ACADEMIC LANGUAGE PROFICIENCY DEVELOPMENT AND ITS IMPACT ON

READING COMPREHENSION: WITHIN AND ACROSS LANGUAGES

A Dissertation

by

TRACY GRIFFIN SPIES

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

DOCTOR OF PHILOSOPHY

May 2011

Major Subject: Educational Psychology

Academic Language Proficiency Development and Its Impact on Reading

Comprehension: Within and Across Languages

ACADEMIC LANGUAGE PROFICIENCY DEVELOPMENT AND ITS IMPACT ON

READING COMPREHENSION: WITHIN AND ACROSS LANGUAGES

A Dissertation

by

TRACY GRIFFIN SPIES

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

DOCTOR OF PHILOSOPHY

Approved by:

Co-Chairs of Committee,   Rafael Lara-Alecio
                         Fuhui Tong
Committee Members,   Beverly J. Irby
                         Kathryn McKenzie
                         Sharolyn Pollard-Durodola
Head of Department,   Victor Willson

May 2011

Major Subject: Educational Psychology

ABSTRACT

Academic Language Proficiency Development and Its Impact on Reading

Comprehension: Within and Across Languages. (May 2011)

Tracy Griffin Spies, B.S., University of Houston; M.A., Sam Houston State University

Co-Chairs of Advisory Committee: Dr. Rafael Lara-Alecio
                                        Dr. Fuhui Tong

A path model of second language (L2; English) oral language and reading comprehension variables was tested on a sample of 100 Spanish-speaking English-language learners enrolled in a transitional bilingual program over a 3-year period. The data collected were a part of a longitudinal, federally-funded experimental project entitled English Language and Literacy Acquisition (Project ELLA). The purpose of this study was (a) to test a path model on discrete L2 academic language proficiency variables on L2 reading comprehension, (b) to test a path model on discrete L2 academic language proficiency variables and L2 reading comprehension on L1 reading comprehension, and (c) to compare the influence of L2 language development on reading comprehension development in L2 and L1 between students enrolled in transitional bilingual education experimental (TBE-E) classrooms and those enrolled in the transitional bilingual education control or typical (TBE-T) classrooms.

Results indicated the two groups did not differ significantly in their overall levels of achievement. However, striking differences were noted in how the academic language proficiency variables influenced reading comprehension outcomes. English listening

comprehension, vocabulary, and grammar had significant influences on reading comprehension in the TBE-E group while English listening comprehension was the only predictor variable for the TBE-T group. Cross-linguistic transfer was established in the TBE-E group from English reading comprehension to Spanish reading comprehension, whereas, no transfer was detected in the TBE-T group.

It is evident that high quality comprehensive ESL instruction develops academic oral language proficiency that contributes to effective reading comprehension while students continue to learn in their native language. However, in the absence of a high quality ESL instruction, students may develop academic oral language proficiency but are ineffective in utilizing these skills for reading comprehension. It is also evident that time spent developing quality L2 reading comprehension influences L1 reading comprehension even though less time is spent in L1, suggesting cross-linguistic transfer from L2 to L1. More effective English skills, coupled with effective native language skills, suggests the TBE-E students have added cognitive benefits of bilingualism while the TBE-T students remain ineffective in using available language proficiency skills for effective reading comprehension.

DEDICATION

To my amazing husband, Mike… Together may we write a new chapter.

ACKNOWLEDGEMENTS

Words cannot express the sacrifice and patience shown to me by my family. They supported me throughout every step of this process and never complained nor questioned my choice to pursue this degree. They showed me grace when I was absent and kept me focused on my goal.

The most important thank you is reserved for my husband, Mike. There were days when he was more determined that I see this degree though to completion than I was. Without hesitation, he adapted his life to accommodate my studies. No matter how neglectful I was as a wife, he always told me that he was proud of me. For that, I will forever be grateful.

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

The number of English language learners in the United States and ultimately in public schools is increasing dramatically. According to the 2000 U.S. census, 47 million people over the age of 5 spoke a language other than English in their homes. This statistic represents approximately 18% of the total U.S. population and an increase of 4% over a ten-year period. Approximately three million students enrolled in public schools in 2000 were English language learners (U.S. Department of Education, 2004), and most recently this number has increased to 10.9 million (U.S. Department of Education, 2010). This growth can be primarily attributed to Spanish-speaking households. In 2008, approximately 7.7 million school-aged children spoke Spanish as compared to 1.5 million speakers of Indo-European and Asian-Pacific Island languages (U.S. Census, 2008). English language learners (ELLs) are faced with the challenge of not only mastering the English language, but also attaining the academic skills necessary for schooling and a productive life as a citizen in the United States. Unfortunately, ELLs have historically performed significantly lower on tests than their monolingual peers (U.S. Department of Education, 2007). Hispanic children have lower levels of school readiness entering kindergarten compared to Anglo and African American children

_____

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

(Duncan & Magnuson, 2005; Fryer & Levitt, 2004). Kindler (2002) reported that students classified as English language learners (ELL**s**) passed state norms for reading at 18.7% and have higher dropout rates as they progress through the school system (Padron, Waxman, & Rivera, 2002).

While the academic success of ELLs in the United States continues to lag behind, the number of students entering schools as well as the academic standards for these students is increasing simultaneously. No Child Left Behind was enacted in 2001 and serves to "ensure that all children obtain a high-quality education and reach, at a minimum, proficiency on challenging state academic standards and state assessments" (No Child Left Behind, sec 1001, 2001). Specifically, the act requires the development and attainment of English proficiency while meeting challenging state academic and student achievement standards (NCLB, sec 3122, 2001). It is mandated to school districts that they are to (a) increase the number of ELLs making progress, (b) increase the number of ELLs attaining English proficiency at the end of each school year, and (c) make adequate yearly progress. Penalties are rendered for failure to meet these requirements (NCLB, sec 3121, 2001).

The challenge to educators then becomes designing instructional programs that continue to develop the academic standards with students while simultaneously increasing English language proficiency. Furthermore, ELLs bring varying levels of both native language and English proficiency. Lindholm-Leary and Block (2010) categorized ELLs into two groups in regards to language proficiency: (a) immigrant children or children of immigrants who speak Spanish and little to no English when they enter

school, and (b) second or later generation children who speak only English or bilingual children who are fluent in English but possess varied levels of proficiency in Spanish. Instructional programs serving ELLs vary based on resources, philosophies, and the numbers and types of English language learners in their schools. Central to the development of effective instructional programs for ELLs is a firm knowledge base of second language acquisition in conjunction with a clear understanding of both the native language as well as second language skills students possess.

Definition of Terms

The following terms are used throughout the current study and are defined as follows:

Basic Interpersonal Communication Skills (BICS).   BICS refers to basic interpersonal communicative skills. BICS are the language skills utilized in face-to-face communication in which interactions are context-embedded (Cummins, 1981).

Cognitive Academic Language Proficiency(CALP). CALP refers to cognitive/academic language proficiency. CALP is a set of language skills utilized for academic achievement, in which context for understanding is reduced or limited (Cummins, 1981).

L1.   L1 refers to the native or first language. For the purposes of the current study, L1 refers to Spanish.

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

English Language Learners (ELLs). ELLs are individuals who come from language

backgrounds other than English and whose English language proficiency is not

yet developed to a point where they can benefit solely from English-only

instruction (August & Shanahan, 2006).

Typical Transitional Bilingual Education (TBE-T) Model. Typical Transitional

Bilingual Education is an instructional program model used in this project that

uses a combination of both English and Spanish for instruction, and the native

language, Spanish, is used as a springboard to instruction in English (Lara-

Alecio, Irby, & Meyer, 2001).

Enhanced Transitional Bilingual Education (TBE-E) Model. Enhanced Transition

Bilingual Education is an alternative instructional program model implemented

specifically for this project that uses a combination of both English and Spanish

for instruction and focuses on the native language for concept development as

used in typical transitional bilingual programs. Unique to this alternative model

is the consistent, incremental increase in English instruction with each grade

level with the expectation of mastery of English language and literacy skills. This

model includes a consistently aligned curriculum, classroom observations,

professional development, additional time spent in English instruction utilizing

ESL strategies, and parent training (Lara-Alecio et al., 2003).

Path Analysis. Path analysis is a statistical technique in which the researcher has prior

knowledge of causal relations among variables (Kline, 2005).

Statement of the Problem

The urgency for improving the education of ELLs in the United States has never been greater. Beyond the higher academic standards and accountability set forth by No Child Left Behind, the dramatic increases in the number of ELLs enrolling in public schools and the continued failure rate of these students in school obligates the academic community to continue to build a strong, empirical, and methodologically sound research base to improve the education of this growing population.

While the number of research studies conducted with ELLs increases each year, the complexity of studying students acquiring a second language while simultaneously developing or maintaining their native language leaves many questions for researchers and practitioners. Oral language proficiency is the basis for literacy. Of primary concern, however, is the measurement of oral language proficiency as it relates to reading comprehension. Consistent throughout the literature is the notion that oral language measurements that are more academic in nature correlate more with reading comprehension (Saunders & O'Brien, 2006). The challenge for the research field has been to identify the discrete aspects of language proficiency that significantly influence reading comprehension. A particular concern within the current research field on oral language proficiency's impact on reading comprehension is the presence of highly inconsistent and irregular measures of oral language proficiency. Oral language proficiency has been reported utilizing:

- measures of language use in the classroom (Chesterfield, Chesterfield, Hayes-Lattimer, & Chavez, 1983; Chesterfield & Chesterfield, 1985; Johnson, 1983; Malave, 1989; Milk, 1982; Pease-Alvarez & Winsler, 1994);

- story retelling (Goldstein, Harris, & Klein 1993);

- the formation and use of questions (Lindholm, 1987; Rodriguez-Brown, 1987);

- the quality of definitions (Snow, Cancino, Gonzalez, & Sriberg, 1987);

- teacher ratings (Thomas & Collier, 2002; Lindholm-Leary, 2001);

- standardized or norm referenced vocabulary measures (Carlisle, Beeman, Davis, & Spharim, 1999; August 1987; Hakuta, Butler, & Witt, 2000; Fernandez, Pearson, Umbrel, Oller, & Molinet-Molina, 1992); and

- measures of general language proficiency (Medina & Escamilla, 1992).

Inconsistent measurements of oral language proficiency make generalizations difficult.

Measurement and analysis of academic variables in regards to ELLs is highly complex and conclusions must be drawn with extreme caution. It is impossible to measure any single language variable without the consideration of the interaction of the other language. The majority of studies in cross-linguistic relationships and studies conducted with ELLs employ error analysis, correlational/regression analysis, and between- and within- group comparisons (Riches & Genesee, 2006). While some studies do control for skill in one language while examining the same skill in another, the development of those skills over time, or how its influence on the development of the other language has not been examined. The literature fails to consider that although ELLs are acquiring a second language in bilingual classrooms, the native language also

continues to develop. The complex nature of first and second language interactions, as well as the underlying cognitive abilities associated with learning, is not typically considered in these types of analysis. In addition, these studies fail to utilize statistical techniques that provide any type of causal model.

From a practical perspective, the literature fails to identify the comprehensive elements of effective program models that assist ELLs with the simultaneous development of academic skills and English proficiency, or how to transition learners effectively to English-only instruction. Researchers have looked at elements in isolation such as effective curriculum and reform strategies (Fashola, Slavin, Calderón, & Durán 2001) as well as types of teachers, home-school relationship, and school leadership (Alanís & Rodriguez, 2008). However, single studies conducting comprehensive analysis into specific program elements deeming them as effective for ELLs are absent from the field.

Purpose of the Study

This quantitative study resulted from a larger, federal research project entitled English Language and Literacy Acquisition (ELLA) (R305P030032). This particular study aimed at the learning outcomes of students enrolled in TBE classrooms only. The purpose of this present study was to (a) test a path model on discrete L2 academic language proficiency variables on L2 reading comprehension, (b) test a path model on discrete L2 academic language proficiency variables and L2 reading comprehension on L1 reading comprehension, and (c) compare L2 language and reading comprehension

development as well as L1 reading comprehension of students enrolled in the TBE-E classrooms with those enrolled in the TBE-T classrooms.

Research Questions

Four research questions guided this present study. These included:

1. What are the specific elements of L2 academic language proficiency that influence L2 reading comprehension among Spanish-speaking ELLs over a 3-year period?

2. Is there a significant difference in the influence of the elements of L2 academic language proficiency on L2 reading comprehension among Spanish-speaking ELLs enrolled in the enhanced transitional bilingual program and the typical bilingual program over a 3-year period?

3. What are the specific elements of L2 academic language proficiency and L2 reading comprehension that influence L1 reading comprehension among Spanish-speaking ELLs over a 3-year period?

4. Is there a significant difference in the influence of the elements of L2 academic language proficiency and L2 reading comprehension on L1 reading comprehension among Spanish-speaking ELLs enrolled in the enhanced transitional bilingual program and the typical transitional bilingual program over a 3-year period?

Significance of the Study

The current study is significant to the research field with ELLs for three primary reasons. First, it investigates specific elements of academic language proficiency and their influence on reading comprehension. This research, using standardized assessments, examines L2 vocabulary, language, and listening comprehension over time and its influence on L2 reading comprehension. As noted earlier, a significant portion of the research field is replete with non-standard forms of measurement for academic language proficiency.

Second, it fills a significant gap in the literature by analyzing the data from an experimental design in which the variables were related specifically to classroom design and instruction. Saunders and O'Brien (2006) emphasized, "There is virtually no U.S. research on how classroom instruction might best promote more academic aspects of oral language development" (p.19). The results from the current study will clearly connect specific instructional practices, time-allotments for L1 and L2 instruction, effective curriculum, interventions for struggling students, as well as connecting teacher professional development to student outcomes.

Third, Genesee et al. (2006b) in their meta-analysis on cross-linguistic transfer noted:

> The issues in cross-linguistic research are complex and dynamic- complex because there are multiple variables that influence literacy development, multiple components to literacy development, and alternative theoretical frameworks that have influenced the way in which the research field has been operationalized; and dynamic because the causal relationships that underlie the development of reading and writing and their influence on academic achievement change as ELLs progress through school. (p. 170)

Path analysis, the statistical analysis employed in the current study, allows the testing of hypothesis to develop causal models. By analyzing student performance over time, the influence of the development of language over time will become clear.

Delimitations

Although the current study used standardized measures of vocabulary, listening comprehension, language, and reading comprehension, for the purpose of statistical analysis, overall scores in these areas were used. The data yielded itemized results such as inferential reading and listening comprehension, but these results were included in the overall comprehension scores. This limits the specific types of influence the variables had on reading comprehension.

In addition, the longitudinal data were interpreted as growth over time from the end of kindergarten to the end of third grade. To see the true development of language over time, it would have been much more informative to look at the data at four distinct times: at the end of kindergarten, the end of first grade, the end of second grade, and the end of third grade. Finally, this project was conducted in a state where random selection and placement at the student level is prohibited by law (Texas Education Code, 1995). As a result, the current study was quasi-experimental.

Organization of the Study

The current study is organized and presented in five chapters. Chapter I of the study introduces the research and includes the definition of terms, statement of the

problem, purpose, the significance of the study, research questions, and delimitations. A review of the literature is included in Chapter II. It includes an introduction, a history of bilingual programming, the relationship of L2 academic language proficiency on L2 reading comprehension, and the relationship of L2 academic language proficiency, and the relationship of L2 reading comprehension on L1 reading comprehension. Chapter III of the study provides an overview of the research design. Included in this chapter are an introduction, sampling procedures, context of the study, research design, description of the instrumentation, the intervention procedure, data collection and analysis, and a summary. Chapter IV summarizes and analyzes the findings. Chapter V discusses the findings, limitations of the study, implications, conclusions, and recommendations for future research.

CHAPTER II

REVIEW OF THE LITERATURE

In this chapter, an extensive review of the literature is presented in the area of academic language proficiency and its influence on reading comprehension as well as the nature of cross-linguistic transfer between Spanish and English. This review is grounded solely within the context of Spanish-speaking ELLs to represent the sample population of the current study. This review begins by investigating the history of educating ELLs and the program models that have served them. Next, the theoretical framework guiding the current study is discussed. Included in this framework are the threshold hypothesis, the developmental interdependence hypothesis, and the common underlying proficiency. The theoretical framework is followed by an overview of the reading process and the relationship oral language proficiency has with reading comprehension. The influence of L2 vocabulary, L2 listening comprehension, and L2 language on L2 reading comprehension is reviewed, followed by the cross-linguistic relationship of these elements of oral language. The review concludes with a summary of the trends and patterns in the research.

The Premise of Bilingual Education

An Historical View of Educating ELLs

Slavin and Cheung (2005) stated, "The reading education of ELLs has become one of the most important issues in all of educational policy and practice" (p. 247).

Bilingual education, in its various forms, has been an instructional option to teach academic subjects to non-native English speakers since the inception of our nation (San Miguel, 2004). Prior to the 1960s, state and local entities rather than the federal government made the decisions about language use. (San Miguel, 2004). The 1960s, however, brought about a significant shift in the literature regarding the impact that bilingualism has on intelligence, and the influence native language could have on second language acquisition. In addition, the Elementary and Secondary Education Act, a federally funded bill, was passed in 1965 in an effort to end poverty in America by focusing educational efforts on children of deprived economic backgrounds. In conjunction with the Elementary and Secondary Education Act, the emerging research on bilingualism, and a 1966 National Education Association report publicizing the negative effect schools are having on Mexican American culture and school performance, the Bilingual Education Act of 1968 was enacted.

In 1968, the Bilingual Education Act pushed for the teaching of the Spanish language and culture (Lessow-Hurley, 2005). This Act encouraged local schools to recognize the needs of limited English students and provided financial assistance for innovative programs to address these needs. Problems within the Act were immediately apparent. First, funding of the bill was minimal to other initiatives. Participation of local schools was voluntary, and it focused on students who had limited English and were living in poverty. There was no clear purpose to the Act and no particular techniques were required to receive these funds (San Miguel, 2004).

The Bilingual Education Act was reauthorized in 1974 in an effort to remediate some of the concerns with the 1968 Bill. Funding increased dramatically. The reauthorization focused on building capacity for local schools to provide bilingual education rather than simply funding innovative programs. This change in funding provided for teacher training, curriculum development, research and data gathering, and federal administration of bilingual programs. Poverty was eliminated as a qualifying category and English speakers were allowed to participate. In addition, bilingual education was defined as the use of native language for instruction and cultural appreciation. Specificity of the role of the native language, however, was still unclear at the time and no direction was given towards appropriate methodologies or approaches to instruction.

The role of the federal government in education continued to grow during this time. The first court case came about in 1974, claiming discrimination based on language (Lessow-Hurley, 2005). The case of *Lau v. Nichols* (1974) set the precedent for bilingual education as a civil rights concern, stating that instructional services should be delivered in a language that students could understand.

In the 1980s the Office of Planning, Budget, and Evaluation first conducted a study that concluded that the number of ELLs eligible for services was actually lower than reported previously (Barnes, 1981). A subsequent study further concluded that the majority of eligible children were already being served in bilingual programs or the population of eligible students was scattered enough to make serving them difficult (Milne & Gombert, 1981). The effectiveness of serving students in their native language

was also challenged by Rosenthal, Milne, Ginsberg, and Baker (1981), who noted that many factors influence the underachievement of ELLs beyond limited language. Studies during this time also noted the cost constraints of bilingual programs (Birman & Ginsberg, 1981) and the difficulty in hiring qualified bilingual teachers (Reisner, 1981). The studies concluded that (a) transitional bilingual education should not be the sole approach encouraged by federal policy, (b) state and school districts should have greater discretion to decide which type of special program is most appropriate for their unique setting, (c) the constraints facing states and districts in providing services to language minority children should not be ignored, and (d) improved bilingual research and program evaluations should be conducted (San Miguel, 2004). These reports resulted in significant decreases in funding and in the number of ELLs served in bilingual programs, and eliminated the mandate of native language instruction.

The mid 1990s shifted language policy back to the support of bilingual education. The reauthorization of the Bilingual Education Act, Public Law No. 103-382, took place in 1994 and promoted proficiency in more than one language as well as multicultural understanding. Public Law No. 103-382 (1994) states:

> Quality bilingual education programs enable children and youth to learn English and meet high academic standards including proficiency in more than one language. As the world becomes increasingly interdependent and as international communication becomes a daily occurrence in government, business, commerce, and family life, multilingual skills constitute an important national resource, which deserves protection and development. (Sec 7102)

In 2001, President George Bush signed into effect the No Child Left Behind Act. More specifically, it is referred to as "An act to close the achievement gap with

accountability, flexibility, and choice, so that no child is left behind" (NCLB, 2001). NCLB requires that states demand the same academic standards for all schools and all students and holds them accountable for demonstrating adequate yearly progress. English language learners are permitted three years of testing in the native language because such testing yields more evidence of student mastery of content objectives. Once this 3-year period is reached, ELLs are required to demonstrate academic performance in English. While NCLB does not specifically deny the use of the native language as a method of instruction for ELLs, the increased accountability and standards for English proficiency are clearly outlined in this mandate.

Bilingual education raises emotional, social, political, and economical questions and because of that, it is one of the most contentious and misunderstood educational programs in the United States (San Miguel, 2004). Funding has made research on educating ELLs available in order to begin building a base of pedagogical studies, but considerable controversy remains not only among educators, but also among policy makers and researchers about how to guarantee the success of ELLs in the United States (Slavin & Cheung, 2005).

Program Models Serving ELLs

The education of ELLs has been at the center of political controversy for many years (San Miguel, 2004). The primary area of contention is whether and how children's first language should be used for instructional purposes (Francis, Lesaux, & August, 2006). Lessow-Hurley (2005) noted, "Popular conceptions of our national identity

determine the context in which language policy and language resistance comes into existence" (p. 137). Proponents of bilingual education emphatically agree that the native language should be used as a vehicle for second language learning because it enhances cognitive development (Hakuta & Diaz, 1995). Opponents of bilingual education contend that time spent in the native language is valuable time lost in learning English (Diaz & Klingler, 1991; Rossell & Baker, 1996). Studies on the effectiveness of bilingual and English-only programs during the last 25 years report strikingly different conclusions (Slavin & Cheung, 2005).

Programming for ELLs in public school falls into two distinct categories: English immersion or bilingual programs (Slavin & Cheung, 2005). English immersion programs rely solely on English-only instruction, whereas bilingual programs utilize and teach in the native language for a time span before transitioning students to English-only instruction. According to Francis et al. (2006), each of these broad programming categories encompasses several types of program designs with significant variability in implementation so that individual programs can meet their particular student needs as well as align with the context and the philosophy of the community. They also stated that program designs reflect the community's goals regarding the acquisition of English and benefits of bilingualism, parents' SES status and educational background, and students' age and prior schooling.

English immersion. English immersion programs exclusively teach in English and utilize English-only materials and resources (Soltero, 2004; Genesee, 1999). These programs differ in their level of support for ELLs but maintain the premise of limited to

no native language use for instruction. Some programs are referred to as *submersion* programs. In these programs, students are typically placed with monolingual English peers and denied any specialized provisions or assistance for English language learners (Slavin & Cheung, 2005; Ovando & Collier, 1999). Schools may choose to place all ELLs in one classroom or integrate students into the mainstream classroom. Other programs may employ a bilingual teaching assistant to provide occasional translation or explanation in the native language. Some schools utilize English as a Second Language pullout programs in which ELLs are pulled from their monolingual classroom for a period of the day to work on their developing English language skills (Soltero, 2004).

Bilingual programs. Native language instruction is the fundamental difference between bilingual and English immersion programs (Slavin & Cheung, 2005). This approach is grounded in the argument that the competencies in the native language, specifically as they relate to decontextualized language skills, provide a critical cognitive base for second language acquisition and academic learning (Hakuta & Garcia, 1989). Typical program designs fall under two broad categories: transitional bilingual programs and two-way bilingual programs (Francis et al., 2006). Transitional bilingual programs and two-way bilingual programs diverge in their philosophy, goals, length of implementation, amount of use of each language, and student composition (Crawford, 1999).

In transitional bilingual programs, students learn to read in their native language while developing English oral language proficiency. These types of programs fall along a continuum of native language support linked directly to program goals. They are

typically categorized as subtractive or additive in nature in respect to the native language (Lessow-Hurley, 2005; Soltero, 2004; Genesee, 1999). The goal of early exit transitional bilingual programs is acquisition of sufficient English language in order to transition quickly to grade-level performance in the mainstream English-only classroom (Soltero, 2004). In this model, students are taught to read initially only in Spanish and then transitioned to English reading. This transition to English-only reading takes place typically within the first three years of schooling (Francis et al., 2006; Lessow-Hurley, 2005).

Moving along the continuum of native language support are developmental bilingual programs. The goal of a developmental bilingual program is strong English proficiency and high academic achievement (Genesee, 1999). In contrast to an early-exit program model, developmental bilingual programs continue native language instruction while gradually and systematically increasing English instruction (Lessow-Hurley, 2005). The literature refers to these programs as one-way dual, maintenance, or late-exit programs. While students spend more time in the native language, this program is still subtractive in nature because students eventually exit to mainstream, English-only classrooms (Soltero, 2004).

Two-way bilingual programs combine both native language speakers of English and ELLs, typically Spanish speakers. The goal of this program is the acquisition of biliterate, academic, multicultural, and social competencies (Soltero, 2004). This type of program teaches students to read in both English and Spanish simultaneously during different times of the day (Slavin & Cheung, 2005).

Theoretical Framework

The majority of current bilingual research, and thus support for bilingual education programs, is grounded in three major theoretical perspectives: (a) the threshold hypothesis, (b) the developmental interdependence hypothesis, and (c) a common underlying proficiency (Cummins, 1979). The threshold hypothesis posits that cognitive benefits result from high levels of proficiency in the native and second language. The threshold symbolizes the crucial level of second language proficiency at which the cognitive benefits of bilingualism can be attained as the second language interacts with the academic proficiency in the native language. ELLs who develop low levels of bilingual competence would acquire neither negative nor positive effects on cognitive development, while learners who develop minimal levels of competence in either one or both languages would suffer negative cognitive effects. Cummins (2000) explained further:

> If students have not developed sufficient access to academic registers in either of their two languages, and if the instruction does not provide the support students need to develop this access, then their academic, linguistic, and cognitive development will not be stimulated through their classroom interaction. (p. 106).

Expanding upon the knowledge of the essential levels of native and second language proficiency necessary to acquire the cognitive benefits of bilingualism, the developmental interdependence hypothesis (Cummins, 1979) explained how the second language could be developed while spending instructional time in the native language. It is based upon the premise that there are core cognitive and academic proficiencies common across all languages. This is referred to as the common underlying hypothesis

(CUP). Development of proficiency in the second language is partially a result of the level of competence in the native language at the time formal instruction in the second language begins. Children learning a second language turn to their knowledge of the first language-its grammatical structures, linguistic categories, and functions. They use whatever analytic skills they can to figure out relations between forms, functions, and meanings (Wong & Fillmore, 1991). This hypothesis is commonly referred to in the literature as cross-linguistic transfer. Cross-linguistic correlations between English and Spanish have consistently been found in phonological awareness (Cisero & Royer, 1995; Durgunoğlu, Nagy, & Hacin-Bhatt, 1993; Manis, Lindsey, & Bailey, 2004) and decoding (August, Calderon, & Carlo, 2001; Lindsey, Manis, & Bailey, 2003). An exacting definition of transfer, as defined by August et al., (2001), would include an adequate level of L1 literacy, coupled with control for L2 ability in a longitudinal design.

Critical to each of these hypotheses as they relate to bilingual education is the understanding of the nature of the development of language proficiency. Language is initially established in a natural context. It is embedded in everyday communication with situational and paralinguistic clues (Cummins, 1981). This type of language is referred to as basic interpersonal communication skills (BICS). BICS do not reflect the cognitive and academic demands necessary for literacy tasks. Literacy tasks often involve decontextualized language, which is void of interpersonal cues. This type of language proficiency is referred to as cognitive academic language proficiency or CALP (Cummins, 1981). In order for students to reap the cognitive benefits of bilingualism as

described in the threshold hypothesis and developmental interdependence hypothesis, the language proficiency described in both of these models must refer to a level of proficiency as it relates to CALP rather than BICS.

Understanding the theoretical constructs of developing bilingualism is critical for not only building a comprehensive theory of second-language literacy but it serves practical application in designing pedagogical interventions that support and facilitate the learning of English (Genesee, Lindholm-Leary, Saunders, & Christian, 2006). Unlike their monolingual peers, ELLs bring with them linguistic and/or academic competencies in their native language. These additional resources in both the oral and written form bring challenges to researchers in developing pedagogical perspectives that take into account the influence of the native language. Researchers cannot isolate the development of English literacy from the ongoing development of language and literacy in the native language.

The Reading Process

The ultimate outcome of effective reading instruction is reading comprehension, allowing the transition from *learning to read* to *reading to learn*. The reading process is a complex one simplified as a linear combination of decoding and linguistic competence (Gough & Tunmer, 1986). Decoding is the analysis and translation of printed words into the sounds of language. Linguistic competence, or oral language proficiency, encompasses phonology, morphology, syntax, semantics, vocabulary, and pragmatics.

Research on the influence of oral language proficiency in young readers is mixed. On one front, researchers attest that beyond phonological awareness, there is little effect of oral language proficiency on reading (Roth, 1996), while others affirm that additional aspects of oral language, such as syntax and semantics play critical roles in early reading development (Bishop, 1991; Bishop & Adams, 1990; Catts, Fey, Zhang, & Tomblin, 1999). As children age, however, the research becomes more consistent, showing a greater relationship between oral languages and reading comprehension (Gillion & Dodd, 1994).

For ELLs, increased English oral language proficiency correlates with higher levels of English reading comprehension. Oral language proficiency measures increase in significance as they relate more closely with academic aspects of oral language (Saunders & O'Brien, 2006), and assumes increasing importance as children become more facile decoders and read increasingly context reduces and cognitively demanding L2 text (Cummins, 1986; Nation, 2001). Studies of the relationship of English oral language proficiency on English reading comprehension with English language learners have examined primarily three elements of oral language: vocabulary, grammar, and listening comprehension (Geva, 2006). These variables encompass what is referred to as academic language proficiency. "Academic language proficiency is the language used in classrooms and other academic settings for the purpose of acquiring knowledge (Stevens, Butler & Castellan-Wellington, 2000, p. 5)." It is the language learners need to be able to access and talk about learning.

The role of L2 academic language proficiency in L2 reading comprehension cannot be investigated without considering the influence native language has in second language acquisition. The majority of L2 literacy research takes into account the ELLs' native language and includes measures of native language proficiency. The measures of L1 oral language, however, are inconsistent and scattered. These include global measures, such as use outside of school and family literacy practices, as well as more academic measures such as standardized tests and norm-referenced measures (Riches & Genesee, 2007).

Cross-linguistic Transfer

The L1 of bilingual readers lays the foundation for the acquisition of L2 language and literacy, as posited by Cummins' (1979) common underlying proficiency. A research base is beginning to address the concept of cross-linguistic transfer of L1 proficiencies to L2 proficiencies. Grounding this research, as mentioned previously, is the framework of an interdependent hypothesis developed under the premise of a common underlying proficiency among languages. Cummins argued that language skills used for literacy-related tasks that are context reduced and cognitively demanding are developmentally interdependent. These academic language skills are comprised of common underlying proficiencies that learned in L1 are readily available in L2 (Cummins, 2000).

Research in cross-linguistic transfer has focused principally on how L1 competencies influence L2 competencies. Little attention has been given specifically to

the influence of L2 proficiency on L1 proficiency in English/Spanish bilinguals. It would make sense, however, that the cognitively demanding language and literacy skills firmly developed in L2 would benefit L1 literacy because of their common underlying proficiencies. For the purpose of this review, cross-linguistic relationships as they relate to the academic language proficiency variables of vocabulary, grammar, and listening comprehension will be discussed along with the cross-linguistic nature of reading comprehension.

Vocabulary. Cross-linguistic effects of vocabulary knowledge and reading comprehension indicate mixed results. Swanson, Rosston, Gerber, and Solari (2008) found that Spanish expressive vocabulary was negatively correlated with English reading comprehension. As noted in the cross-linguistic study of bilingual first graders conducted by Lindsey et al. (2003), L1 vocabulary acquired in kindergarten and first grade did not correlate with later L2 reading comprehension.

While some research of cross-linguistic transfer as it relates to vocabulary and reading comprehension shows negligible significance, consistent patterns of cross-linguistic relationships are emerging from the literature that do indicate a cross-linguistic relationship among vocabulary and reading comprehension. A strong L1 vocabulary foundation serves not only as a predictor of L2 vocabulary knowledge, but also as a predictor for L2 reading comprehension. Proctor, Carlo, August, and Snow (2006) conducted a study with 135 Spanish-English bilingual fourth graders in large, urban elementary schools and examined the effects of Spanish vocabulary knowledge on English reading comprehension. Students' vocabulary was measured in Spanish using a

standardized expressive vocabulary test and their reading comprehension was measured

using a standardized reading test of passage comprehension.. Results indicated that, once

language of instruction and L2 component skills were controlled for, L1 vocabulary

knowledge enhanced L2 reading comprehension. It was also found that students with

average to advanced L2 fluency scores had stronger correlations between their L2

reading comprehension and L1 vocabulary. The authors concluded that the more fluent

reader would have more cognitive energy that can be put forth to meaning, which allows

the L1 vocabulary to serve as a resource for this task. While the results from their study

indicate significant correlations between L1 vocabulary and L2 reading comprehension,

these results must be interpreted with care. All three sites used in the study utilized the

Success for All curricula as their literacy programs. However, the overall instructional

philosophies were not consistent. Initial language of instruction within the sample was

English for some children and Spanish for other children. In addition, data were

collected and interpreted at a single point in time with no regard to the developing nature

of L1 and L2.

With continued research, researchers have determined very specific aspects of L1

vocabulary knowledge that are influential on not only L2 vocabulary but also on L2

reading comprehension. Awareness and effective use of cognates as well as the ability to

define words paradigmatically are aspects of L1 vocabulary that appear to be beneficial

in L2 reading vocabulary and comprehension. Nagy, Garcia, Durgunoğlu, & Hancin-

Bhatt (1993) established a connection between Spanish vocabulary and cognate ability

with L2 reading comprehension in a study of 74 fourth, fifth, and sixth grade Spanish-

English bilingual students enrolled in both bilingual and English-only programs. The principal objectives of this study were to determine whether a relationship existed between students' reading vocabulary in Spanish and reading vocabulary in English, and if that relationship was related to cognate recognition. Measures included Spanish and English vocabulary lists in which students indicated whether they had knowledge of a word. Vocabulary knowledge was also measured in context through a multiple-choice test. Cognate awareness was evaluated through a test in which students circled words they identified as cognates. Results indicated that students' general Spanish vocabulary knowledge was significantly related to students' L2 vocabulary and reading comprehension. In addition, it was found that students' Spanish vocabulary knowledge in conjunction with their ability to identify words as cognates made the greatest impact on L2 vocabulary and reading comprehension. Nagy et al. (1993) concluded that Spanish vocabulary knowledge could transfer to English reading when students know the word in Spanish and can identify the English word as a cognate.

Furthering the research on cognate use in reading comprehension, Jiménez et al. (1996) drew a parallel between assessing cognate vocabulary and successful reading comprehension in their qualitative study of reading strategies employed by 11 bilingual students. Students were identified as either successful readers of English or marginal readers of English by school personnel. Think-aloud protocols were used as tools to analyze the strategies these students employed during reading. The protocols revealed that consistent among the students identified as successful readers was the active and deliberate searching for and use of cognates to make meaning. Think-aloud transcripts

indicated the intentional identification of words in one language to use as a support in the other language.

Accumulating research regarding specific aspects of vocabulary knowledge shown to influence reading comprehension across languages has linked the ability to define words with reading comprehension. The knowledge demonstrated that producing formal definitions presents an awareness of decontextualized language that is necessary for reading comprehension. Carlisle et al. (1999) conducted a study of 67 first, second, and third grade bilingual students enrolled in English-only classrooms in which they analyzed the definitions students provided to 10 words in English and Spanish. In addition, they measured the breadth of their English vocabulary through the Peabody Picture Vocabulary Test and their Spanish vocabulary through the Test de Vocabulario en Imágenes Peabody. English reading comprehension was measured using the subtests in the California Achievement Test. Results showed that the ability to give formal definitions in one language related to the same ability in the other language, but the ability to give informal definitions was not related across languages. In addition, they found that this skill showed growth by grade level, indicating that this skill develops over time. L1 vocabulary was also shown to account for significant variance in English reading comprehension.

Durgunoğlu, Peynircioğu, and Mir (2002) explored the cross-linguistic correlation of formal definition quality with reading comprehension in 26 fourth grade Spanish-English bilingual students recently exited from bilingual education and receiving English-only instruction. Researchers analyzed students' ability to provide

quality formal definitions of words in English and Spanish and scored those against a predetermined framework. Spanish and English reading comprehension scores were acquired through multiple choice and short-answer tests that were completed after reading expository passages. Researchers reported significant results for across language correlations of formal definitions, meaning that the ability to define words formally in one language correlated with the same skill in the other. A significant correlation was also noted between English reading comprehension and the quality of Spanish definitions.

In a similar study, Ordóñez et al. (2002) examined students' capacity to demonstrate a range of knowledge about highly familiar words in both English and Spanish. The researchers gathered information on students' syntagmatic and paradigmatic responses in both English and Spanish to examine their cross-linguistic relationships from 88 bilingual fourth and fifth grade students served in bilingual and English-only classrooms. Students were asked to tell about six high-frequency concrete nouns. Paradigmatic responses represent the types of linguistic demands required in literacy and other school-based tasks by referring to objects as they fit into a hierarchical taxonomy, whereas syntagmatic responses refer to an object in relation to its appearance or use. Researchers found that superordinate knowledge in Spanish, or pragmatic responses, correlated with the same skill in English; however, syntagmatic knowledge and communicative adequacy did not show such a correlation. Researchers also found that the effect of the Spanish paradigmatic responses was dependent on the breadth of vocabulary. Both Spanish and English vocabulary showed to be instrumental in these

effects, but breadth of Spanish vocabulary was critical to the correlation of Spanish superordinate knowledge with English superordinate knowledge. While these results indicate cross-linguistic transfer of paradigmatic responses, it is important to note that the analysis was correlational, which did not control for the effects of L2 language proficiency.

Syntax. Syntax refers to the appropriate use of word forms to produce grammatically correct sentences. It plays a critical role in reading comprehension, working in conjunction with vocabulary to guide the integration of text representation and semantic relationships to construct meaning. Grammatical functions and syntactic structure carry the meanings in sentences that must be extracted by the readers when analyzing the meaning of a sentence (Kako, 1999). A limited number of studies have investigated the nature of the relationship with syntax and reading comprehension in bilinguals. Durgunoglu et al. (2002) previously found that awareness of syntax in one language correlates with syntax skills in the other language. In their study, students listened to and read a sentence, then corrected the syntactic error in the sentence. The types of errors included verb tense, inflection, word order, and pluralization. The measures of English and Spanish syntax were correlated ($r = .44$); however, their study neglected to analyze the relationship between syntax and reading comprehension.

Swanson et al. (2008) examined the role of the knowledge of syntax in both the native and second language on both L1 and L2 reading comprehension of 68 third grade students receiving English-only instruction. The Morphological Closure subtest from the Illinois Test of Psycho-linguistic Ability III was used as a measure of syntactical

knowledge. Reading comprehension was measured in both English and Spanish, using the Woodcock-Reading Mastery Test-Revised. A hierarchical regression analysis found that third grade bilingual readers with high Spanish syntax scored high on English reading comprehension. While the results for this study are positive, it is important to note that negligible information was provided on students' native language proficiency or the types of instructional programs they had been served in prior to this study.

Listening comprehension. Listening comprehension requires the same cognitive skills as reading except that it does not require the process of decoding printed text. While the research clearly indicates that L2 listening comprehension is a significant predictor of L2 reading comprehension, the influence of L1 listening comprehension on L2 reading comprehension is unclear. In the Proctor et al. (2006) study discussed previously, the effects of L1 listening comprehension on L2 reading comprehension were investigated. L1 listening comprehension was isolated and measured using the Woodcock-Munoz listening comprehension subtest. Results indicated that L1 listening comprehension did not have a significant effect on L2 reading comprehension.

Nakamoto et al. (2008) conducted a longitudinal study with 250 elementary English/Spanish bilinguals examining the association of L1 oral language with L2 reading comprehension. L1 oral language served as a latent variable comprised of L1 listening comprehension and L1 vocabulary in a structural equation modeling analysis. In the third grade, the observed variables vocabulary and listening comprehension combined to form the latent variable oral language. This analysis revealed a weak positive correlation between English and Spanish oral language ($r = .28$). English and

Spanish listening comprehension shared an unanalyzed association of r = .36. Sixth grade analysis revealed that once the within language variables were accounted for, no cross-linguistic associations were detected.

A study conducted by Beeman (1993), however, supported the notion that L1 listening comprehension does transfer across languages and contributes to L2 reading comprehension. In the study, L1 listening comprehension and L2 listening and reading comprehension were measured in 18 Spanish-speaking, bilingual fifth graders served in a dual language program. Measures were taken during the fall and spring of the students' fifth grade year using the Bilingual Listening and Reading Test. Correlational analysis revealed a significant correlation between Spanish listening comprehension and English listening comprehension (r = .82). In addition, Spanish listening comprehension and English reading comprehension has a significant correlation (r = .629). A further stepwise regression analysis indicated that the fall Spanish listening comprehension accounted for 32.5% of the variance on the spring English reading comprehension. The authors concluded that once English decoding is acquired listening comprehension becomes more significant.

The majority of cross-linguistic research utilizing L1 listening comprehension as a predictor variable for L2 reading comprehension often includes other variables of oral language. Most studies do not report L1 listening comprehension as a single, significant predictor of L2 reading comprehension (Proctor et al., 2006). Studies may attribute a small unique variance in L1 listening comprehension as a combined oral language measure in L2 reading comprehension (Miller, Heilmann, Nockerts, Iglesias, Fabiano, &

Francis, 2006; Proctor et al., 2006), but L2 variables mediate the L1 contribution, making L1 listening comprehension insignificant in L2 reading comprehension (Manis et al., 2004; Nakamoto et al., 2008).

Reading comprehension. Metacognition is a critical element to the successful comprehension of literature. Most of the literature suggests that there is some relationship between L1 and L2 reading comprehension skills. Lindsey et al. (2003) studied the relationship between L1 and L2 reading comprehension in 303 English-Spanish bilinguals being served in a transitional bilingual program. Spanish reading comprehension was measured using the Woodcock and Munoz-Sandoval test, and the English reading comprehension was measured using the Woodcock-Johnson test. Correlational analysis indicate that at the end of first grade, L1 and L2 reading comprehension had a significant correlation ($r = .61$).

Proctor et al. (2006) found similar results in their study, which was previously highlighted. Using the Woodcock-Johnson and the Woodcock and Munoz-Sandoval tests, a positive correlation was found between L1 and L2 reading comprehension ($r = .25$). While both of these studies yield positive results, it is worth noting that a correlational analysis does not take into account the contribution of other variables.

Within Language Effects

The relationship between academic language proficiency and reading comprehension is highly complex when referring to ELLs and second language acquisition as compared to monolingual readers (Riches & Genesee, 2006). The

significance of L2 academic language proficiency on L2 reading comprehension may be comprised of specific elements of L2 academic language proficiency working in conjunction with the native language (Peregoy & Boyle, 1991). While L2 academic language proficiency will be discussed here apart from L1, it is important to be consistently mindful of the fact that because of the ever-present native language, L2 academic language is not truly acting in isolation.

Vocabulary. Vocabulary knowledge is one component of oral language that has shown to be a significant predictor of reading comprehension in monolingual research. In their meta-analysis on the effectiveness of vocabulary instruction on reading comprehension, Stahl and Fairbanks (1986) found that vocabulary linked to contextualized and definitional knowledge, processing of vocabulary at deep levels, and increased exposure to vocabulary correlated to significant gains in reading comprehension. These instructional practices parallel the type of vocabulary knowledge in both L1 and L2 that have shown to be significant predictors of L1 and L2 reading comprehension in recent research.

There are two dimensions of vocabulary: breadth and depth. Breadth of vocabulary, or lexical knowledge, refers to the number of words known by a reader (Ordóñez, Carlo, Snow, & McLaughlin, 2002). In research with ELLs, breadth of L2 vocabulary correlates with L2 reading comprehension (Saville-Troilke, 1984; Proctor et al., 2006; Carlo, August, McLaughlin, Snow, Dressler, Lippman, Lively, & White, 2004; Carlisle et al., 1999). Lexical knowledge encompasses both a reader's receptive and expressive vocabulary. It is measured through commonly standardized instruments such

as the Peabody Picture Vocabulary Test or the Picture Vocabulary subtest of the Woodcock-Johnson Test. These instruments provide a single score indicating a reader's overall knowledge of general vocabulary. Lindsey et al., (2003) investigated the influence of L2 vocabulary on L2 reading comprehension in Spanish-speaking ELLs enrolled in an early-exit transitional bilingual program. Measures were acquired during three time points spanning from the beginning of kindergarten to the end of first grade. Vocabulary was measured in English through the Picture Vocabulary subtests of the Woodcock-Johnson test. These measures were used to predict later reading in first grade as measured through the Passage Comprehension subtest of the Woodcock-Johnson test. Results indicated that L2 vocabulary correlated significantly with later L2 passage comprehension ($r = .44$). This correlational analysis does not take into account any of the variance that might be accounted for by the native language.

From the research, definable characteristics of CALP are emerging, making it clear what types of vocabulary skills are necessary for ELLs to be successful readers. The depth of an ELLs' L2 vocabulary correlates significantly with L2 reading comprehension (Kieffer & Lesaux, 2008; Miller et al., 2006; Carlo et al., 2004). Depth of vocabulary reflects the extent to which a reader can represent the various elements of any given word. The elements of lexical representation include (a) knowledge of syntactic structures of a word, (b) its orthographic representation, (c) its morphological structure, (d) its semantic representation, and (e) pragmatic rules for using a word (Ordóñez, et al., 2002).

Carlo et al. (2004) investigated the impact of a 15-week English vocabulary intervention on English reading comprehension. One hundred forty-two fifth grade Spanish-speaking ELLs from California, Virginia, and Massachusetts participated in this study. The students were served in either bilingual or mainstream classrooms. The intervention procedure consisted of 10-12 target words being taught each week in 30-45 minute sessions four days per week. The intervention was organized around the theme of immigration. The target words were taught through meaningful context and lessons included activities on polysemy, strategies for inferring word meaning, and tools for morphological and cross-linguistic analysis. Reading comprehension was measured using multiple-choice cloze passages. Results indicated the vocabulary intervention was effective in improving the reading comprehension of the participants. Site comparisons in this study also indicated significant differences in results. The authors noted the differences between the sites included differences in demographics, organization for schooling ELLs, and fidelity of implementation of the intervention. It was concluded that despite the differences between sites and fidelity of implementation, "the effectiveness of the vocabulary intervention was quite resistant to disruption from other influences" (p. 203).

Morphological awareness is an understanding of the structure of words and their connections to different morphological forms of words. According to Kieffer and Lesaux (2008), it is not only the ability to recognize the origin or root of a word, but also the ability to manipulate that word, recognize connections between other forms of the word, and create new and appropriate forms of the word based on a deep understanding of its

origin. They examined the relationship between English morphological awareness and English reading comprehension between the fourth and fifth grade of 87 Spanish-speaking ELLs enrolled in transitional bilingual programs. The investigators utilized morphological awareness as a measure of a learner's depth of vocabulary as it refers to his ore her understanding of the structure of words and their connections to different morphological forms of words. English morphological awareness was measured through a decomposition task in which students had to extract the base word from four different categories of derived words. The four relationship categories between derived word and base word were: (a) no shift in orthography or phonology, (b) orthographic shift but no phonological shift, (c) phonological shift but no orthographic shift, and (d) both a phonological and a orthographic shift. English reading comprehension was measured through the Woodcock Language Proficiency Battery-Revised Passage Comprehension. Results indicate that morphological awareness had a small effect on reading comprehension in the fourth grade, but had a substantial and significant effect on reading comprehension in fifth grade. This effect was independent of breadth of vocabulary. As ELLs read, the ability to utilize morphological awareness as they encounter new or unknown words may assist in improving overall reading comprehension (Kieffer & LeSaux, 2008). In addition, the researchers found that if readers are equipped to analyze words and dissect complex words while reading, it might lead to an overall increase in breadth of vocabulary, therefore improving reading comprehension.

   Syntax. An understanding of English grammar facilitates reading comprehension via the use of linguistic cues to determine word meaning (Stoller & Grabe, 1995). As

previously noted in Swanson et al. (2008), hierarchical regression analysis indicated that English vocabulary and syntax were the best predictors of English reading comprehension.

Listening comprehension. Listening comprehension is a reasoning process that requires the same abilities as reading comprehension but exclusive of print. Few studies have isolated listening comprehension as a predictor of reading comprehension with bilingual readers. An intervention study conducted by Solari and Gerber (2008) examined the effect of targeted listening comprehension instruction on 82 kindergarten ELLs. The intervention included direct, explicit instruction in summarization, main idea, fact recall, prediction, and inferencing. Comprehension was measured using the Woodcock-Johnson Story Recall test. Results indicate that students receiving the listening comprehension intervention outperformed the groups receiving other types of interventions. Although this study clearly indicates the effectiveness of listening comprehension instruction on the ability to recall a story, the measures assumed that story recall would later predict reading comprehension. As noted earlier, Proctor et al. (2006) found that English reading comprehension skills were the strongest predictor of English reading comprehension through structural equation modeling.

Instructional practices. While funding for bilingual programs does not mandate specifically what instruction with ELLs must look like, funding has produced studies that are developing an empirical base of information regarding the type of instruction necessary for ELLs to become successful in L2. For most children, explicit instruction about some aspects of reading is needed, and second language learners may need this the

most (August & Shanahan, 2006). Second language learning differs from first language learning because it is more variable and dependent on the quality of the language-learning environment (August & Shanahan, 2006).

Research has repeatedly shown that naturalistic settings for language and literacy learning are more effective for ELLs (Krashen, 1981; Cummins, 2001). Beginning with Krashen's (1981) premise of comprehensible input, Cummins (2001) suggested extending the premise to include language-focused building parameters for effective instructional planning to improve L2 language learning and literacy acquisition. The pedagogical foundation poses a simultaneous focus on meaning, language, and use. A focus on meaning provides comprehensible input and develops critical L2 literacy. A focus on language helps ELLs create an awareness and critical analysis of language forms and uses. A focus on use teaches the power of language through opportunities to use language to generate word knowledge, create literature and art, and act on social realities.

A few large-scale quantitative vocabulary intervention studies have produced positive results in regards to reading comprehension. Carlo et al. (2004) conducted a 15-week English vocabulary intervention study with 254 bilingual and monolingual fifth graders. Results from the intervention indicate an increase not only in breadth and depth of vocabulary knowledge, but also in reading comprehension as well. The authors note that effective vocabulary learning and increased reading comprehension was a result of direct vocabulary instruction that included these instructional strategies and techniques:

- new vocabulary was taught within engaging text;

- specialized activities allowed students to manipulate and analyze word meaning;

- heightened attention was paid to words;

- children were exposed repeatedly to new words;

- children were taught how a word meaning varies as a function of context; and

- children were taught strategies for inferring word meaning.

Summary

This chapter reviewed L2 literacy acquisition in ELLs as related to the historical and theoretical framework guiding bilingual education. Encompassing this framework is a comprehensive study of the influence of academic language proficiency across and within languages, as well as the influence of L1 reading comprehension on L2 reading comprehension. Pedagogical perspectives supporting the highest level of academic achievement in ELLs were also presented.

The review of the literature highlighted emerging trends regarding the nature of academic language proficiency necessary in developing the cognitive benefits of bilingualism. First, research involving vocabulary knowledge has revealed that beyond breadth of L1 vocabulary, depth of L1 vocabulary is vital to L2 vocabulary and reading comprehension. This depth of vocabulary encompasses knowledge and use of cognates, as well as morphological and syntactic awareness of words. In addition, knowledge of the hierarchical placement of words improves reading comprehension. This level of

word knowledge also summarizes the type of L2 vocabulary required for L2 reading comprehension. Finally, vocabulary knowledge increases in significance with reading comprehension as the age of the reader increases.

In conjunction with vocabulary knowledge, syntax was consistently shown to be related to reading comprehension both within and across languages, even though a limited number of studies included it. It can be reasoned that the similarity in word order between English and Spanish attributes to these results. The effects of listening comprehension on reading comprehension have mixed results both within and across languages. This variance in results can largely be attributed to the analysis or concerns with the particular sample.

The findings in this review are limited in multiple ways. Attention should be directed toward consistent and reliable measures of academic language proficiency. Academic language proficiency variables are not consistently measured in the literature, making it difficult to generalize. Vocabulary was measured through cognate translation tasks (Hancin-Bhatt & Nagy, 1994), multiple choice cognate tests (Nagy et al., 1993), think aloud (Jiménez, Garcia, & Pearson, 1996), teacher rating scales (Lanauze & Snow, 1989), and standardized assessments such as the Woodcock and Munoz Sandoval tests (Lindsey et al., 2003). Many studies combined observable variables such as vocabulary, syntax and listening comprehension into a single latent variable referred to as oral language (Nakamoto, Lindsey, & Manis, 2008; Swanson et al., 2008; Miller et al., 2006). Language and literacy are highly developmental, especially in bilingual students. Many studies analyze data at a single point in time or utilize cross-sectional research,

giving little attention to longitudinal research, and failing to take into account the how the two continuously developing languages influence each other (Carlisle et al., 1999; Proctor et al., 2006; Miller et al., 2006).

The majority of studies in cross-linguistic relationships employ error analysis, correlational/regression analysis, or between and within group comparisons (Genesee et al., 2006a). The complex nature of first and second language interaction, as well as the underlying cognitive abilities associated with learning, is not considered in these types of analyses. Additionally, these studies fail to utilize statistical techniques that provide for any type of causal model (Durgunoğlu et al., 2002; Miller et al., 2006).

The inconsistencies of variable measurement and statistical analysis, as well as the inconsistent implementation of programs also make it difficult to generalize the influence of academic language proficiency on reading comprehension outcomes. Many studies fail to describe the levels of language proficiency of the sample (Swanson et al., 2008; Carlo et al., 2004). Some studies obtain samples of students enrolled in transitional programs, English-only programs, or dual language programs. Due to the inconsistency of implementation of programs, as well as the failure of researchers to describe the instructional programs, many questions remain about the ability to generalize and compare the results to other populations.

CHAPTER III

METHODOLOGY

This chapter presents the methodology of the study. It includes sampling procedures, research design, context, instrumentation, intervention procedures, and data collection. The purpose of the current study was to examine the within and across language influence of L2 academic language proficiency on reading comprehension with ELLs in first, second, and third grade transitional bilingual education classrooms (TBE) longitudinally over a 3-year period. More specifically, the objectives of this research were to:

- examine the influence of the specific elements of L2 academic language proficiency on L2 reading comprehension;

- compare the influence of L2 academic language proficiency on L2 reading comprehension in the enhanced transitional bilingual education program (TBE-E) to the typical transitional bilingual education program (TBE-T);

- investigate the influence of L2 academic language proficiency and L2 reading comprehension gains with L1 reading comprehension; and

- compare the influence of L2 academic language proficiency and L2 reading comprehension gains with L1 reading comprehension in the TBE-E classrooms to the TBE-T classrooms.

Context of the Study

The current study is part of English Language Literacy Acquisition (ELLA) (R305P030032)[1], a federally funded research project, which took place in an urban district in Texas. The data were derived from archived data from ELLA files with no names identified. Eighty-five percent of students in the identified district were eligible for free or reduced-price meals, and hence, were identified as economically disadvantaged. Language support services were provided to 45% of the students who identified Spanish as their native language. Language support services for ELLs included SEI programs, TBE programs, and two-way immersion. Historically serving a large number of ELLs, the participating district was chosen for its commitment to consistent, district-wide program implementation as well as the availability of both transitional bilingual programs and structured English immersion.

In the participating district, ELLs whose native language was Spanish were eligible to be served in a late-exit TBE program. The typical practice in this district's TBE classrooms was to provide 45 minutes of ESL instruction daily. Typical language distribution was 70/30 (Spanish/English) in first grade, 60/40 in second grade, and 50/50 in third grade (Tong et al., 2008).

---

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

Research Design and Sampling

Project ELLA began during the 2003-2004 school year as a five-year longitudinal study targeting English language learners enrolled in either transitional bilingual programs or structured English immersion. The overall project was implemented in an urban Texas district. It included approximately 800 Spanish-speaking students who were identified as having limited English proficiency, according to state criteria as well as a Home Language Survey indicating Spanish was the primary language spoken in the home.

The Texas Education Code (1995) prohibits the random selection of individual students for program placement or research purposes. To maintain an experimental design, researchers in the larger study randomly assigned schools within the participating district that met the qualifying criteria of providing either TBE programs, structured English immersion (SEI) programs, or both. Twenty-eight schools met the qualifying characteristics. However, five schools were eliminated due to minimal parental consent and a limited number of students served in the programs. Eleven schools within the participating district were randomly assigned to the enhanced or experimental group and 12 schools within the participating district were randomly assigned to the typical or control group. Teachers in the selected schools were randomly selected for participation in the project. Project ELLA is considered both experimental at the school level and quasi-experimental at the student level.

For the purpose of the current study, only students enrolled in TBE classrooms and continuously enrolled from first grade to third grade were included. The total

sample consisted of 100 ELLs, with 57 students enrolled in treatment, TBE-E

classrooms, and 43 students enrolled in control classrooms, TBE-T classrooms, from 19

schools within the participating school district. The mean age of these students at the end

of third grade was eight years, three months. Table 1 outlines the number of schools,

classrooms, and students in their respective conditions, i.e., TBE-E or TBE-T

classrooms.

TABLE 1

Assignment of typical or enhanced TBE programs

	Enhanced	Typical	Total n
Schools	10	9	19
Classrooms	17	11	28
Students	57	43	100

Instrumentation

This study used archived data collected from Project ELLA via two instruments

that measured literacy attainment, the Iowa Test of Basic Skills (Hoover, Dunbar &

Frisbie, 1996) and Logramos (Logramos, 2006). The Iowa Test of Basic Skills (ITBS)

measured students' vocabulary, reading and listening comprehension, and language use

in English. In addition, the Spanish counterpart to ITBS, Logramos, measured reading

comprehension in the students' native language, Spanish.

Measures of L2 Proficiency

The ITBS is a standardized, norm-referenced test used to measure academic achievement in English. For the purpose of this study, scores from the Vocabulary, Listening Comprehension, and Language subtests of the ITBS were used to measure participants' English academic language proficiency.

Vocabulary. The vocabulary test, consisting of 32 questions, measures students' breadth of general rather than specific vocabulary. Reading vocabulary is the focus of levels seven and eight. Pictures or written words are presented and students must select the corresponding written answer. At level nine, students are presented with a word in the context of a phrase or sentence. Answer choices are synonyms of the selected word. Level seven has a Kuder-Richardson Formula 20 (K-R-20) reliability coefficient of 0.896, level eight has a reliability coefficient of 0.875, and level nine has a reliability coefficient of 0.885.

Listening comprehension. Short scenarios are presented in the listening test followed by questions that measure students' literal understanding, ability to infer, understanding of concepts and sequences, as well as students' ability to predict outcomes. There are 31 items on this test. Level seven has a K-R-20 reliability coefficient of 0.716 and level eight has a coefficient of 0.740.

Language. In the 42-question language test, students identify mistakes in spelling, capitalization, punctuation, and usage. Levels seven and eight include sentences read aloud by the teacher that contain mistakes in spelling, capitalization, punctuation, or usage. Conventions of standard written English are measures in levels 9-14. Level seven

has a K-R-20 reliability coefficient of 0.874, level eight has a coefficient of 0.891, and level nine has a coefficient of 0.878.

L2 reading comprehension. The Reading Comprehension subtest of the ITBS was administered to measure students' independent reading comprehension. Reading comprehension is measured by students' ability to answer questions about a picture that tells a story as well as written sentences and stories. There are 38 questions on this test. Level seven has a K-R-20 reliability coefficient of 0.916, level eight has a coefficient of 0.900, and level nine has a coefficient of 0.896.

Measures of L1 Proficiency

Logramos is a standardized, norm-referenced test used to measure academic achievement in Spanish. It measures reading, language, and math achievement and produces results in the form of percentile ranks, grade equivalents, and normal curve equivalents. This test was designed to parallel the scope and sequence of the ITBS. For the current study, only the reading comprehension subtest of this test was utilized.

The reading comprehension portion of Logramos measures how well students understand specified reading prompts. Levels seven and eight consist of three tasks. First, students look at a picture that tells a story and choose a word that best completes the sentence about that story. Second, students complete sentence stems to create a sentence with meaning. Last, students read short stories and answer comprehension questions about the stories. There are 34 questions on the reading comprehension test at level seven, and 38 questions at level eight. Level seven has a Kuder-Richardson Formula 20 (K-R-20) reliability coefficient of 0.872 for the fall and 0.907 for the spring.

Level eight had a K-R-20 reliability coefficient of 0.858 for the fall and 0.882 for the spring. Level nine requires students to read passages of poetry, fiction, biographical sketches, social studies selections, science materials, and topics of general interest and then answer multiple choice comprehension questions. There are 41 questions on this test. Level nine has a K-R-20 reliability coefficient of 0.845 for the fall and 0.874 for the spring.

Intervention Procedures

The English language intervention that took place in the TBE-E classrooms in Project ELLA included three levels of scaffolded support. Tier I of the intervention consisted of the regular classroom instruction (typically implemented in the district) in the content areas. Tier II was the English (ESL) intervention, and Tier III was a small group intervention developed for students struggling to learn English. Further description follows.

Tier I

Tier I referred to the general curriculum that was taught in the classrooms. The students presented in this study were all served in transitional bilingual classrooms. This project sought to carefully and thoughtfully transition content areas previously taught in Spanish to English throughout the grade levels. In first grade, all content areas (language arts, math, science, and social studies) were taught in Spanish with formal English instruction beginning in the second semester of the school year. The first semester of

second grade continued with English language arts and all other content areas taught in Spanish, but included math in English during the second semester.

Project ELLA also sought to gradually and consistently increase instructional time spent in English. The language distribution in the TBE-E classrooms was adjusted from typical practice. The distribution for the TBE-E classrooms was 60/40 (Spanish/ English) in first grade, 50/50 in second grade, and 40/60 in third grade, whereas, the language distribution was 70/30, 60/40, and 50/50, respectively, in the TBE-T classrooms.

Tier II

Tier II consisted of the English intervention intended to develop highly effective and consistent ESL instruction for ELLs. The English intervention presented in this study utilized three consistent components of ESL instruction at all grade levels. This first component was a research-based curriculum used to teach the content areas in English. The second component served to develop comprehension and expressive language skills through higher order thinking skills. The third component was designed to develop oral language skills. In kindergarten, the ESL component totaled 75 minutes and 90 minutes daily in first through third grade.

Content area instruction. Research-based curriculum was used to teach English in the content areas. In first grade, the Santillana Intensive English curriculum (Ventriglia & González, 2000) was used to teach content areas in English. In second grade, teachers utilized the Early Intervention in Reading Level II curriculum (Mathes & Torgensen, 2005).

Santillana Intensive English's major objective is to increase students' vocabulary knowledge in English through thematic lessons covering a four-day period. Teachers introduce vocabulary words from lesson cards and deliver structured lessons developed by the research team. These lessons included stories read aloud to students, leveled comprehension questions, and opportunities to practice the new vocabulary with the teacher and in small group role-play situations. Santillana activity books gave students the opportunity for independent or group practice of the newly acquired language or skills. On the fifth day, the teacher provided extension or re-teach opportunities in the areas of student need observed throughout the four-day unit.

The Early Intervention in Reading (EIR) Level II curriculum (Mathes & Torgensen, 2005) served to build students' fluency and reading comprehension. This was done through the simultaneous building of alphabetic principle and comprehension strategies. The curriculum contained 120 lessons carefully sequenced and segmented to develop mastery in phonemic awareness, letter-sound correspondence, word recognition, spelling, fluency, and comprehension. The phonemic awareness strand presented activities that developed phoneme discrimination and segmentation as well as blending. All lessons had a letter-sound correspondence strand that introduced a new letter-sound correspondence every two to three days once the first phonemic awareness strand had been practiced and mastered auditorily. The word recognition strand presented words through lists given by the teacher or in the activity book that were phonetically regular and irregular; high frequency words were also presented. The fluency strand utilized the word recognition strategy presented in connected text for practiced reading.

EIR Level II's comprehension strand focused on activities that help students make meaning and monitor their comprehension as they read. This was accomplished through teacher-led before and after reading strategies and activities. Prior to reading a narrative text, teachers would engage students in a picture walk of the story in which students would make predictions about the story. A purpose was then set for the reading, typically to gauge whether the students' predictions were accurate. If the students were reading expository text, teachers activated prior knowledge by having students brainstorm what they already knew about a topic. Following the reading of a story, students would complete activities based on their competence and the text structure.

Story retelling with higher order thinking skills for English language and literacy acquisition. STELLA (Irby et al., 2004) was a structured story reading and retelling technique designed by the research team to provide a scaffold for students to assist them in the development of their higher order thinking skills while acquiring English. Lessons were developed around a specific book and a new book was introduced each week. Instructional plans and questions were specifically sequenced to scaffold the learning appropriately for ELLs. Within the week, the script would introduce students to target vocabulary, preselected ESL strategies, and questions leveled and sequenced according to Bloom's taxonomy. Activities included dramatization and music.

Academic oral language/Academic oral language in science/Academic oral and written language in science. Academic oral language (AOL) lessons were conducted 10-minutes per day in kindergarten utilizing Question of the Day (Lakeshore Learning Materials, 1997) to develop students' oral language proficiency skills.

Academic oral language in science (AOLS) and academic oral and written language in science (AOWLS) (Lara-Alecio et al., 2003) were developed by the research team as an adaptation to Question of the Day. AOLS followed the same format as Question of the Day, but used a science focus. AOWLS used in second grade continued the science focus and added a writing component to allow the continued development of concept attainment, oral language, and writing skills.

Tier III

Tier III was developed for struggling students. These students were served in small groups when their class was receiving instruction through Santillana Intensive English. EIR Level I was incorporated for these struggling students to improve their phonemic awareness, reading fluency, and comprehension in a small setting.

Typical Practice

Instruction in typical practice classrooms was guided by a district curriculum comprised of bundled state standards that were vertically and horizontally aligned. More specifically, the curriculum ensured that each grade level across the district was teaching the same standards at the same time. While teachers were mandated what skills to teach and when to teach those skills, teachers were granted discretion in how they chose to teach those skills and the resources that were used for instruction.

Research Questions

Four research questions guided this study. They included:

1. What are the specific elements of L2 academic language proficiency that influence L2 reading comprehension among Spanish-speaking ELLs over a 3-year period?

2. Is there a significant difference in the influence of the elements of L2 academic language proficiency on L2 reading comprehension among Spanish-speaking ELLs enrolled in the TBE-E classrooms and the TBE-T classrooms over a 3-year period?

3. What are the specific elements of L2 academic language proficiency and L2 reading comprehension that influence L1 reading comprehension among Spanish-speaking ELLs over a 3-year period?

4. Is there a significant difference in the influence of the elements of L2 academic language proficiency and L2 reading comprehension on L1 reading comprehension among Spanish-speaking ELLs enrolled in the TBE-E classrooms and the TBE-T classrooms over a 3-year period?

Data Collection

Both ITBS and Logramos tests were given at the end of each spring semester. Scores were collected in 2006 (first grade), 2007 (second grade) and 2008 (third grade). All test administrators were well trained in the administration of the tests. Gain scores were calculated by subtracting the standardized scale scores of the third grade

administration from the standardized scales scores of the first grade administration. Gain scores were utilized for the analysis.

Data Analysis

The purpose of the current study was to examine the within and across language influences of L2 academic language proficiency on reading comprehension with ELLs in first through third grade bilingual classrooms longitudinally over a 3-year period. More specifically, the objectives of this research were to:

- examine the influence of the specific elements of L2 academic language proficiency on L2 reading comprehension;

- compare the influence of L2 academic language proficiency on L2 reading comprehension in the TBE-E classrooms to the TBE-T classrooms;

- investigate the influence of L2 academic language proficiency and L2 reading comprehension gains with L1 reading comprehension; and

- compare the influence of L2 academic language proficiency and L2 reading comprehension on L1 reading comprehension in the TBE-E classrooms to the TBE-T classrooms.

A review of the literature indicates the importance of both L1 and L2 academic language proficiency on L2 reading comprehension, but fails to clarify the specific elements that are the most influential or the interacting effects among these elements on reading comprehension in English. Path analysis is a common statistical analysis that

estimates presumed causal relationships among observed variables through correlations (Kline, 2005). Path modeling allows for the study of several independent and dependent variables simultaneously, while including the direct and mediating effects of the variables in the model, creating optimal conditions to quantify and develop a theoretical model (Raykov & Marcoulides, 2006), and allowing for the analysis of whether group membership moderates the relations specified in the model (Kline, 2005). Paths based on the literature were built in AMOS 5, a statistical software package, that presented hypothesized relationships among variables.

Model 1: Specific Elements of L2 Academic Language Proficiency and Reading Comprehension Influence on L2 Reading Comprehension

First, a model was built to address research question one: "What are the specific elements of L2 academic language proficiency that influence L2 reading comprehension among Spanish-speaking ELLs over a 3-year period?" The theoretical model indicates that the effects of L2 vocabulary and L2 grammar on L2 reading comprehension are expected to be through a direct path as well as an indirect path mediated through L2 listening comprehension. The effects of L2 listening comprehension on L2 reading comprehension are expected to be through a direct path.

A path comparison was conducted on the model to address research question two: "Is there a significant difference in the influence of the elements of L2 academic language proficiency on L2 reading comprehension among Spanish-speaking ELLs enrolled in the TBE-E classrooms and the TBE-T classrooms over a 3-year period?" The figure on page 63 illustrates this relationship.

Model 2: Specific Elements of L2 Academic Language Proficiency and Reading Comprehension Influence on L1 Reading Comprehension

A model has been built to address research question three: "What are the specific elements of L2 academic language proficiency and L2 reading comprehension that influence L1 reading comprehension among Spanish-speaking ELLs over a 3-year period?" The model indicates that the effects of L2 vocabulary and L2 grammar on L1 reading comprehension are expected to be through a direct path as well as an indirect path mediated through L2 reading comprehension. L2 listening comprehension is expected to be significant through an indirect path mediated by L2 reading comprehension. The effects of L2 reading comprehension are expected to be through a direct path to L1 reading comprehension.

A path comparison was conducted on the model to address research question four: "Is there a significant difference in the students' development of L1 reading comprehension among Spanish-speaking ELLs enrolled in the TBE-E classrooms and the TBE-T classrooms over a 3-year period?"

Summary

This chapter outlined a detailed description of the planned research design. Data collection and analysis methods were also explained. Scale scores from norm-referenced tests were collected at three time points: list these.

CHAPTER IV

RESULTS

The purpose of this present study was (a) to test a path model on discrete L2 academic language proficiency variables on L2 reading comprehension, (b) to test a path model on discrete L2 academic language proficiency variables and L2 reading comprehension on L1 reading comprehension, and (c) to compare L2 language and reading comprehension development as well as L1 reading comprehension of students enrolled in the TBE-E classrooms with those enrolled in the TBE-T classrooms.

The descriptive statistics for each program type, transitional bilingual education-enhanced (TBE-E) and transitional bilingual education-typical (TBE-T), are presented first. Correlational data among the model variables follow. Results from the path analysis are reported by research question and separated by program type. The analysis concludes with a group comparison.

Descriptive Statistics

The descriptive statistics for each program type -- transitional bilingual education-enhanced (TBE-E) and transitional bilingual education-typical (TBE-T) -- are presented and include statistics of mean, standard deviation, skewness, and kurtosis of the model variable gain scores. These are followed by the correlations among variables.

Transitional Bilingual Education-Enhanced (TBE-E)

Table 2 displays the means, standard deviations, skewness, and kurtosis of the gain in standard scores for the TBE-E group.

TABLE 2

Descriptive Statistics for TBE-E

	N Statistic	Mean Statistic	Std. Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
ENGVOC	57	21.65	11.83	.198	.316	-.401	.623
ENGGM	57	13.07	17.83	-.125	.316	-1.21	.623
ENGLC	57	21.44	14.03	.093	.316	-.072	.623
ENGRC	57	12.60	15.92	.054	.316	-.268	.623
SPRC	57	39.91	24.36	.321	.316	-.709	.623

Note. ENGVOC = English Vocabulary; ENGGMR = English Language; ENGLC = English Listening Comprehension; ENGRC = English Reading Comprehension; SPRC = Spanish Reading Comprehension.

There were 57 students in the TBE-E group. The data in Table 2 shows that the absolute value of skewness is less than two and the absolute value of kurtosis is less than seven. These values indicate the data are normally distributed. For this sample, there was a wide range of scores for the Spanish reading comprehension, as indicated by the standard deviation score of 24.36. A correlation matrix follows in Table 3 for each of the variables in the two path models.

TABLE 3

Correlations among Path Model Variables (TBE-E)

Variable	1	2	3	4	5
1. ENGVOC	---				
2. ENGGMR	.397**	---			
3. ENGLC	.166	.341**	---		
4. ENGRC	.487**	.633**	.414**	---	
5. SPRC	.330*	.079	.242	.336*	---

Note. $n = 57$; * p<0.05; ** p<0.01.

The correlation between English vocabulary *(r* = .487) English grammar (*r* = .633), and English listening comprehension (*r* = .414), with English reading comprehension was found to be statistically significant (*p* < 0.01). English listening comprehension and English grammar were significantly correlated (*r* = .341) as well as English vocabulary with English grammar (*r* = .397, *p* <.01).The only within-language variables failing to demonstrate a statistically significant correlation were English vocabulary and listening comprehension. Two English variables were also found to correlate with Spanish reading comprehension (*p* <0.05), ie., English vocabulary (*r* = .330) and English reading comprehension (*r* = .336), while English grammar and listening comprehension were not correlated with Spanish reading comprehension.

Transitional Bilingual Education-Typical (TBE-T)

Table 4 displays the means, standard deviations, skewness, and kurtosis of the gain in standard scores for the TBE-T group.

TABLE 4

Descriptive Statistics for TBE-T

	N Statistic	Mean Statistic	Std. Statistic	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error
ENGVOC	43	20.14	14.10	-.119	.361	-1.02	.709
ENGGMR	43	22.56	14.31	-.153	.361	.011	.709
ENGLC	43	22.42	13.08	-.562	.361	-.149	.709
ENGRC	43	17.93	12.69	-2.90	.361	-.539	.709
SPRC	43	46.40	28.75	.794	.361	.907	.709

Note. ENGVOC = English Vocabulary; ENGGMR = English Language; ENGLC = English Listening Comprehension; ENGRC = English Reading Comprehension; SPRC = Spanish Reading Comprehension.

There were 43 students in the TBE-T group. Table 4 shows the absolute value of skewness is less than two and the absolute value of kurtosis is less than seven. These values indicate the data are normally distributed. For this sample, there was a wide range of scores for the Spanish reading comprehension as shown by the standard deviation score of 28.75. A correlation matrix follows in Table 5 for each of the variables in the two path models.

TABLE 5

Correlations among Path Model Variables (TBE-T)

Variable	1	2	3	4	5
1. ENGVOC	---				
2. ENGGMR	.181	---			
3. ENGLC	.188	.269	---		
4. ENGRC	.270	.167	.374*	---	
5. SPRC	-.149	.131	-.242	-.046	---

Note. *n* = 57; * p<0.05; ** p<0.01

Only one within-language correlation was found to be statistically significant in the TBE-T group. English reading comprehension and English listening comprehension yielded a statistically significant result ($p < 0.05$). Three out of four cross-language correlations (English vocabulary, English listening comprehension, and English reading comprehension) indicated a numerically negative relationship with Spanish reading comprehension.

Results by Research Questions

Research Question #1

Q1: What are the specific elements of L2 academic language proficiency that influence L2 reading comprehension among Spanish-speaking ELLs over a 3-year period?

TBE-E. To address Q1, a path model with four observed variables was established (see Figure 1). The path model consisted of two exogenous variables, English vocabulary (ENGVOC) and English language (ENGGMR), and two endogenous

variables, English listening comprehension (ENGLC) and English reading comprehension (ENGRC). Direct paths to English reading comprehension were drawn from English vocabulary, English grammar, and English listening comprehension. The paths from English vocabulary and English grammar to English reading comprehension were drawn as indirect paths through English listening comprehension. A covariance was also estimated between the two exogenous variables, English vocabulary and English language. The model fit was examined according to chi-square value (Kline, 2005).

ENGVOC

e1

e2

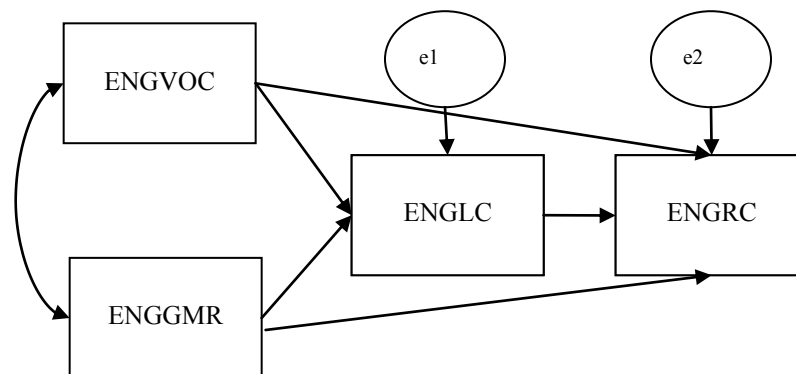ENGGMR

ENGLC

ENGRC

FIGURE 1 Proposed path model: Specific elements of L2 academic language proficiency influence on L2 reading comprehension.

Initial analysis of the proposed model indicated that with the given sample size and the number of proposed paths in the model, the degree of freedom equaled zero. The path from English vocabulary to English listening comprehension was not statistically

significant (p = .79); therefore, this path was released to yield the modified path model

below (see Figure 2).
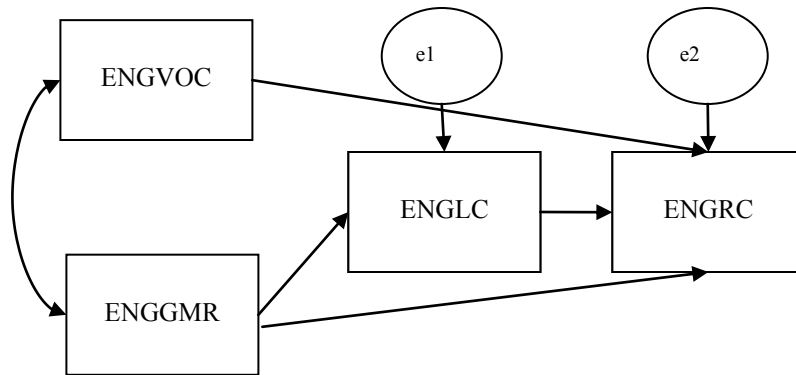
FIGURE 2 Modified path model: Specific elements of L2 academic language
proficiency influence on L2 reading comprehension.

Table 6 displays the standardized regression weights derived from AMOS

programming for the hypothesized model. As expected, the development of English

listening comprehension and English vocabulary played important roles in predicting the

development of English reading comprehension, supporting that some English

proficiency is necessary for reading comprehension. However, these academic language

proficiency skills were less predictive of English reading comprehension than English

grammar. In fact, the magnitudes of the prediction of English listening comprehension

and English vocabulary were r = .22 (p = .031) and r = .27 (p = .008), respectively,

whereas the predictive power of English grammar had a magnitude of

r = .45 (p < .001) .

In the bottom portion of the model, the interplay between English grammar, English listening comprehension, and English reading comprehension was made clear through strong and significant relationships for all three pairs of variables. The importance of English grammar should be noted. It directly affected English reading comprehension, but also exerted an indirect effect through its relationship with English listening comprehension.

The hypothesized model was found to have a reasonable goodness of fit, χ^2 (1, n = 57) = .071, p = .790, indicating a correspondence with most expected relationships defined in the literature. The overall model indicated an R^2 value of .51, indicating that 51% of the variance of English reading comprehension can be explained by the modified path model.

TABLE 6

Regression Weights TBE-E: Specific Elements of L2 Academic Language Proficiency
Influence on L2 Reading Comprehension

Path	Estimate	S.E.	p
ENGGMR→ENGLC	.34	.01	.007
ENLC→ENGRC	.22	.11	.031
ENGVOC→ENGRC	.27	.14	.008
ENGGMR→ENGRC	.45	.10	< .001

Note. *n* = 57.

TBE-T. The modified path model (Figure 2) was then applied to the TBE-T group and yielded strikingly different results. Table 7 summarizes the findings. As

expected, English listening comprehension played an important role in predicting English reading comprehension, indicating that listening comprehension lays the foundation for English reading comprehension. Neither English vocabulary nor English grammar predicted English reading comprehension outcomes.

In the bottom portion of the model, there was little interaction effect between English grammar, English listening comprehension, and English reading comprehension. While English listening comprehension had a direct effect on English reading comprehension, grammar was only approaching significance ($r = .27$, $p=.072$), exerting an indirect effect through its relationship with English listening comprehension.

The hypothesized model was found to have a reasonable goodness of fit, χ^2 (1, N = 43) = .922, p = .337. The overall model had an R^2 value of .17, which indicated a considerable portion of the variance is not explained in this model.

TABLE 7

Regression Weights TBE-T: Specific Elements of L2 Academic Language Proficiency Influence on L2 Reading Comprehension

Path	Estimate	S.E.	p
ENGGMR →ENGLC	.27	.14	.072
ENLC → ENGRC	.33	.14	.025
ENGVOC →ENGRC	.20	.13	.156
ENGGMR →ENGRC	.04	.13	.766

Note. n = 43

Research Question #2

Q2: Is there a significant difference in the influence of the elements of L2 academic

language proficiency on L2 reading comprehension among Spanish-speaking ELLs

enrolled in the enhanced transitional bilingual program and the typical bilingual

program over a 3-year period?

  The modified path models of Q2 were compared to determine if there was a

significant difference in the influence of the language variables on L2 reading

comprehension. The magnitude of the prediction of English listening comprehension for

the TBE-E and TBE-T were similar, $r = .22$ ($p = .03$) and $r = .33$ ($p = .03$), respectively.

The indirect effects of English grammar through English listening comprehension for the

TBE-E and TBE-T groups were also similar, $r = .34$ ($p = 007$) and $r = .27$ ($p = .072$),

respectively. No other paths were similar between the two groups.

Research Question #3

Q3: What are the specific elements of L2 academic language proficiency and L2 reading

comprehension that influence L1 reading comprehension among Spanish-speaking ELLs

over a 3-year period?

  To address Q3, a path model was established with five observed variables (see

Figure 3). The path model consisted of two exogenous variables (English vocabulary and

English grammar) and three endogenous variables (English listening comprehension,

English reading comprehension, and Spanish reading comprehension). Three latent

variables were drawn from the endogenous variables (English listening, English reading

comprehension, and Spanish reading comprehension). Direct paths to Spanish reading

comprehension were drawn from English vocabulary, English grammar, and English

reading comprehension. English vocabulary, English grammar, and English listening

comprehension were drawn as indirect paths to Spanish reading comprehension through

English reading comprehension. The exogenous variables, English vocabulary and

English language, were drawn to establish covariance. The model fit was conducted

according to chi-square (Kline, 2005).

FIGURE 3 Proposed path model: Specific elements of L2 academic language
proficiency and L2 reading comprehension influence on L1 reading comprehension.

Unlike the proposed path in Q1, the proposed path for Q3 had a sufficient

number of degrees of freedom, leaving the proposed path unchanged. Table 8 displays

the standardized regression weights derived from AMOS programming for the

hypothesized model. As expected, the development of English reading comprehension

played an important role in predicting the development of Spanish reading comprehension $r = .38$ ($p = .021$), supporting the theory of common underlying proficiency (Cummins, 1979).

The direct predictive power of English vocabulary on Spanish reading comprehension was minimal $r = .25$ ($p = .074$), but the indirect magnitude through English reading comprehension was greater $r = .27$ ($p = .008$). The direct predictive power of English grammar was numerically negative, $r = -.26$, while the magnitude of the indirect path through English reading comprehension was $r = .45$ ($p = .001$).

The hypothesized model was found to have a reasonable goodness of fit, χ^2 (1, N = 57) = 1.501, $p = .221$, which indicates a correspondence with most expected relationships defined in the literature. The overall model had an R^2 value of .19, which indicated a substantial portion of the variance in Spanish reading comprehension was not explained in this model.
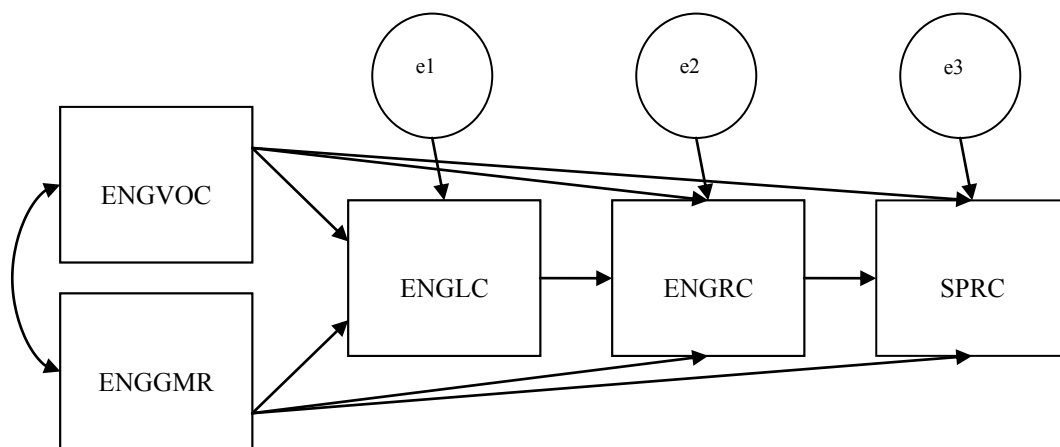
TABLE 8

Regression Weights TBE-E: Specific Elements of L2 Academic Language Proficiency
and L2 Reading Comprehension Influence on L1 Reading Comprehension

Path	Estimate	S.E.	p
ENGVOC→ENGLC	.04	.16	.790
ENGGMR→ENGLC	.33	.11	.017
ENGLC→ENGRC	.22	.11	.031
ENGVOC→ENGRC	.27	.14	.008
ENGGMR→ENGRC	.45	.10	<.001
ENGRC→SPRC	.38	.25	.021
ENGVOC→SPRC	.25	.29	.074
ENGGMR→SPRC	-.26	.21	.098

Note. n = 57

TBE-T. The proposed path model (Figure 3) was then applied to the TBE-T

group. Table 9 summarizes the findings. The development of English listening

comprehension was the only significant academic language proficiency variable noted in

predicting the development of English reading comprehension, $r = .32$ ($p = .027$). No

other academic language proficiency variables predicted Spanish reading

comprehension. The hypothesized model was found to have a reasonable goodness of fit,

χ^2 (1, N = 43) = 3.380, $p = .066$. The overall model had an R^2 value of .05, which

indicated a substantial portion of the variance in Spanish reading comprehension was not

explained in this model.

TABLE 9

Regression Weights TBE-T: Specific Elements of L2 Academic Language Proficiency
and L2 Reading Comprehension Influence on L1 Reading Comprehension

Path	Estimate	S.E.	p
ENGVOC→ENGLC	.14	.14	.334
ENGGMR→ENGLC	.24	.14	.106
ENGLC→ENGRC	.32	.14	.027
ENGVOC→ENGRC	.20	.13	.161
ENGGMR→ENGRC	.04	.13	.765
ENGRC→SPRC	-.03	.36	.865
ENGVOC→SPRC	-.17	.32	.275
ENGGMR→SPRC	-.26	.31	.279

Note. n = 43

Research Question #4

Q4: Is there a significant difference in the students' development L1 reading

comprehension among Spanish-speaking ELLs enrolled in the enhanced transitional

bilingual program and the typical transitional bilingual program over a 3-year period?

The modified path models of Q4 were compared to determine if there was a

significant difference in the influence of the academic language proficiency variables on

L1 reading comprehension. Only one path yielded similar results. The magnitudes of the

prediction of English listening comprehension through English reading comprehension

for the TBE-E and TBE-T were $r = .22$ ($p = .017$) and $r = .32$ ($p = .27$), respectively. No

other paths between the two models were similar.

Summary

The purpose of this research was:

- to examine the influence of the specific elements of L2 academic language proficiency on L2 reading comprehension;

- to compare the influence of L2 academic language proficiency on L2 reading comprehension in the TBE-E classrooms to the TBE-T classrooms;

- to investigate the influence of L2 academic language proficiency and L2 reading comprehension gains with L1 reading comprehension; and

- to compare the influence of L2 academic language proficiency and L2 reading comprehension on L1 reading comprehension in the TBE-E classrooms to the TBE-T classrooms.

From a sample size of 100, analysis results generated the following:

- descriptive statistics, normality checks, and correlations among variables for the TBE-E and TBE-T groups;

- proposed and modified path models for research question numbers one and three;

- hypothetical models for research question numbers one and three; and

- a comparison of path models between TBE-E and TBE-T to address research questions two and four.

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

CHAPTER V

DISCUSSION, LIMITATIONS, RECOMMENDATIONS, AND CONCLUSIONS

Discussion

Existing evidence suggests that the academic uses of language are associated with higher levels of oral language proficiency and with literacy achievement. Clearly, however, much more needs to be done to clarify the precise nature of academic oral language proficiency, independent of literacy and, at the same time, in relationship to traditional constructs of literacy. (Saunders & O'Brien, 2006, p. 39)

Coupled with a better understanding of academic language proficiency is a need for a body of best practice research in developing academic English. "Educators need more than an array of methods or activities that they can draw on when planning literacy or academic subjects. They need comprehensive frameworks for selecting, sequencing, and delivering instruction (Genesee et al., 2006a, p. 231)." This study analyzed the influence of the development of academic language proficiency on reading comprehension over a 3-year period among 100 Spanish-speaking ELLs enrolled in a transitional bilingual education program. These students were participating in an experimental study, Project ELLA, which investigated the effects of a comprehensive program design for effective ESL instruction with various levels of instruction in students' native language. It is anticipated that this study will reassure practitioners and policy makers that native language instruction is beneficial to ELLs and that research efforts should be focused on program design and best practices.

Collection of data for this study was guided by four research questions, which are discussed in the following section along with discussion regarding data analysis and current literature. Recommendations for future research, limitations to the study, implications, and conclusions follow.

Research Question #1

Q1: What are the specific elements of L2 academic language proficiency that influence L2 reading comprehension among Spanish-speaking ELLs over a 3-year period?

As evidenced from the literature review, it was expected that L2 academic language variables would be significant predictors of L2 reading comprehension (Saunders & O'Brien, 2006; Proctor et al., 2006; Carlo et al., 2004; Carlisle et al., 1999). The findings for TBE-E mirror the literature in that L2 listening comprehension, vocabulary, and grammar all play a role in predicting and influencing L2 reading comprehension, while only L2 listening comprehension indicated significance for the TBE-T group. The purpose of this study, however, was not to simply determine which elements were significant, but rather to determine the magnitudes of influence of each element on reading comprehension and if group membership influenced those results.

In their research synthesis on the influence of L2 oral language proficiency on L2 reading, Saunders and O'Brien (2006) noted, "One of the major themes that runs through these studies concerns the nature and development of more academic uses of oral language" (p.16). Path model results from the TBE-E group support Saunders and O'Brein's conclusion. The listening comprehension, vocabulary, and grammar oral

language subtests all increase in academic nature, respectively, as well as in the strength of their magnitude as a predictor of reading comprehension. L2 listening comprehension yielded a significant result as a predictor of L2 reading comprehension supporting the conclusions that L2 listening comprehension serves as a primary foundation for L2 reading comprehension (Proctor et al., 2006). It is important to note, however, that listening comprehension was the smallest in magnitude of the three L2 academic language proficiency variables. The language utilized and measured in the listening comprehension subtest is quite contextualized. Information is presented in a relevant scenario with picture prompts or other visuals.

A slightly stronger predictor of L2 reading comprehension was L2 vocabulary. Vocabuary measures on the ITBS require more academic uses of language than the listening comprehension subtest. Where listening comprehension is heavily weighted in context, vocabulary measures begin to limit the amount of context presented to students. In addition, each level of the vocabulary subtest requires more academic use of language. For example, at levels 7 and 8, the first two years of data from this study, students choose word meanings based on picture or other contextual support. Level 9 requires students to examine a word in a sentence or phrase and choose a synonym for the selected word.

The findings here support the research that L2 lexical knowledge supports L2 reading comprehension (Proctor et al., 2006; Carlo et al., 2004; Carlisle et al., 1999). Lexical knowledge includes both expressive and receptive vocabulary. Most studies noting positive correlations between L2 vocabulary and L2 reading comprehension

measure either expressive (Proctor et al., 2006) or receptive vocabulary (Carlisle et al., 1999) using standardized instruments, but not typically measures of both types of vocabulary. Both receptive and expressive vocabulary were measured in this study and combined as a single vocabulary measure as a gain score over time. Expressive vocabulary has more language demands than receptive vocabulary and measuring them as a combined unit, as presented in this study, prohibits analysis on the influence of receptive vocabulary versus expressive vocabulary on reading comprehension.

L2 grammar emerged as the strongest predictor for L2 reading comprehension as a direct path as well as an indirect path through listening comprehension. The grammar subtest of the ITBS is very academic in nature with a primary focus on the ability to use decontextualized language for academic purposes effectively. Students are required to identify spelling, capitalization, punctuation, and usage errors in written passages. Grammatical awareness works in conjunction with vocabulary knowledge to help the reader decipher the author's message. The majority of research on the depth of vocabulary shown to be influential in predicting reading comprehension refers to an understanding of words as measured through spelling and usage. For example, Ordoñez (2002) found that word knowledge that included an understanding of the syntactical structure of the word, its orthographic representation, as well as the pragmatic rules for word use is the depth of word knowledge most influential in predicting reading comprehension. It can be concluded that grammatical and syntactical awareness not only demonstrates an awareness of how language works together, but a deeper level of word knowledge.

Research Question #2

Q2: Is there a significant difference in the influence of the elements of L2 academic language proficiency on L2 reading comprehension among Spanish-speaking ELLs enrolled in the enhanced transitional bilingual program and the typical bilingual program over a 3-year period?

Group membership clearly affected the influence of L2 academic language development on L2 reading comprehension. The descriptive statistics presented in Tables 2 and 4 indicated that the TBE-E group and the TBE-T group were not numerically different in their overall performance, meaning the mean scores and standard deviations are similar between the two groups. However, a distinct difference was noted in the R^2 value, or the variance explained by the model, based on group membership. For the TBE-T group, only 17% of the variance in reading comprehension was explained by variables analyzed in the model, while 51% of the variance could be explained by the model for the TBE-E group. This leaves 83% of the variance in reading comprehension to be explained by unknown variables not analyzed in the model for the TBE-T group, whereas, almost half of the variance in reading comprehension in the TBE-E group can be attributed to the analyzed academic language proficiency variables.

Reading comprehension is a combination of both decoding print and linguistic comprehension (Hoover & Gough, 1990). This model solely accounts for the use of linguistic comprehension as measured through academic language proficiency variables. Proctor, Carlo, August, and Snow (2005) noted that as readers become better decoders,

oral language predicts an increasingly greater proportion of variance in reading comprehension. While decoding skills were not analyzed in this model, a considerable portion of the curriculum intervention for the TBE-E group consisted of work with the alphabetic principle. The Early Intervention in Reading Level II (Mathes & Torgenson, 2005), a carefully sequenced and segmented curriculum developed for mastery of phonemic awareness, letter-sound correspondence, word recognition, spelling, and fluency, was a daily part of the ESL instruction in TBE-E classrooms. It is a possibility that the decoding skills in the TBE-E classrooms were advanced through this intervention, allowing a stronger presence of the L2 academic language proficiency variables in the prediction of L2 reading comprehension. Definitive conclusions, however, cannot be drawn without the collection and analysis of decoding and fluency variables.

While all paths in the TBE-E model were statistically significant, only the path from L2 listening comprehension to L2 reading comprehension was significant for the TBE-T group. This path was also stronger in magnitude for the TBE-T group (.33) than for the TBE-E group (.22). Noteworthy is the similarity of the results with Proctor et al. (2005) in which the L2 listening comprehension was one of the strongest predictors of L2 reading comprehension for ELLs regardless of whether English or Spanish was the language for literacy instruction. Because specific classroom practices for the TBE-T group were not monitored as they were for the TBE-E group, it could be hypothesized that L2 listening comprehension is the initial primary source for making meaning of text for ELLs independent of formal English literacy instruction.

Research Question #3

Q3: What are the specific elements of L2 academic language proficiency and L2 reading comprehension that influence L1 reading comprehension among Spanish-speaking ELLs over a 3-year period?

Two L2 academic language proficiency variables were shown to be predictors of L1 reading comprehension. L2 vocabulary was shown to be marginally significant while L2 reading comprehension was the most powerful in predicting L1 reading comprehension. The majority of research has analyzed L1 variables as predictors of L2 outcomes under various transfer theories, but few have looked at L1 outcomes in regards to L2 predictors. The developmental interdependence hypothesis hypothesizes that languages for higher order cognitive processes are developmentally interdependent. If these skills transfer from L1 to L2, it would be understandable that well taught, developed, and mastered skills in L2 would be available to benefit for use in L1.

It is also important to revisit the threshold hypothesis when looking at the influence of L2 reading comprehension on L1 reading comprehension. The threshold hypothesis posits that cognitive benefits result from high levels of proficiency in both languages. It can concluded that the intervention, although in English, supported access to academic registers and created an awareness of language that was further developed during classroom instruction in Spanish.

Research Question #4

Q4: Is there a significant difference in students' development L1 reading comprehension among Spanish-speaking ELLs enrolled in the enhanced transitional bilingual program and the typical transitional bilingual program over a 3-year period?

Group membership yielded different results in regards to the influence of English variables on Spanish reading comprehension. While the R^2 value for the TBE-E group was only .19, the R^2 value for the TBE-T group was even smaller at .05. A considerable portion of the variance was not explained in this model for either group once L2 reading comprehension was added, but again, even less of the variance was explained for the TBE-T group. The only significant path in the TBE-T group was the path from L2 listening comprehension to L2 reading comprehension as previously noted in Q1. The addition of the L1 reading comprehension path did not yield any significant variables for the TBE-T group.

However, adding the L1 reading comprehension path did result in the addition of two L2 variables as significant predictors of L1 reading comprehension in TBE-E group, i.e., L2 vocabulary and L2 reading comprehension. The intervention for the TBE-E group consisted of multiple opportunities to develop reading comprehension strategies in English. Specifically, the EIR Level II's comprehension strand focused on meaning making during reading. These results are consistent with Langer et al. (1990), who found that students with good meaning making strategies in one language were able to apply those to the other language, leading to successful reading comprehension.

Recommendations

The use of gain scores limited the scope of analysis for this study. Researchers have emphasized that oral language becomes a stronger predictor as students become better decoders (Cummins, 1986; Nation, 2001). It would be important to examine time-point relationships over the 3-year period with each academic language proficiency variable to determine if the influence of academic language proficiency variables changes over time. This type of analysis would lend itself to the creation of a developmental language continuum useful for instructional planning.

Limitations

The primary purpose of this study was to get a better understanding of how specific elements of academic language proficiency impact reading comprehension and to examine transfer effects back to the native language in an effort to gain insight into effective instructional practices. While the path models clearly identified causal relationships between academic language proficiency variables and reading comprehension, the models did not consider the influence of decoding skills on academic language proficiency.

Very little was known about the classroom instruction of both the TBE-E and TBE-T groups beyond the intervention time. A mandated district curriculum dictated which skills to teach and at what time, but how those skills were taught and the resources utilized was left to the discretion of the teacher. This leads to a considerable amount of variability in instruction. A better understanding of the ESL instruction in the TBE-T

group and the instructional practices that took place using the native language are needed to draw conclusions that are more definitive.

It is also important to note that the standardization of the intervention as well as the high levels of fidelity monitoring may be a contributing factor to this study's outcomes. The intervention consisted of high priority instruction and scripted lessons. The intervention was implemented with fidelity not only through high-quality and timely professional development, but through consistent monitoring of the implementation. Programs designed with procedural controls such as instructional standardization and significant levels of fidelity monitoring have strong effects on instructional outcomes (Rowan and Miller, 2007).

Implications and Conclusions

The most effective way to educate ELLs is a controversial topic in the education field. There is no indication that bilingual instruction impedes academic achievement in either the native language or English (Francis et al., 2006). What challenges the education field and teachers of ELLs is how to balance L1 and L2 language use and instruction effectively to develop academically successful students.

The findings of this study have far-reaching implications for practical and theoretical use. This study identified causal links on the development between L2 academic language proficiency variables, L2 reading comprehension, and L1 reading comprehension, supporting the theory that high quality, carefully sequenced instruction in one language supports learning in the other language. Educators interested in language

acquisition and program design will find evidence to support native language instruction coupled with a carefully sequenced and segmented ESL program.

The critical role academic language proficiency plays in reading comprehension is well documented in the literature (August & Shanahan, 2006; Saunders & O'Brien, 2006; Proctor et al., 2006; Carlo et al., 2004; Carlisle et al., 1999). The research is lacking empirical evidence of exactly how those academic language proficiency variables interact with reading comprehension as well as the most effective way to develop proficiency in these areas. The literature is repeatedly persuasive in that most children need good, explicit instruction about the aspects of reading and that second-language learners may need this more than most (August & Shanahan, 2006). Second-language learning is much more dependent on the quality of the language environment than first-language learning (August & Shanahan., 2006). The current study provides researchers and practitioners a template with which to build high-quality language learning environments shown to have positive outcomes with education's ultimate goal, reading comprehension.

The TBE-E group clearly had a better understanding and use of L2 oral language for L2 reading comprehension which is indicative of more sophisticated and competent readers (Hoover and Gough, 1990). L2 listening comprehension, vocabulary, and grammar each predicted L2 reading comprehension with increasing magnitude. Moreover, successful L2 reading comprehension actually influenced L1 reading comprehension although time spent in L1 reading was minimized due to increased time spent in English instruction. Although the ESL intervention's primary purpose was to

develop high levels of English proficiency it had secondary outcome of increased L1 reading comprehension, leaving students with potentially higher levels of cognitive ability due to higher levels of bilingual proficiency. Most intervention studies noting positive results focus on instruction in one or two elements of academic language proficiency, leaving practitioners with little guidance in creating comprehensive language development programs. Project ELLA lays the foundation for the development and future studies of comprehensive ESL instruction as well as serve as a useful model comparison to a school or a district's current ESL program and practices.

Concluding Remarks

The findings in this study expanded the work of previous research leaders who examined the influence of academic language proficiency on reading comprehension and cross-linguistic transfer through a longitudinal, experimental investigation. This investigation revealed that high quality, comprehensive ESL instruction developed academic listening comprehension, grammar, and vocabulary proficiency that were directly linked to reading outcomes. Findings also indicated that well developed L2 reading comprehension transferred to L1 reading comprehension. In the absence of a high quality ESL program, listening comprehension was the only academic language proficiency variable linked to reading comprehension and there was no evidence of cross-linguistic transfer in this group.

This study confirms the need for future investigations that include the development of all three academic language variables in regards to reading

comprehension outcomes in instructionally controlled environments. Additionally, more

research is critical in how explicit ESL instruction influences native language outcomes

and how it might promote the cognitive advantages of bilingualism.

REFERENCES

Alanís, I., & Rodriguez, M. (2008). Sustaining a dual language program: Features of success. *Journal of Latinos and Education, 7*(4), 305-319.

August, D. (1987). Effects of peer tutoring on the second language acquisition of Mexican-American children in elementary school. *TESOL Quarterly, 21*(3), 717-736.

August, D., Calderon, M., & Carlo, M. (2001). *The transfer of skills from Spanish to English: A study of young learners*. Washington DC: Center for Applied Linguistics.

August, D., & Shanahan, T. (2006). Introduction and methodology. In D. August & T. Shanahan (Eds.), *Developing literacy in second-language learners: Report on the national literacy panel on Language-minority children and youth* (1-42). Mahwah, NJ: Lawrence Erlbaum Associates.

Barnes, R.E. (1981). *Size of the eligible language minority population*. Washington, DC: Office of Budget, Planning, and Evaluation.

Beeman, M.M. (1993). A longitudinal study of academic language proficiency and crosslinguistic transfer in Hispanic students in a dual language classroom (Doctoral dissertation, Northwestern University, 1993). *Dissertation Abstracts International, 54*, 2074.

Bilingual Education Act of 1968, Public Law 90-247 § 880(b).

Bilingual Education Act of 1974, Public Law 93-380 § 503.

Bilingual Education Act of 1994, Public Law 103-382 §7102.

Birman, B.F., & Ginsburg, A.L. (1981). *Addressing the needs of language minority children: Issues for Federal policy.* Washington, DC: Office of Budget, Planning, and Evaluation.

Bishop, D.V.M. (1991). Developmental reading disabilities: The role of phonological processing has been overemphasized. *Mind and Language, 6*, 97-101.

Bishop, D.V.M., & Adams, C. (1990). A prospective study of the relationship between specific language impairment, phonological disorders, and reading retardation. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 31*, 1027-1050.

Carlisle, J., Beeman, M., Davis, L., & Spharim, G. (1999). Relationship of metalinguistic capabilities and reading achievement for children who are becoming bilingual. *Applied Psycholinguistics, 20*, 459-478.

Carlo, M.S., August, D., McLaughlin, B., Snow, C.E., Dressler, C., Lippman, D.N., Lively, T.J., & White, C.E. (2004). Closing the gap: Addressing the vocabulary needs of English-language learners in bilingual and mainstream classrooms. *Reading Research Quarterly, 39*(2), 188-215.

Catts, H.W., Fey, M.E., Zhang, X., & Tomblin, J.B. (1999). Language basis of reading and reading disabilities: Evidence from a longitudinal investigation. *Scientific Studies of Reading, 3*, 331- 361.

Chesterfield, R.A., & Chesterfield, K.B. (1985). Natural order in children's use of second language learning strategies. *Applied Linguistics, 6*(1), 45-59.

Chesterfield R.A., Chesterfield, K.B., Hayes-Lattimer, K., & Chavez, R. (1983). The influence of teachers and peers on second language acquisition in bilingual preschool programs. *TESOL Quarterly, 17*(3), 401-419.

Cisero, C.A., & Royer, J.M. (1995). The development of cross-language transfer of phonological awareness. *Contemporary Educational Psychology, 20*(3), 275-303.

Crawford, J. (1999). *Bilingual education: History, politics, theory, and practice.* Los Angeles: Bilingual Education Services.

Cummins, J. (1979) Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research, 49*(2), 222-251.

Cummins, J. (1981). Empirical and theoretical underpinnings of bilingual education. *Journal of Education, 163*(1), 16-29.

Cummins, J. (1986). Language proficiency and language achievement. In J. Cummins & M. Swain (Eds.), *Bilingualism in education* (pp. 138-161). London: Longman.

Cummins, J. (2000). *Language, power, and pedagogy: Bilingual children in the crossfire.* Buffalo, NY: Multilingual Matters.

Cummins, J. (2001). Instructional conditions for trilingual development. *International Journal of Bilingual Education and Bilingualism, 4*(1), 61-75.

Diaz, R.M., & Klingler, C. (1991). Towards an explanatory model of the interaction between bilingualism and cognitive development. In E. Bialystock (Ed.) *Language processing and bilingual children* (pp. 167-192). Cambridge: Cambridge University Press.

Duncan, G.J., & Magnuson, K.A. (2005). Can family socioeconomic resources account

    for racial and ethnic test score gaps? *The Future of Children, 15*(1), 35-54.

Durgunoğlu, A.Y., Nagy, W.E., & Hacin-Bhatt, B.J. (1993). Cross-language transfer of

    phonological awareness. *Journal of Educational Psychology, 85*(3), 453-465.

Durgunoğlu, A.Y., Peynircioğu, Z.F., & Mir, M. (2002). The role of formal definitions

    in reading comprehension of bilingual students. In R.R. Heredia & J. Altarriba

    (Eds.) *Bilingual sentence processing* (pp.299-316). Amsterdam, NY: North-

    Holland//Elsevier.

Elementary and Secondary Education Act. of 1965, Public Law 89-10 §70.

Fashola, O.S., Slavin, R.E., Calderón, M., & Durán, R. (2001). Effective programs for

    Latino students in elementary and middle school. In R. Slavin and M. Calderón

    (Eds.). *Effective programs for Latino students.* Mahwah, NJ: Lawrence Erlbaum

    Associates.

Fernandez, M., Pearson, B., Umbel, V., Oller, D., & Molinet-Molina, M. (1992).

    Bilingual receptive vocabulary in Hispanic preschool children. *Hispanic Journal*

    of Behavioral Sciences, 14(2), 268-276.

Francis, D., Lesaux, N., & August, D. (2006). Language of instruction. In D. August &

    T. Shanahan (Eds.). *Developing literacy in second-language learners: Report of*

    the national literacy panel on language-minority children and youth (pp. 365-

    413). Mahwah, NJ: Lawrence Erlbaum.

Fryer, R.G., & Levitt, S.D. (2006). The Black-White test score gap through third grade.

    American Law and Economics Review, 8(2), 249-281.

Genesee, F. (Ed.). (1999). *Program alternatives for linguistically diverse students.* (Educational Practice Report No. 1). Santa Cruz, CA: Center for Research on Education Diversity & Excellence.

Genesee, F., Lindholm-Leary, K., Saunders, W.M., & Christian, D. (2006a). Conclusions and future directions. In D. August & T. Shanahan (Eds.). *Developing literacy in second language learners: Report of the national literacy panel on language-minority children and youth* (pp. 223-234). Mahwah, NJ: Lawrence Erlbaum Associates.

Genesee, F., Geva, E., Dressler, C., & Kamill, M. (2006b). Synthesis: Cross-linguistic relationship. In D. August & T. Shanahan (Eds.). *Developing literacy in second-language learners: Report of the national literacy panel on language-minority children and youth* (pp. 153-174). Mahwah, NJ: Lawrence Erlbaum Associates.

Geva, E. (2006). Second-language oral proficiency and second-language literacy. In D. August & T. Shanahan (Eds.). *Developing literacy in second-language learners: report of the national literacy panel on language-minority children and youth* (pp. 123-140). Mahwah, NJ: Lawrence Erlbaum Associates.

Gillion, G., & Dodd, B.J. (1994). A prospective study of the relationship between phonological, semantic, and syntactic skills and specific reading disability. *Reading and Writing, 6*, 321-345.

Goldstein, B., Harris, K., & Klein, M.D. (1993). Assessment of oral storytelling abilitites of Latino junior high students with learning handicaps. *Journal of Learning Disabilities 26* (2), 138-143.

Gough, P.B., & Tunmer, W.E. (1986). Decoding, reading, and reading disability. *Remedial and Special Education, 7*, 6-10.

Hancin-Bhatt, B., & Nagy, W. (1994). Lexical transfer and second language morphological development. *Applied Psycholinguistics, 15*(3), 289-310.

Hakuta, K., Butler, Y.G., & Witt, D. (2000). How long does it take English learners to attain proficiency? Linguistic Minority Research Institute. (ERIC Document Reproduction Service No. FL 026 180). Available at LMRI website: http://www.lmri.ucsb.edu/resdiss/pdf files/hakuta.pdf.).

Hakuta, K., & Diaz, R.M. (1985). The relationship between degree of bilingualism and cognitive ability: A critical discussion and some new longitudinal data. In K.E. Nelson (Ed.), *Children's language* (Vol. 5, pp. 319-344.) Hillside, NJ: Erlbaum.

Hakuta, K., & Garcia, E.E. (1989). Bilingualism and education. *American Psychologist, 44*(2), 374-379.

Hoover, H.D., Dunbar, S.B., & Frisbie, D.A. (1996). *Iowa test of basic skills*. Itasca, IL: Riverside Publishing.

Hoover, W.A., & Gough, P.B. (1990). The simple view of reading. *Reading and Writing: An Interdisciplinary Journal, 2*, 127-190.

Irby, B.J., Lara-Alecio, R., Quiros, A.M., Mathes, P.G., & Rodriguez, L. (2004). *English language and literacy acquisition evaluation research program (Project ELLA): Second annual evaluation report.* Washington, DC: Institute for Educational Sciences. U.S. Department of Education.

Jiménez, R.T., García, G.E., & Pearson, P.D. (1996). The reading strategies of bilingual latina/o students who are successful English readers: Opportunities and Obstacles. *Reading Research Quarterly, 31*(1), 90-112.

Johnson, D.M. (1983). Natural language learning by design. A classroom experiment in social interaction and second language acquisition. *TESOL Quarterly, 17*(1), 55-68.

Kako, E.T. (1999). The event semantics of syntactic structure (meaning of words, grammatical roles). *Dissertation Abstracts International: Section B. The Sciences and Engineering, 59*, 6085.

Kieffer, M.J., & Lesaux, N.K. (2008). The role of derivational morphology in the reading comprehension of Spanish-speaking English language learners. *Read Writ, 21*, 783-804.

Kindler, A.L. (2002). *Survey of the states' limited English proficient students and available educational programs and services: 2000-2001 summary report*. Washington, DC: National Clearinghouse for English Language Acquisition & Language Instruction Educational Programs.

Kline, R.B. (2005). *Principles and practice of structural equation modeling.* New York, NY: The Guilford Press.

Krashen, S. (1981). *Second language acquisition and second language learning*. Oxford, England: Pergamon Press.

Lakeshore Learning Materials. (1997). *Question of the day*. Carson, CA: Author.

Langer, J.A., Bartolome, L., Vásquez, O., & Lucas, T. (1990). Meaning construction in school literacy tasks: A student of bilingual students. *American Educational Research Journal, 27*(3), 427-471.

Lara-Alecio, R., Irby, B., & Mathes, P. (2003). *English language and literacy acquisition (Project ELLA)*. U.S. Department of Education, Washington, DC 20202, Contract No R305P030032.

Lara-Alecio, R., Irby, B., & Meyer, D. (2001). Bilingual and English as a second language programs. In G. Schroth & M. Littleton (Eds.). *The administration & supervision of special programs in education* (pp. 77-96). Dubuque, IA: Kendall/Hunt.

Lau v. Nichols, 414 U.S. 56 (1974).

Lessow-Hurley, J. (2005). *The foundations of dual language instruction*. Boston, MA: Pearson.

Lindholm, K.J. (1987). English question use in Spanish-speaking ESL children: Changes with English language proficiency. *Research in the Teaching of English, 21*(1), 64-91.

Lindholm-Leary, K.J. (2001). *Dual language education*. Clevedon, UK: Multilingual Matters.

Lindholm-Leary, K., & Block, N. (2010). Achievement in predominately low SES/Hispanic dual language schools. *International Journal of Bilingual Education and Bilingualism, 13*(1), 43-60.

Lindsey, K.A., Manis, F.R., & Bailey, C.E. (2003). Prediction of first-grade reading in

    Spanish-speaking English-language learners. *Journal of Educational Psychology,*

    95(3), 482-494.

Logramos (2nd ed.). (2006). Rolling Meadows, IL: The Riverside Publishing Company.

Malave, L. (1989). Contextual elements in a bilingual cooperative setting: The

    experiences of early childhood LEP learners. *NABE Journal*, 13, 96-122.

Manis, F.R., Lindsey, K.A., & Bailey, C.E. (2004). Development of reading in grades

    K-2 in Spanish-speaking English-language learners. *Learning Disabilities*

    Research and Practice, 19(4), 214-244.

Mathes, P.G., & Torgensen, J.K. (2005). *Early intervention in reading*. Columbus, OH:

    SRA/McGraw- Hill.

Medina, M., & Escamilla, K. (1992). English acquistion by fluent- and limited-

    Spanish-proficient Mexican-Americans in a 3-year maintence bilingual program.

    Hispanic Journal of Behavioral Sciences, 14(2), 252-267.

Miller, J.F., Heilmann, J., Nockerts, A., Iglesias, A., Fabiano, L., & Francis, D.J. (2006).

    Oral language and reading in the bilingual classroom. *Learning Disabilities*

    Research & Practice, 21(1), 30-43.

Milk, R.D. (1982). Language use in bilingual classrooms: Two case studies. In M.

    Hines & W. Rutherford (Eds.), *On TESOL '81* (pp. 181-91). Washington DC:

    TESOL.

Milne, A.M., & Gombert, J.M. (1981). *Students with primary language other than English: Distribution and service rates.* Washington, DC: Office of Budget, Planning, and Evaluation.

Nagy, W.E., García, G.E., Durgunoğlu, A.Y., & Hancin-Bhatt, B. (1993). Spanish-English bilingual students' use of cognates in English reading. *Journal of Reading Behavior, 25*(3), 241-259.

Nakamoto, J., Lindsey, K.A., & Manis, F.R. (2008). A cross-linguistic investigation of English language learners' reading comprehension in English and Spanish. *Scientific Studies of Reading, 12*(4), 351-371.

Nation, I.S. (2001). *Learning vocabulary in another language*. Cambridge, England: Cambridge University Press.

No Child Left Behind Act of 2001, 115 U.S.C. §1450.

Ordóñez, C.L., Carlo, M.S., Snow, C.E., & McLaughlin, B. (2002). Depth and breadth of vocabulary in two languages: Which vocabulary skills transfer? *Journal of Educational Psychology, 94*(4), 719-728.

Ovando, C.J., & Collier, V.P. (1998). Bilingual *and ESL classrooms: Teaching in multicultural contexts.* Boston, MA: McGraw-Hill.

Padron, Y.N., Waxman, H.C., & Rivera, H.H. (2002). *Educating Hispanic students: Obstacles and avenues to improve academic achievement* (Report No. EPR08). Santa Cruz: University of California, Center for Research on Education, Diversity, and Excellence.

Pease-Alvarez, L., & Winsler, A. (1994). Cuando el maestro no habla Español: Children's bilingual language practices in the classroom. *TESOL Quarterly, 28*(3), 507-535.

Peregoy, S., & Boyle, O. (1991). Second language oral proficiency characteristics of low, intermediate, and high second language learners. *Hispanic Journal of Behavioral Sciences, 13*(1), 35-47.

Proctor, C.P., Carlo, M.S., August, D., & Snow, C. (2005). Native Spanish-speaking children reading in English: Toward a model of comprehension. *Journal of Educational Psychology, 97*, 246-256.

Proctor, C.P., Carlo, M.S., August, D., & Snow, C. (2006). The intriguing role of Spanish language vocabulary knowledge in predicting English reading comprehension. *Journal of Educational Psychology, 98*(1), 159-169.

Raykov, T., & Marcoulides, G. (2006). *A first course in structural equation modeling.* Mahwah, NJ: Lawrence Erlbaum.

Reisner, E.R. (1981). *The availability of bilingual education teachers: Implications for Title VI enforcement and good educational practice.* Washington, DC: Office of Budget, Planning, and Evaluation.

Riches, C., & Genesee, F. (2006). Crosslinguistic and crossmodal issues. In F. Genesee, K. Lindholm-Leary, W. Saunders, & D. Christian (Eds.), *Educating English language learners: A synthesis of research evidence* (pp. 64-108). New York: Cambridge University Press.

Rodriguez-Brown, F.V. (1987). Questioning patterns and language proficiency in

bilingual students. *NABE Journal, 13*(3), 217-233.

Rosenthal, A.S., Milne, A.M., Ginsburg, A.L., & Baker, K.A. (1981). *A comparison of

the effects of language background and socioeconomic status on achievement

among elementary school students.* Washington, DC: Office of Budget, Planning,

and Evaluation.

Rossell, C.H., & Baker, K. (1996). The educational effectiveness of bilingual education.

Research in the Teaching of English, 30(1), 7-69.

Roth, F.P., Speece, D.L., Cooper, D.H., & de la Paz, S. (1996). Unresolved mysteries:

How do metalinguistic and narrative skills connect with early reading*? The

Journal of Special Education, 30*, 257-277.

Rowan, B., & Miller, R.J. (2007). Organization strategies for promoting instructional

change: Implementation dynamics in schools working with comprehensive

school reform providers. *American Educational Research Journal, 44* (2), 252-

297.

Royer, J.M., & Carlo, M.S. (1991). Assessing the language acquisition progress of

limited English proficient students: Problems and a new alternative. *Applied

Measurement in Education, 4*(2), 85-113.

San Miguel, G. (2004). *Contested policy: The rise and fall of bilingual education in the

United States.* Denton, TX: University of North Texas Press.

Saunders, W.M., & O'Brien, G. (2006). Oral language. In F. Genesee, K. Lindholm-Leary, W. Saunders, & D. Christian (Eds.), *Educating English language learners: A synthesis of research evidence* (pp. 14-63). New York: Cambridge University Press.

Saville-Troilke, M. (1984). What really matters in second language learning for academic achievement. *TESOL Quarterly, 18*(2), 199-219.

Slavin, R.E., & Cheung, A. (2005). A synthesis of research on language of reading instruction for English language learners. *Review of Educational Research, 75*(2), 247-284.

Snow, C.E., Cancino, H., Gonzalez, P., & Sriberg, E. (1987). *Second language learners' formal definitions: An oral language correlate of school literacy* (Tech. Rep. No. 5). Los Angeles: University of California, Center for Language Education and Research.

Solari, E.J., & Gerber, M.M. (2008). Early comprehension instruction for Spanish-speaking English language learners: Teaching text-level reading skills while maintaining effects on word-level skills. *Learning Disabilities Research, 23*(4), 155-168.

Soltero, S.W. (2004). *Dual language: Teaching and learning in two languages.* Boston, MA: Pearson.

Stahl, S.A., & Fairbanks, M.M. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research, 56*(1), 72-110.

Stevens, R.A., Butler, F.A., & Castellan-Wellington, M. (2000). Academic language and content assessment: Measuring progress of ELLs. Los Angeles: Center for the Study of Evaluation.

Stoller, F., & Grabe, W. (1995). Implications for L2 vocabulary acquisition and instruction from L1 vocabulary research. In T. Huckin, M. Hayes, & J. Coady (Eds.), *Second language reading and vocabulary learning* (pp 24-45). Norwood, NJ: Ablex.

Swanson, H.L., Rosston, K., Gerber, M., & Solari, E. (2008). Influence of oral language and phonological awareness on children's bilingual reading. *Journal of School Psychology, 46*, 413-429.

Texas Education Code, 74th Leg., Ch. 260, § 1, eff. May 30, 1995.

Thomas, W., & Collier, V. (2002). *A national study of school effectiveness for language minority students' long-term academic achievement final report: Project 1.1* Santa Cruz, CA and Washington DC: Center for Research on Education, Diversity, and Excellence.

Tong, F., Irby, B.J., Lara-Alecio, R., & Mathes, P.G. (2008). English and Spanish acquisition by Hispanic second grades in developmental bilingual programs. *Hispanic Journal of Behavioral Sciences, 30* (4), 500-529.

U.S. Census Bureau. (2008, February 8). *Hispanic population in the United States: 1970 to 2050.* Retrieved June 22, 2010, from http://www.census.gov/population/www/ soc/demo/hispanic/files/Projections.xls

U.S. Census Bureau. (n.d.) *Hispanics in the United States.* Retrieved June 22, 2010, from http://www.census.gov/population/www/socdemo/Hispanic/files/ Internet_Hispanic_in_US_2006.ppt

U.S. Department of Education, Institution of Education Sciences federal grant, Project ELLA, R305P030032

U.S. Department of Education (1991). *The condition of bilingual education in the nation: A report to the Congress and the President.* Office of the Secretary. Washington, DC: U.S. Department of Education.

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. (2007). *Average reading scale scores of 4th- and 8th- graders in public schools and percentages scoring at or above selected reading achievement levels, by English language learner (ELL) status and state or jurisdiction*. Retrieved June 22, 2010 from http://nces.ed.gov/programs/Digest/ d09_124.asp.

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. (2004, August). *English language learner students in U.S. public schools: 1994-2000.* Retrieved June 22, 2010 from http://nces.ed.gov/ pubsearch/pubsinfo.asp?pubid=2004035.

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. (2010, May). *The condition of education 2010*. Retrieved January 8, 2011 from http://nces.ed.gov/pubs2010/2010028.pdf.

Ventriglia, L. & González, L. (2000). *Santillana intensive English*. Miami, FL:

Santillana USA.

Wong-Fillmore, L. (1991). Second-language learning in children: A model of language learning in social context. In E. Bialystok (Ed.). *Language processing in bilingual children* (pp. 49-69). Cambridge, England: Cambridge University Press.

VITA

Tracy Griffin Spies
Texas A&M University
College of Education and Human Development
Department of Educational Psychology
Bilingual Education Programs
College Station, TX 77843-4225
Email: tspies@neo.tamu.edu
Cell: 979-777-7786
Office: 979-209-3955

EDUCATION	B.S., University of Houston, Interdisciplinary Studies (Spanish and Reading), 1997 M.A., Sam Houston State University, 2002 PhD., Texas A&M University, 2011
CERTIFICATION	Texas Mid-Management Certificate Texas Bilingual ESL (lifetime) Texas Early Childhood Texas Spanish (lifetime) Texas Reading (lifetime)
LANGUAGES	English and Spanish

AREAS OF RESEARCH AND PROFESSIONAL INTEREST

Cross-linguistic transfer and curriculum development in dual and bilingual classrooms
Literacy interventions for struggling English language learners
Coaching models to improve instruction in bilingual and monolingual teachers
Metacognitive strategies in bilingual readers