 contrasts the sample means observed in the data versus the estimated means of model. The average initial score can be seen as the intercept at time point 0, middle of grade 1. The varying growth rates are also observable; there is a slight average deceleration in growth beginning at time point 2, middle of grade 2, becoming more prominent thereafter. From figure 3 we can also see that the greater departure between the observed and estimated means is at time point 3, the end of grade 2.

Table 12 shows the calculations for student's average scores at the different time points.

Table 12: Average L2 ORF scores for SEI-E and TBE-E groups combined

Time point	Equation	Average L2ORF Score
0	$\alpha_1 + \alpha_2 (0) + \alpha_3 (0)$	21.270 wcpm
1	$\alpha_1 + \alpha_2 (1) + \alpha_3 (0)$	45.263 wcpm
2	$\alpha_1 + \alpha_2 (2) + \alpha_3 (0)$	69.256 wcpm
3	$\alpha_1 + \alpha_2 (2) + \alpha_3 (1)$	79.594 wcpm
4	$\alpha_1 + \alpha_2 (2) + \alpha_3 (2)$	89.932 wcpm
5	$\alpha_1 + \alpha_2 (2) + \alpha_3 (3)$	100.27 wcpm

Note. n = 244; α_1 represents average intercept; α_2 represents average changes/increases at each time point from time=0 to time=2; α_3 represents average changes/increases at each time point from time=3 to time = 5; wcpm= words read correctly per minute.

Based on the calculations found in Table 12 we see that the greatest growth between average L2ORF scores is during timepiece 1 which includes time points 0, 1, and 2, from middle of grade 1 to the middle of grade 2. The average L2ORF score continues to increase but at a slower rate.

Factor variance. In latent growth model the factor variance matrix provides you with information on how individual students' initial score and growth differed from the estimated. With the addition of the time/invariant covariate we would be interested in the residual variances of int, slope1, and slope2 that were not explained by the covariates. In Table 13 I report the residual variances for the parameters in the hypothesized model.

Table 13: Residual variances

Parameter	Estimate	p <
Intercept	436.536	0.001
Slope 1	78.314	0.001
Slope 2	31.070	0.001

Table 13 shows that the residual variance estimates for intercept, slope 1, and slope 2 were all statistically significant. Based on the p-value for residual variance of intercept we can conclude that there were significant variations in the initial L2 ORF score. Similarly, there were significant variations in the first growth rate. The statistically significant residual variance of slope 2 indicates that there were variation in slope of the second piece and the growth rate is different than the first. Figure 5 is included to show the variation in observed fitted individual scores.

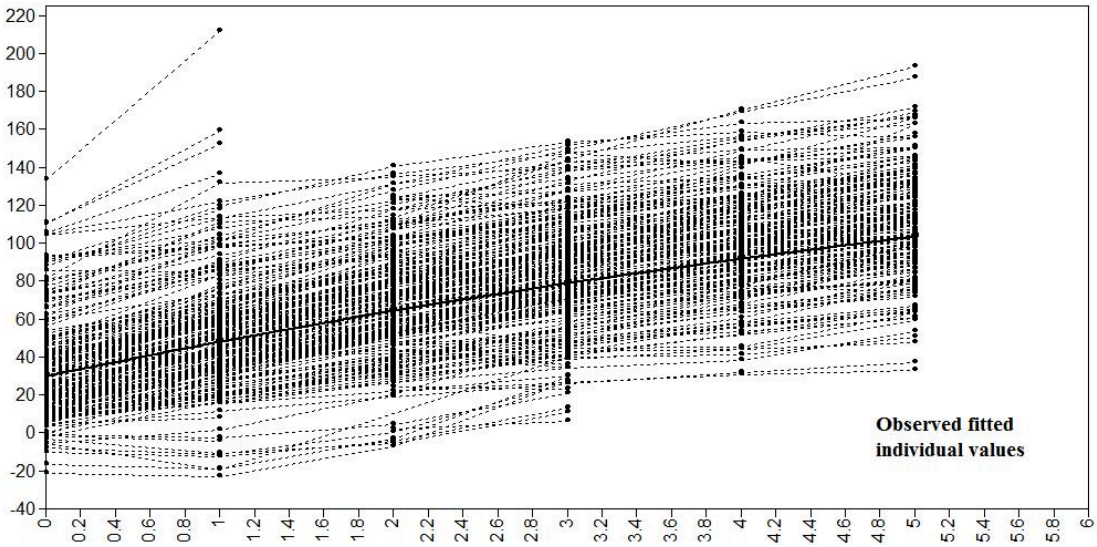

Figure 5. Observed fitted individual values. Note. n= 244; Y-axis words read correctly per minute, wcpm, X-axis time points across three school years. Observed L2ORF fitted individual scores across 6 time points, from middle of grade 1 to end of grade 3, for students in SEI-E and TBE-E combined.

Time 0 corresponds to L2ORF score attained in the middle of grade 1; time point 1 corresponds to L2ORF score attained at the end of grade 1; time point 2 corresponds to L2ORF score attained at the middle of grade 2, time point 3 corresponds to L2ORF score attained at the end of grade 2, time point 4 corresponds to L2ORF score attained at the end of grade 2, time point 5 corresponds to L2ORF score attained at the middle of grade 3 and time point 6 corresponds to L2ORF score attained at the end of grade 3. As can be observed from Figure 5, individual growth curves with missing data are included. In contrast, Figure 6 shows the estimated individual values including those that were estimated through the Full Information Maximum Likelihood Estimator.

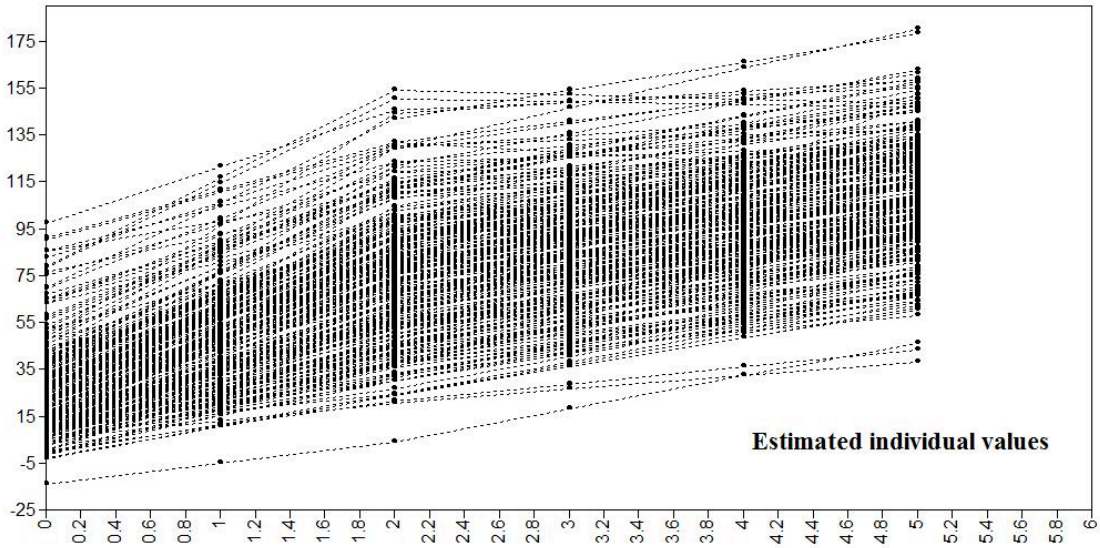

Figure 6. Estimated individual values. Note. n= 244; Y-axis words read correctly per minute, wcpm, X-axis time points across three school years. Observed L2ORF fitted individual scores across 6 time points, from middle of grade 1 to end of grade 3, for students in SEI-E and TBE-E combined.

Time 0 corresponds to L2ORF score attained in the middle of grade 1; time point 1 corresponds to L2ORF score attained at the end of grade 1; time point 2 corresponds to L2ORF score attained at the middle of grade 2, time point 3 corresponds to L2ORF score attained at the end of grade 2, time point 4 corresponds to L2ORF score attained at the end of grade 2, time point 5 corresponds to L2ORF score attained at the middle of grade 3 and time point 6 corresponds to L2ORF score attained at the end of grade 3.

Results for research question #1

Thus far, in this chapter, I have presented descriptive statistics by group SEI-E and TBE-E and then hypothesized a piecewise growth model to investigate the L2ORF trajectory development. For the piecewise growth model the sample size consisted of

244 students, that is SEI-E and TBE-E groups were combined. In order to answer question 1:

> *Is there a significant difference in the L2 oral reading fluency, ORF, trajectories developed over a 3-year period for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E), when controlling for research - based English intervention?*

a time-invariant covariate of group membership was added. Table 14 displays the parameter estimates for intercept, slope 1, and slope 2 regressed by group membership.

Table 14: Parameter estimates

Parameter	Estimate	p-value
Intercept on group	0.097	0.160
Slope 1 on group	0.018	0.817
Slope 2 on group	0.039	0.656

All three estimates investigating the effects of group membership on the intercept, slope for timepiece 1, and slope for timepiece 2 were found to not be statistically significant. That is the initial score and growth trajectories were not affected by group membership, and the hypothesized model results apply to both groups. Figure 7

is included below to show all STDYX significant parameters for the hypothesized piecewise growth model.

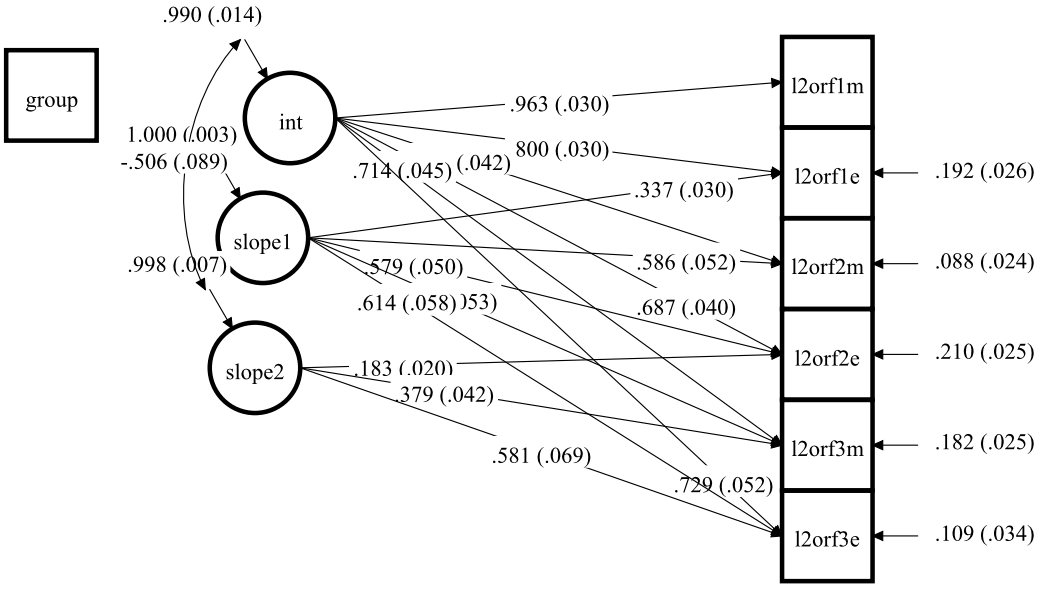

Figure 7. Hypothesized piecewise growth model: STDYX significant parameters (standard errors) shown.

Results for research question #2

I evaluated the covariance structure in order to answer question 2:

To what extent does the L2 initial oral reading fluency status impact the L2 oral reading fluency growth for Spanish-speaking ELL students participating in the

enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E)?

Table 15 below displays the correlation results between slope and intercept.

Table 15: Covariance structure

Parameter	Estimate	p-value
Slope 1 with intercept	0.101	0.405
Slope 2 with intercept	-0.506	<0.001
Slope 2 with Slope 1	-0.033	0.795

Analysis of the covariance structure of the hypothesized piecewise model (displayed in Table 15) shows that there was no significant correlation between the initial status and the growth rate for piece 1, from middle of first grade to middle of second grade. However, there was a significant negative correlation between the initial status and growth rate from end of grade 2 to end of grade 3. The growth rates are also not statistically significantly correlated. That is students' growth rate from the middle of grade 1 to the middle of grade 2 is not related to the students' growth rate from the end of grade 2 to the end of grade 3.

Summary

In this chapter I presented: (1) descriptive statistics by instructional group, SEI-E and TBE-E, on L2ORF measures across six time points spanning from the middle of

grade 1 to the end of grade 3; (2) specification, identification and fit statistics as they pertain to the hypothesized piecewise growth model 1; (3) an analysis of the mean and variance structures in order to investigate the development of L2ORF trajectory of Spanish-speaking ELLs receiving the same research-based intervention, across two different language program models, structured English immersion (SEI-E) and transitional bilingual education (TBE-E) and (4) estimation results by research question through the analysis of the covariance structure specifically the effects of the time invariant covariate of group membership for research question 1 and the analysis of the covariance structure between intercept and slope 1 and slope 2 for research question 2.

A discussion of these results, recommendations, limitations and conclusions will be presented in Chapter V.

CHAPTER V

DISCUSSION, LIMITATIONS AND CONCLUSIONS

This study analyzed the L2 oral reading fluency development over a 3-year period for 244 students with at least one data point out of the six used participating in the enhanced/ experimental models of two language programs, structured English immersion SEI-E and transitional bilingual education TBE-E. These students were participating in a longitudinal, quasi- experimental study receiving a comprehensive, multi-tiered English language and literacy acquisition intervention, ELLA, designed to investigate the effects of a comprehensive intervention design for effective L2 instruction, including oral reading fluency.

The purpose of the current study was to investigate the development of L2 oral reading fluency trajectories from first to third grade in Spanish-speaking ELLs instructed in the enhanced classrooms of two different program models, transitional bilingual education-enhanced (TBE-E) and structured English immersion (SEI-E). The objectives of this research were to:

- investigate the development of L2 oral reading fluency trajectories over a 3-year period for Spanish-speaking ELLs across two different program models TBE-E and SEI-E receiving the same comprehensive research-based English intervention from first to third grade;

- investigate the relationship of the initial status of L2 oral reading fluency on the growth rate over a 3-year period for Spanish-speaking ELL students across two different program models TBE-E and SEI-E receiving the same quality English intervention; and
- compare instructional models (enhanced/experimental TBE-E and enhanced/experimental SEI-E) in their ability to promote L2 oral reading fluency development for Spanish-speaking ELL students receiving the same quality English intervention.

Collection of data were guided by two questions, which are discussed in the following section along with the discussion regarding data analysis and current literature. Limitations to the study, implications, recommendations for future research and conclusions follow.

Discussion of the Findings

Summary of findings: Research question #1

Is there a significant difference in the L2 oral reading fluency, ORF, trajectories developed over a 3-year period for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E), when controlling for research-based English intervention?

As evidenced from the literature review, it was expected that the L2ORF trajectories would not be linear (Al Otaiba, et al., 2009; Baker & Good, 1995; Baker, Park & Baker, 2012; Jimerson, Hong, Stage & Gerber, 2013; Mathes, et al, 2005;

Treviño & Lara-Alecio, 2013). The findings in this study confirm the non-linear trend of L2 ORF trajectories. For this study, the growth rate captured, from the middle of grade 1 to the end of grade 3 was not linear, strengthening the literature for L2ORF growth rates. From the middle of grade 1, where oral reading fluency was first assessed, to the end of grade 3, ELLs in SEI-E and TBE-E in this study followed a two-stage linear oral reading fluency trajectory. Students on average were reading 21.270 word read correctly per minute, wcpm, at the initial status. The trajectory consisted of statistically significant positive linear growth for the first stage, from the middle of grade 1 to the middle of grade 2, with an average increase of 23.993 wcpm during this first stage. Although there was a deceleration in growth rate from the first to the second stage in the trajectory, end of grade 2 to the end of grade 3, it still consisted of a statistically significant positive growth rate. That is students were still growing but their growth rate decelerated past the middle of grade 2. On average students grew at a rate of 10.338 wcpm during this part of the trajectory.

Comparison to ORF norms and benchmarks. Currently oral reading fluency norms used to determine the progress of ELLs (Deno, et al., 2001; Fuchs, et al., 2001; Hasbrouck & Tindal, 1992: 2006) were norms developed for native English speakers. With the exception of a handful of studies that have investigated whether norms developed for native English speakers are appropriate for L2 oral reading fluency development, (Al Otaiba, et al., 2009; Baker & Good, 1995; Baker, Park & Baker, 2012; Dominguez de Ramirez & Shapiro, 2006; Treviño & Lara-Alecio, 2013), NES oral

reading fluency norms have been presumed to be appropriate for ELLs. Table 16 below is included to compare the results from the current study with norms set for NES.

Table 16: Sample end of year scores compared to expected end of year oral reading fluency (ORF) norms for native English speakers

End of Grade Level	*Sample for Current Study*	*Hasbrouck & Tindal (2006)*	*DIBELS 6th Edition Benchmark Goals (2012)*
1	45 .263	40+	
2	79.594	89	74
3	100.270	107	98

Note. End of year ORF scores are expressed in words correct per minute, wcpm. Hasbrouck and Tindal (2006) norms for grades 2 and 3 represent the 50th percentile. DIBELS 6th Edition Benchmark Goals (2012) represent the values recommended for students to be considered at low risk of reading difficulty based on their ORF score.

In comparison to DIBELS 6th edition Benchmark Goals (2012) ELL students in this study were at low risk for reading difficulties. In comparison to norms published by Hasbrouck and Tindal (2006) ELLs in the current study were at low risk for reading difficulties at the end of grade 1. Hasbrouck and Tindal (2006) found that at the end of grade 1 below 40 wcpm posed some risk for reading difficulties, and students reading below 20 wcpm were at high risk for reading difficulty. For grade 2 through grade 8 Hasbrouck and Tindal (2006) recommend 10 words above or below of the 50th percentile to be interpreted within expected and appropriate range for a student at that grade level. Compared to the NES normative sample in Hasbrouck and Tindal (2006) ELLs in this study performed at comparable levels throughout all three years.

The time-invariant covariate of group membership was added to investigate whether there were statistically significant differences in students receiving the same enhanced/experimental Project ELLA L2 literacy intervention in two different program models, structured English Immersion, SEI-E and transitional bilingual education TBE-E. All three estimates were found to be not statistically significant. That is variations on the average initial score and the growth trajectories at both stages of development were not attributed to students being in different program models.

In response to research question #1, there were no statistically significant differences found in the oral reading fluency trajectories developed for students receiving the enhanced/experimental Project ELLA research-based, comprehensive L2 intervention. The intervention for both groups was successfully implemented to the extent that ELLs had the same opportunities to advance in oral reading fluency. This finding is noteworthy considering students received instruction under two distinct program models, structured English immersion, SEI-E, and enhanced transitional bilingual education, TBE-E. By design these program models have different literacy outcomes. While both models aim to develop English literacy in ELLs, the enhanced transitional bilingual education, sought to develop biliteracy and maintain the native language, Spanish. Students in TBE-E were instructed in both Spanish and English. In Kindergarten and first grade the Spanish/English language distribution was 70/30 and 60/40 respectively. The language of instruction for all content areas - language arts, math, science, and social studies - was Spanish. During these two grade levels, the ELLA intervention was the only formal English instruction received (Tong, et al., 2008).

In second grade the language distribution was 50/50, and 40/60 by third grade. ELLs in the TBE-E group attained comparable levels of oral reading fluency development while developing their native language as well (Tong, et al., 2010:2011).

This study significantly contributes to the literature because it provides empirical evidence that when controlling for research-based intervention, in this case ELLA, native language instruction does not hinder the acquisition of English literacy development as it applies to the area of oral reading fluency development. This finding is supported by a theoretical perspective (Cummins, 1979: 2000) that is time spent in L1 does not hinder L2 development, as well as a practical stance (Cheung & Slavin, 2012; Slavin & Cheung, 2005). Tong, et al., (2008) found this to be true for oral language development as well.

Summary of findings: Research question #2

To what extent does the L2 initial oral reading fluency status have on the L2 oral reading fluency growth for Spanish-speaking ELL students participating in the enhanced/experimental models of two distinct language programs, structured English immersion (SEI-E) and transitional bilingual education (TBE-E)?

Since this quasi-experimental longitudinal study controlled in both groups SEI-E and TBE-E the English literacy and language acquisition intervention, ELLA, of particular interest was to see in which manner, if any, the initial status impacted the growth rates. The results show that there was no statistically significant relationship between the intercept and growth during the first timepiece, from middle of grade 1 to middle of grade 2. This indicates that the students initial ORF score did not statistically

significant impact the growth rates students' experienced. However, there was a statistically significant relationship between intercept and growth on the second timepiece, from end of grade 2 to end of grade 3. The -0.506 estimate indicates a moderately strong statistically significant negative relationship between initial score and growth that can be interpreted as follows: students with the lower scores on intercept, middle of grade 1, experienced the greater growth from end of grade 2 to the end of grade 3. Figure 8 is included below to bring context to this finding by showing the shifting foci for the multi-year comprehensive English Literacy and Language Acquisition ELLA intervention.

As can be observed from Figure 8 time piece 2 in this study's model, end of grade 2 to end of grade 3, corresponds to intervention received in grade 3. It is during this time that students with the lower scores on initial assessment, middle of grade 1, experienced greater growth. The foci of the comprehensive ELLA intervention changed from reading skill development to reading comprehension and academic language, following second language literacy development patterns.

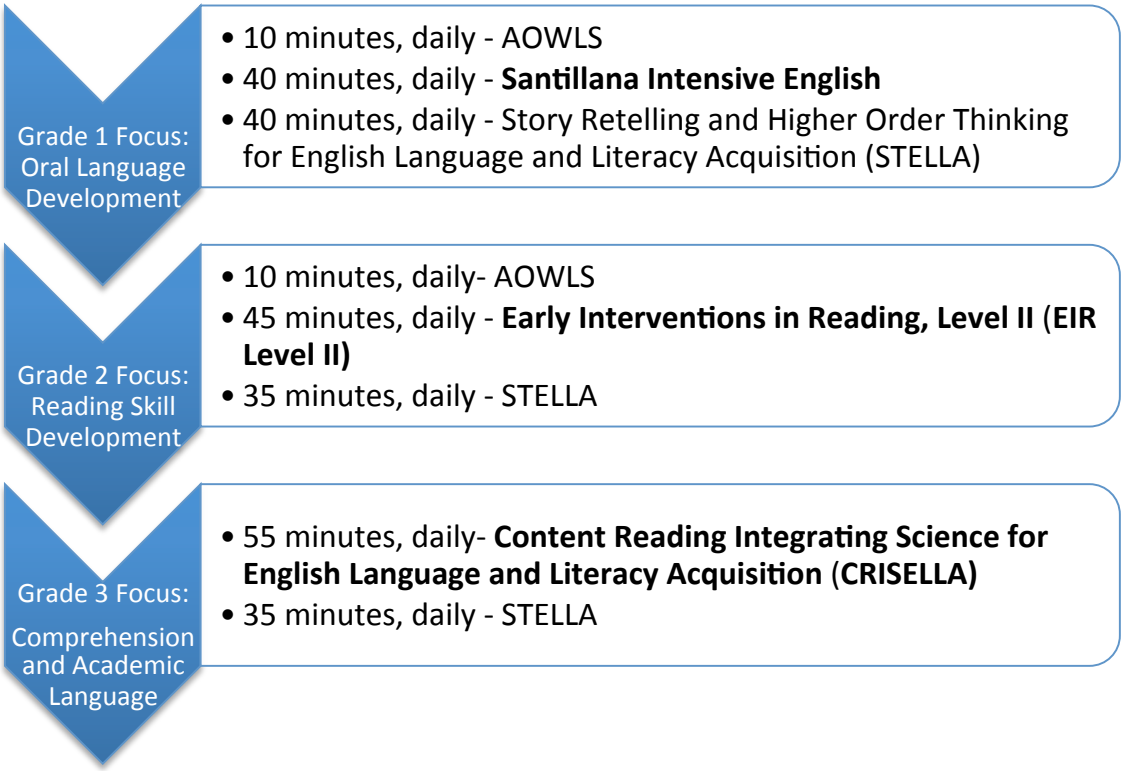

Figure 8. Change in foci of ELLA intervention and description of duration, frequency and type of curricula comprising the ELLA intervention by grade level.

Greatest growth for students with lower initial fluency scores during the second timepiece is difficult to interpret. It could be indicative that initial oral reading fluency status in early grades is not a stagnant determinant to oral reading fluency growth. This finding would support that struggling ELL readers benefit from a tiered intervention (Mathes, et al., 2007; Wanzek & Vaughn, 2007). It is possible that this is the case, as Project ELLA intervention has been documented to show students accelerated English oral language acquisition, phonological awareness, decoding and reading comprehension skills from kindergarten to grade 2 compared to the control group (Tong, et al., 2008);

Project ELLA has positive effects on the L2 oral reading fluency development in grade 2 in students instructed in bilingual education programs over the control group (Treviño & Lara-Alecio, 2013). However further testing of data, beyond the scope of this study, needs to occur to determine that the observed relationship is not merely reflecting the ceiling effects of the measures.

Limitations and Recommendations for Future Research

There are several limitations associated with this study. Primarily, it is a study that focuses on the development of one contributing component to reading development. As evident from theory and the review of literature, reading is an interaction of oral language skills and decoding skills (Gottardo & Mueller, 2009; Gough & Tunmer, 1986; Hoover & Gough, 1990; Leider, Proctor, Silverman & Harring, 2013; Perfetti, 1985; Proctor, Carlo, August & Snow, 2005); therefore of interest and recommendation for future research would be longitudinal, quasi-experimental studies that control for research-based intervention and investigate how the L2 ORF trajectory of ELL students impact reading comprehension in the presence of other contributing components.

Another limitation to this study is that it investigates the L2 oral reading fluency development of ELL students who are receiving a comprehensive research-based tiered intervention but students in the TBE-E group also received native language instruction through an enhanced transitional bilingual education model, one-way dual language model. By program definition, biliteracy attainment is an explicit educational outcome. In this study cross-linguistic effects were not explored. In the area of oral reading fluency few researchers have investigated the cross-linguistic transfer, if any, between

L1 and L2 oral reading fluency (Baker, et al., 2012; Dominguez de Ramirez & Shapiro, 2007). Recommendations for future research are to design longitudinal experimental or quasi-experimental studies that investigate the native language ORF development and its effects, if any, on the L2 ORF trajectory development. The findings from said studies would build upon the findings of this current study and the literature on the role of native language on literacy development. Doing so would better inform practitioners in the design of curricula decision-making when designing programs that serve ELLs.

Lastly, the time span of this study presents limitations on the investigation of L2 oral reading fluency development in two considerable ways: (1) it does not account for the influence of precursory skills on initial status and (2) it is limited to the primary grade levels where students are still learning to read. The present study investigated the oral reading fluency development from the middle of first grade where it is first formally assessed under No Child Left Behind (2001) to the end of third grade. However, the influences of precursory skills (i.e. letter identification, phonemic awareness, oral language proficiency) on oral reading fluency were not investigated. The inclusion of those precursory skills in future studies is important in understanding what contributes to oral reading fluency and in which way as currently the literature is limited as applicable to ELLs (August & Shanahan, 2006: 2010). In turn literacy instructional practices as applicable to ELLs will be strengthened. Secondly, in the present study I investigated the oral reading fluency trajectories across three years in the primary grade levels, grades 1-3. Although these three years are critical in the learning to read stage, it would be of interest to investigate that development into the upper elementary grade-levels were

students embark on the reading to learn stage. Investigators that have found a diminished contribution from oral reading fluency to reading comprehension (Crosson & Lesaux, 2010; Proctor, et al., 2005) conducted cross-sectional studies with samples in the upper elementary grade levels but did not include the primary grade levels for a longitudinal perspective. Investigations that did span across primary and upper elementary grade levels (Jimerson, et al., 2013) did not control for the amount or type of English instruction limiting the findings into a direct translation in the classroom. Thus, future longitudinal research should aim to include a broader time range to include primary and upper elementary grade levels that controls for the type and quality of English instruction in an experimental or quasi-experimental design.

Concluding Remarks

The findings reported in my dissertation have both theoretical and practical implications. To the best of my knowledge, to date, no research study has attempted to model English oral reading fluency trajectories across the three primary grades for Spanish-speaking ELLs while controlling for the type and quality of English instruction across two different program models, TBE-E and SEI-E.

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