

THE EFFECT OF FIRST LANGUAGE LITERACY SKILLS ON SECOND LANGUAGE
LITERACY SKILLS FOR NATIVE SPANISH AND NATIVE ENGLISH SPEAKERS

by

SARAH PAULINE WATKINS-MACE

M. L. S., Fort Hays State University, 2003

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Curriculum and Instruction
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2006

Abstract

It has long been believed that how well one reads and writes in his/her first language will help a learner when trying to read and write in a second language. In an attempt to explore this issue more thoroughly, the researcher administered the Spanish Idea Proficiency Test (IPT) and the English Idea Proficiency Test form 3B, along with a questionnaire obtaining specific demographic data (first semester second language grade, grade point average, gender, grade in school, number of semesters studied the second/foreign language, and the number of languages the student had studied) to 96 Kansas high school students (48 Native Spanish speakers learning English in an English as a second language environment; 48 Native English speakers learning Spanish in a foreign language setting).

First, the researcher wanted to determine if first language literacy skills, along with demographic data, predicted second language proficiency scores. Using the 5 reading subscales and the 3 writing subscales from the IPT, as well as the 6 variables from the demographic data, a multiple linear regression was run, along with regressions for each subgroup. It was determined that the 14 variables accounted for 83% of the variance.

Second, the researcher wanted to determine the nature of the relationship between first language literacy skills and second language literacy skills. To this end, several Pearson's r were figured. While a negative relationship for the first and second language proficiency scores was found, a slight positive relationship was found between

the first and second language scores for the two subgroups. Additionally, a significantly positive relationship was found for first and second language reading and writing proficiency scores for the native Spanish speakers. Also, a significant positive relationship was found for first semester second language grade and second language reading scores for native English speakers.

Third, the researcher wanted to determine if there was a difference between the two subgroups' second language proficiency scores when controlling for the length of time studied. When an ANCOVA was conducted, there was found to a significant difference between the proficiency scores of the two subgroups, with the native Spanish speakers having a higher mean.

THE EFFECT OF FIRST LANGUAGE LITERACY SKILLS ON SECOND LANGUAGE
LITERACY SKILLS FOR NATIVE SPANISH AND NATIVE ENGLISH SPEAKERS

by

SARAH PAULINE WATKINS-MACE

M. L. S., Fort Hays State University, 2003

A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

Doctor of Philosophy

Department of Curriculum and Instruction
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2006

Approved by:

Major Professor
Michael Perl

Copyright

SARAH PAULINE WATKINS-MACE

2006

Abstract

It has long been believed that how well one reads and writes in his/her first language will help a learner when trying to read and write in a second language. In an attempt to explore this issue more thoroughly, the researcher administered the Spanish Idea Proficiency Test and the English Idea Proficiency Test (IPT) form 3B, along with a questionnaire obtaining specific demographic data (first semester second language grade, grade point average, gender, grade in school, number of semesters studied the second/foreign language, and the number of languages the student had studied) to 96 Kansas high school students (48 Native Spanish speakers learning English in an English as a second language environment; 48 Native English speakers learning Spanish in a foreign language setting). First, the researcher wanted to determine if first language literacy skills, along with demographic data, predicted second language proficiency scores. Using the 5 reading subscales and the 3 writing subscales from the IPT, as well as the 6 variables from the demographic data, a multiple linear regression was run, along with regressions for each subgroup. It was determined that the 14 variables accounted for 83% of the variance. Second, the researcher wanted to determine the nature of the relationship between first language literacy skills and second language literacy skills. To this end, several Pearson's r were figured. While a negative relationship for the first and second language proficiency scores was found, a slight positive relationship was found between the first and second language scores for the two subgroups. Additionally, a significantly positive relationship was found for first

and second language reading and writing proficiency scores for the native Spanish speakers. Also, a significant positive relationship was found for first semester second language grade and second language reading scores for native English speakers. Third, the researcher wanted to determine if there was a difference between the two subgroups' second language proficiency scores when controlling for the length of time studied. When an ANCOVA was conducted, there was found to a significant difference between the proficiency scores of the two subgroups, with the native Spanish speakers having a higher mean.

Table of Contents

List of Tables	xi
Acknowledgements.....	xii
Dedication.....	xiii
CHAPTER 1 - Introduction to the Study.....	1
Background of the Study	2
Foreign Language Learning.....	2
Immersion Programs.....	3
Two-way Immersion Programs.....	4
English as a Second Language.....	4
The Problem Statement.....	6
The Professional Significance of the Study.....	7
Overview of the methodology	8
Development of Additional Survey	9
Collection of Data.....	10
Limitations of the Study	10
Delimitations of the study.....	10
Definitions of key terms	11
Summary.....	15
CHAPTER 2 - Review of the Literature.....	16
Development of a Learner's First Language and Literacy	16
Development of a Learner's Native Language	17
Development of a Learner's Native Language Literacy.....	17
Development of Biliteracy	19
Advantages of Bilingualism.....	20
Second Language Acquisition Theories and Explanations.....	20
Brief Explanation of Second Language Acquisition Theories.....	21
More Explanation about Two Theories	23
Theoretical Literature	27

Difference Between Common Underlying Proficiency Hypothesis and the Separate Underlying Proficiency Model	27
Developmental Interdependence Hypothesis.....	28
Transfer	30
Language Aptitude.....	33
Motivation in Language Learning.....	34
Empirical Research.....	34
CHAPTER 3 - Overview of the Methodology	58
The General Perspective	58
The Research Context.....	58
The Research Participants.....	60
Instruments Used in Data Collection	61
Questionnaire	62
IDEA Reading and Writing Proficiency Tests.....	62
Procedures Used	65
Data Analysis.....	67
Summary of the Methodology	70
CHAPTER 4 - Presenting the Results	71
First Language Literacy Skills Predicting Second Language Literacy Skills – Complete Group	72
Multiple Linear Regression of 14 Factors of Native English and Spanish Speakers	73
Relationship between L1 Literacy Skills and L2 Literacy Skills	76
Correlation between L1 Totals and L2 Totals	76
Differences between Native English and Spanish Speakers Proficiency Scores.....	77
Univariate Analysis of Covariance for Native English and Spanish Speakers for the L2 Totals.....	78
Univariate Analysis of Covariance for Native English and Spanish Speakers for L1 Totals	79
Comparing Native Language Scores of Native English and Spanish Speakers	81
CHAPTER 5 - Summary and Discussion of Results	85
The Problem Statement.....	85

Review of Methodology	86
Summary of Results.....	87
Discussion of the Results	91
Interpretation of the Findings & Relationship to Previous Research	91
References.....	100
Appendix A - Questionnaires.....	106
Appendix B - Parent Notification and Consent Forms	108
English Version.....	108
Spanish Version	112

List of Tables

Table 1 Summary of Empirical Research Studies	47
Table 2 Hierarchical Multiple Regression of 8 First Language Independent Variables and 6 Demographic Variables with the Total Second Language Score Model Summary	75
Table 3 ANOVA for 14 Variable Hierarchical Linear Regression Model	75
Table 4 Coefficients for 14 variable Equation	76
Table 5 Native Spanish speaker and Native English speaker Group Means (Descriptive Statistics) for Second Language Totals	79
Table 6 ANCOVA For Between Subjects Effects for Native Spanish Speakers and Native English Speakers	79
Table 7 Descriptive Statistics for Native English and Spanish speakers Group Means (Descriptive Statistics) First Language Totals	80
Table 8 ANCOVA for Native English and Spanish Speakers Between-Subjects Effects for First Language Totals	80
Table 9 Native English Speakers 3 Variable Hierarchical Regression Model Summary	82
Table 10 ANOVA for Native English Speakers 3 Variable Hierarchical Regression	82
Table 11 Coefficients for Native English Speakers 3 Variable Hierarchical Regression	82
Table 12 Native Spanish Speakers 3 Variable Hierarchical Regression Model Summary	83
Table 13 ANOVA for Native Spanish Speakers 3 Variable Hierarchical Regression	83
Table 14 Coefficients Native Spanish Speakers 3 Variable Hierarchical Regression	83

Acknowledgements

I would like to take this opportunity to acknowledge the collective contributions of many people. I would like to thank Dr. Michael Perl, my major advisor, for the long hours he put in helping me prepare my dissertation, and my committee members, Dr. Marjorie Hancock, Dr. Lawrence Scharmann, Dr. Sarah Jane Fishback, and Dr. Greg Eiselein. In addition, I would like to thank Dr. Pat Staver for her countless hours of help and encouragement over the last two and a half years. I would like to thank all of my friends and family who helped me work towards this goal. I would like to thank Katie Mace for keeping my little boy many afternoons so I could make trips to Manhattan. I would like to thank John and Virginia Mixer who provided me with a home during one of the most chaotic times of my life; bless you. I would like to extend my gratitude to John Mixer and Sarah Miller for helping me grade the writing tests. Most importantly, I would like to thank my husband, Benjamin Mace, and my mother, Marsha Watkins. Without their willingness to sacrifice their time and offer encouragement, I would not have gotten this far. It is because of their faith I finished this dissertation and degree. Ben, you have been my rock and support. May you find your dreams, as well. I love you!

Dedication

I dedicate this dissertation to my son, Robert Thomas Watkins Mace. He arrived earlier than he should have, caused us months of worry, weathered the nights of his mother working on her dissertation after he came home, and continues to be the light of our lives. May you always know the saving grace of Christ in your life and the value of education in finding your place in this world.

CHAPTER 1 - Introduction to the Study

Literacy is the hallmark of an educated society. In an ever increasingly small world both technologically and linguistically, developing literacy in at least two languages will serve individuals and the global community well. Much work and many challenges lie in becoming biliterate, fully able to read and write in two languages. It takes many patient years of study and discipline for a learner to successfully master two languages (Hadaway, Vardell, & Young, 2002). According to James Cummins' Developmental Interdependence Hypothesis, if the learner starts out learning a second language after developing high competence in his/her first language, attaining a high level of competence in the second language will be much easier (1979). A learner is able to develop biliterate skills if he/she is competent in both languages. In order to become a balanced bilingual, a learner needs to work to achieve equal competence in both languages. The more people who are balanced bilinguals, the more benefits society will receive. Biliterate balanced bilinguals will open economic and cultural doors for the United States.

In the United States, most native English speakers are only academically exposed to another language in the foreign language classroom. Foreign language teachers are often confronted with the reality that not all of their students are able to easily master the new language. Many foreign language teachers find that they have to teach English because their students do not know their first language adequately enough to learn a second language, because their English is weak. The purpose of this

study was to determine the extent to which knowledge of their native language affects students' ability to learn a second language.

This dissertation was a descriptive statistical study of the effect of first language literacy skills on second language literacy skills. The study was based primarily upon assessments completed in high school Spanish II, Spanish III, Spanish IV, as well as ESL English classes of 9th and 10th graders. The assessments were completed in the Kansas schools of Stoney Brooke High School, County High School and Western City High School. The assessments were the [Idea Proficiency Test \(IPT\) 3-Spanish R&W-Test Set](#) and the IPT 3B-English R&W-Test Set from Ballard and Tighe (2004).

The first chapter of the dissertation presents the background of the study, specifies the problem of the study, describes its significance, and presents an overview of the methodology used. The chapter concluded by noting the limitations and delimitations of the study and defining some special terms used.

Background of the Study

It is useful at this point to explore the conditions that were the impetus for this study. There are a number of competing methods of second language teaching. There are immersion programs, two-way immersion programs, and foreign language programs. All of these have the one common goal of teaching learners another language, while maintaining some tie with the students' first language.

Foreign Language Learning

First, the most common and familiar program in the United States for teaching students a second language is the foreign language classroom. In this situation, students may have no additional contact with the target language and culture except for

the time spent in the foreign language classroom. The students are taught about the target language and sometimes in the target language, for a period during the school day. The rest of the day is spent with students learning their content classes, like history or math, in their native language (Lee & Van Patten, 2003). Foreign language classes are most often found in high schools; however, foreign language programs are prevalent in large school districts in elementary and middle schools (Curtain & Dahlberg, 2004). In recent years, foreign language learning has centered around the national standards and trying to make the language related to content (Shrum & Glisan, 2000).

Immersion Programs

Second, in immersion programs, students are taught in one language, the target language. In the United States, students in a program like this often are not native English speakers; they speak the language of instruction. Along with non-native English speakers, there will be students whose native language is English. Many English-speaking parents will send their children to these schools because they want them to learn another language. If the language of instruction is not the students' native language, then the students are expected to maintain their native language ties through their home environment. The language is not the object of instruction as in the foreign language classroom, but is the vehicle of instruction. Students learn science, math, history, and other subjects while it is being taught in the target language. Eventually the school day may come to include at least some time in the dominant societal language (Curtain & Dahlberg, 2004). These sorts of programs became common in Canada in the mid-twentieth century as bilingualism gained prominence. While they are not as

common in the United States, immersion schools are spread throughout the United States and offer a unique alternative to the traditional monolingual English educational setting (Curtain & Dahlberg, 2004).

Two-way Immersion Programs

Finally, in two-way immersion programs, students learn in two languages. Typically, the students spend half of the day being instructed in the dominant language and the other half of the day is spent with instruction in the target language. Schools will typically attempt to place students whose native language is not the dominant language in such classrooms and they will also place dominant language speakers in those classrooms (Curtain & Dahlberg, 2004). Two-way immersion is a unique second language learning program. Students who speak English and students who speak another language would both be exposed to two languages and be able to develop proficiency in both languages.

English as a Second Language

In practice, not much different from the previously described programs, but coming from an opposing theoretical basis is the English as a Second Language (ESL) philosophy. In the U. S., students arrive in these programs speaking little or no English. The primary purpose of these programs is for students to learn English quickly so that they will not fall behind in their content classes, which are all taught in English. There is a whole range of various scenarios. An ESL-certified teacher could teach these students all day in the elementary setting. If the numbers are not large enough for an entire class to call for an ESL teacher, then the students could be pulled out and sent to the ESL teacher for language arts instruction. The ESL teacher would have several

students from several different grades working on various assignments at this point. In the middle and high school settings, the students will perhaps be sent to the ESL teacher for language arts instruction. They will also receive help with their other content-area classes that they will typically have trouble with because of language differences (Hadaway, Vardell, & Young, 2002).

One important difference between ESL programs and the others described is that the students' first language is not really even an issue. The teachers are concerned with the students rapidly acquiring social and academic language so that they can be sent to traditional language arts teachers and not require assistance with their content-area classes.

For all of the different kinds of programs available to U. S. students, they are not usually encouraged to learn another language. While it may be quite common for most Westerners to speak another language, it is the exception rather than the rule in the U.S.

As a matter of fact, in the United States, there is a large push for English-only laws. Immigrants from around the world arrive in this country without the ability to speak English. Native English speakers in the United States, especially those unaccustomed to hearing languages other than English, want everyone who comes to this country to learn English immediately and dispense with their first language. However, learning English so quickly is unreasonable (Zavodny, 2000). The process of learning a second language can take many years before a learner can successfully function in an academic setting.

Because there is the common opinion that learners should be able to acquire academic proficiency in a language rather quickly, legislation passed by Congress and signed by the President encourages schools to include second language learners' test scores in their reports made for Annual Yearly Progress (AYP) (U. S. Congress). The challenge then becomes that schools are judged on whether they achieve AYP based on students' test scores. If second language learners have to take a test in their second language, they will not score well because of the language barrier. The No Child Left Behind (NCLB) legislation that Congress passed and the President signed suggests schools include English Language Learners in their percentages when the students take the reading and math assessments (Paige, 2005).

Educators are gravely concerned with what they can do to improve their students' test scores so that their schools will continue to receive funding due to the expectation of meeting AYP. They are looking at new ways to help meet the needs of students so that the test scores will continue to improve in compliance with NCLB, which requires the use of research-based instructional practices (U. S. Congress). Therefore, educators are seeking research that will shed light on their predicament.

The Problem Statement

According to Cummins' (1979) Developmental Interdependence hypothesis, strong first language literacy skills have a positive impact on a learner's second language skills, but there has been limited research to adequately explore this topic.

RESEARCH QUESTIONS:

- Do first language literacy skills predict second language literacy skills?

- Is there a positive relationship between the degree of proficiency in L1 and the degree of proficiency in L2?
- Is there a difference between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers?

RESEARCH HYPOTHESES:

1. First language (L1) literacy skills are a predictor of second language (L2) literacy skills. ($p < .05$)
2. There will be a positive relationship between L1 literacy skills and L2 literacy skills. ($p < .05$)
3. There will be no significant difference on the scores of the IPT between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers. ($p < .05$)

The Professional Significance of the Study

This study is important for many reasons. Because those who use the different methods of teaching a second language have different opinions about the influence a person's first language has on learning a second language, more study needs to be done to determine the exact nature of the role of the first language. The methods used in this study have been used on a limited basis by other practitioners. The Idea Proficiency Test (IPT) is a commonly used test and is widely accepted. Through the use of this examination tool, the position of the first language in relation to the second language was more clearly defined by the statistical analyses conducted following the collection of data.

The results from this study can be applied in the immersion programs, two-way immersion programs, and foreign language classrooms. They will help the teachers in each setting have a clearer idea of how much emphasis to place on the first language when helping the learner to read and write in his/her new language. In immersion programs, teachers could use information from this study and expand it to have a clearer idea of when to start teaching the child's first language. In two-way immersion, practitioners will be able to determine how they should place more emphasis on the development of the first language over the second language to ensure balanced bilingualism. In the foreign language classroom, from this study, teachers will have a better notion of the role of the first language in second language acquisition. Foreign language teachers could start teaching more of the first language in their classroom or working more closely with the language arts teachers to make sure that students come to the foreign language classroom with the prerequisite knowledge.

Cummins' Developmental Interdependence Hypothesis has yet to be investigated in this fashion. This study should help to clear up some of the disagreement and confusion surrounding this hypothesis and the role of the first language in the second language learning.

Overview of the methodology

Secondary native English-speaking students who were enrolled in Spanish II, Spanish III or Spanish IV high school classes and native Spanish speaking students who were in ESL English classes were given standardized reading and writing language tests in English and in Spanish. The tests used were the IPT 3B-English R&W-Test Set and the [IPT 3-Spanish R&W-Test Set](#), and a survey of personal information that asked

for age, grade point average, gender, the number of semesters the second language had been studied, their fall semester second language grade, either in ESL English class or in Spanish class in percents as supplied to the students by the classroom teacher, and how many languages they have studied. The scores were then analyzed.

First, a simple linear regression model was run. First language (L1) skills were represented by the X and Y represented the score from the second language (L2) literacy skills ($Y=a+bX$). Additional factors were added as appropriate, moving the analysis from simple linear regression to multiple linear regression. The additional factors included the eight subscales from the reading and writing proficiency tests, the students' GPA, gender, grade in Spanish or English class from fall semester, year in school, or number of semesters they had studied their second/foreign language.

Additionally, two Univariate Analyses of Covariance (ANCOVA) were run to determine the differences between the Spanish native speakers' proficiency learning English and the English native speakers' proficiency learning Spanish. The covariate to be controlled for was the number of semesters that learners had spent studying the language.

Development of Additional Survey

Additional information was obtained from a questionnaire that was given to the students before they took the test. The students were asked to provide the number of semesters that they had studied their second language, their GPA, their Spanish or English grade, their native language, and the number of languages they have studied and/or know. In order to ensure the clarity of the questionnaire, a brief pilot study was conducted. The questionnaire was given to four sophomore English students who were

each consulted on an individual basis to determine what they thought the questions were asking. The researcher listened to each persons' explanation of each question. She determined that all questions were correctly interpreted by each student. Since no changes were recommended by the students, no changes were made.

Collection of Data

After the data were collected in January 2006, the tests were scored. The reading tests were scored according to the answer key and trained scorers graded the writing tests. The raw scores were divided by points possible to obtain a percentage. After the percentages were determined, the Pearson's r was calculated to determine the strength of the relationship between L1 and L2 literacy skills. The Statistical Package for the Social Sciences (SPSS) was used to conduct the correlations, multiple linear regression, as well as the ANCOVAs.

Limitations of the Study

There are a number of limitations to the study. First, using only volunteers will limit the generalizability of the study. Additionally, the native Spanish speakers took the English IPT in November and December of 2005, weeks before they took the Spanish IPT in January of 2006. Because so much time passed between the administration of the two tests, the results could have been influenced. Finally, because the administration of the tests took more than one day to complete, the results could have been influenced by what happened outside of school.

Delimitations of the study

The study did have its own limitations or boundaries. The study was conducted in an urban setting and in two rural settings. This will potentially inhibit the generalizability of the study to large urban areas. To date, there is limited study done using these instruments with such a population. Furthermore, collecting the data in the middle of the school year could have yielded different results than if they were collected at a different time. Also, the results of this study could have been quite different if the data had been collected in Florida, New York, or California, for example rather than in the Midwest.

This study could serve as a basis for future research. Different populations could yield different results. If the study were conducted in an immersion or two-way immersion setting, the findings could be different. The findings could be used to explore different teaching techniques about when and how much emphasis to place on the first language. This would inform the theoretical basis of a whole new approach to teaching second languages.

Definitions of key terms

The following definitions are for terms used in the dissertation and are defined for the purposes of this study. Those without references are written as working definitions.

Balanced bilingualism: A term used to classify a learner as equally proficient in listening, speaking, reading, and writing skills in at least two languages.

Biliteracy: Literate in 2 languages (Moll & Arnot-Hopffer, 2005).

Language Aptitude: Language aptitude is comprised of four cognitive abilities, including phonetic coding, grammatical

sensitivity, rote learning ability, and inductive language learning ability (Carrell, 1962).

Foreign language learning: The learning of a second language in a formal classroom setting that takes place in a country where the native language is spoken (Gass & Selinker, 2001).

Grammatical Sensitivity: The ability to recognize the grammatical function of words or other linguistic structures in sentences (Carroll, 1962)

Inductive Language Learning: The ability to infer the rules that govern the use of language, but this too varies greatly among individuals (Carroll, 1962)

Instrumental Motivation: A learner is said to be instrumentally motivated if the “purposes of language study reflect the more utilitarian value of linguistic achievement, such as getting ahead in one’s occupation.” (Gardner & Lambert, 1972, p. 3)

Integrative Motivation: A learner is said to be integratively motivated if the learner “wishes to learn more about the other cultural community because he is interested in it in an open-minded way.” (Gardner & Lambert, 1972, p.3)

L1: A person’s first language (Gass & Selinker, 2001) .

L2: A person's second language. The general term L2 is frequently used to refer to any language learning or use after the first language has been learned (Gass & Selinker, 2001).

Language transfer: The use of the first language (or other known languages) in a second language context. It is also often referred to or is related to crosslinguistic influence, facilitation, interference, negative transfer, and positive transfer (Gass & Selinker, 2001).

Literacy: The ability of a student to read and write. This assumes that children are in the process of becoming literate from birth and continue that process as their reading and writing behaviors develop (Reutzel, & Cooter, 2004).

Phonetic Coding: The ability to dissect and identify distinct sounds, to form associations between those sounds and symbols representing them and to retain those associations (Carroll, 1962)

Reading Proficiency: This type of proficiency includes the learner's ability to identify words based on a picture, identify the meaning of words based upon the context, the ability to read for understanding and life skills, as well as a

measure of the learner's language usage skills (IPT 3B, 2004).

Rote learning ability: As it applies to foreign language situations, it is a kind of general memory, but varies greatly from one individual to another (Carroll, 1962).

Rural: Towns not classified as urban having less than 2,500 people (*U. S. census bureau question & answer center*, 2004, ¶2)

Second language: Second language can refer to any language studied and learned after the learner's native tongue.

Second language learning: Second language learning is different from a foreign language environment because the second language learners spend the school day learning the target language.

Target language: The language being learned. It is often shortened to TL (Gass & Selinker, 2001).

Urban: Towns having more than 2,500 people (*U. S. census bureau question & answer center*, 2004, ¶1)

Writing proficiency: For the purposes of this study, a learner's writing proficiency includes his/her ability to write a sequential story based upon pictures, his/her knowledge and use of writing conventions, and

his/her ability to continue a story when given a prompt
(IPT 3B, 2004).

Summary

This chapter has provided the reader with an overview of the study, as well as provided a synopsis of the research methodology. The next chapter will provide a review of the theoretical and empirical literature that served as the basis for the study.

CHAPTER 2 - Review of the Literature

A large body of literature on the connection of L1 and L2 proficiency provides a basis for the present study. This chapter will explain the larger issue of development of language and literacy, second language acquisition theories, the particular hypotheses relevant to the present study, and examine both the theoretical and empirical studies in the field.

Development of a Learner's First Language and Literacy

Developing native-like competence in a language takes a lifetime to refine. Even after growing up learning a language, there are still unfamiliar aspects to the learner. The learner has to develop the ability to comprehend what is being heard and to respond verbally. As the learner grows, he/she learns to read and write as a way to further interact with and in the language. During this learning process, the learner has to integrate phonology, morphology, the lexicon, syntax, semantics, and pragmatics into a usable and retrievable working knowledge (Gass & Selinker, 2001). That is a large task for anyone to undertake in one language. To attempt the process in two languages can be even more challenging. Thankfully, a learner can take comfort from the idea that developing high literacy skills in his/her first language will serve the learner well when attempting to learn a second language. Furthermore, developing high levels of literacy competence in the first language (L1) will facilitate literacy competence in the second language (L2) (Cummins, 1979).

Development of a Learner's Native Language

Before developing literacy skills, a person has to learn their native language. Developing L1 knowledge begins from the time a baby is born. Nearly all humans acquire some language, which according to the nativist view is because they have an innate Language Acquisition Device (LAD) (Papalia & Wendkos Olds, 1995; Hadaway, Vardell, & Young, 2002). By 10 months, a baby is able to understand "no." He/she can use gestures to communicate and play gesture games, such as peek-a-boo. By 13 months, a baby begins to use symbolic gesturing and can say his/her first words. Between 18 and 24 months, a baby should be able to form his/her first sentence. By two years, a toddler should have ceased most babbling. By the age of three, the child should have a vocabulary of nearly 1000 words and be able to speak with few grammatical errors with most of the utterances being intelligible (Papalia & Wendkos Olds, 1995). These events are common to nearly all children as they travel through the passage of language development.

Development of a Learner's Native Language Literacy

From the time a child is born, they are surrounded with literate cues, such as books, signs, magazines, and many more. They will often witness the adults' reading when they read a sign or the adult reads a book to their child. They may often participate in read-alouds in other settings such as the library or church. The children receive exposure to vocabulary, morphology, syntax, semantics and pragmatics specific to the written language. Preschoolers learn the concepts of print such as which way to open the book and how to turn the pages through this process of observation and read-alouds. They eventually begin to understand that letters, perhaps first put together in a

song, are connected with the sounds of the spoken language. Preschoolers come to expect to understand what is being read by them and to them; so, if they do not understand a word, they will often ask (Snow, Griffin, & Burns, 2005).

Literacy emerges from the oral development and a rich literacy home environment. If children are read storybooks and are encouraged to scribble and experiment, children begin to see the relationships between letters and sounds. The term literacy “relates to both reading and writing and suggests the simultaneous development and mutually reinforcing effects of these two aspects of communication” (Pikulski & Cooper, 1997). As a child grows in maturity, he/she will respond to reading in more dramatic ways and with greater cognitive complexity (Hancock, 2004).

As a child develops his language skills, the development of literacy is often the next stage through which children progress. Literacy is a complex process that begins when children start to scribble and interpret pictures in a book to tell a story. Once children are aware that the printed word represents the oral language and that each letter within those words represents a specific sound, the child is said to have developed phonemic awareness (Pikulski & Cooper, 1997). Word identification and comprehension are the “core accomplishments” for proficient readers, according to Snow, Griffin, and Burns (2005). As children add words to their vocabulary, their literacy skills will continue to develop, which will serve to bolster L2 literacy skills. Before second language literacy skills can be developed, the learner has to begin the process of acquiring that second language.

Development of Biliteracy

Before the learner begins the road to literacy in L2, there are some factors that he/she should already have developed. The learner should know something of phonemic awareness and phonics, be able to analyze linguistic structures, recognize words, have developed comprehension L1 skills, have developed L1 writing skills, and be able to read in the L1 with some fluency (Mora, 1998). For the L2, the learner should have some knowledge of L2 usage, L2 phonemic awareness, L2 vocabulary and grammar, and have developed listening skills. Typically, positive transfer between phonemic awareness, word recognition, and the use of cognates has been known to happen, which will help literacy in both L1 and L2. When developing the ability to read and write, there are some reading strategies that will become common to both languages while others are specific to the phonetic and graphic systems of either language. It typically helps learners if they receive some explicit instruction about the contrasts. Often the biggest impediment to reading is the lack of vocabulary. Frequently bilingual readers will use translations, their background knowledge, and familiarity of cognates to help them succeed. The transition itself marks a shift in the relationship of the two languages. Instructors will have to keep in mind that the transition is not an event, but a process. Learners must be carefully watched during this transition (Mora, 1998). As the learner gains language proficiency in his/her second language, the learner will typically pass through a silent period where he/she is observing and listening in much the same manner that a baby does in the first year of his/her life. As the learner gains confidence, he/she will pass through the novice, intermediate, and perhaps advanced stages. All of these stages are characterized by increasing ability in the complexity of the learner's language skills (Brice, 2002).

Typically, the development of biliteracy takes place in immersion or two-way immersion settings (Moll and Arnot-Hopffer, 2005). According to Moll and Dworin (1997), there are a number of things that teachers and students can do to encourage the development of biliteracy. For example, the teachers need to encourage the use of both languages and consider the role of student characteristics and classroom dynamics.

Advantages of Bilingualism

Bilingualism has shown that their development will yield significant cognitive and academic advantages that will serve learners the whole course of their lives. Bilingualism has been shown to foster classification skills, concept formation, analogical reasoning, visual-spatial skills, creativity, and other cognitive gains. Bilingual children have also demonstrated superior story-telling skills (Latham, 1998). Often students from immersion programs experience a greater degree of cross-cultural understanding, subject content mastery, and improved English skills (Curtain & Dahlberg, 2004). The advantages of bilingualism and biliteracy include many more advantages beyond those in the academic and cognitive domains. For example, biliterate bilinguals are more employable than their monoliterate bilingual counterparts. What's more, it is a skill that they can pass on to their children. In addition, Esquivel and Stephens (1997) found that bilinguals were more adept at social problem solving than their monolingual peers.

Second Language Acquisition Theories and Explanations

The road to acquiring a second language is long and arduous. How a second language is acquired has been the matter of much theoretical debate, especially over the last half of the twentieth century. Even now there is no commonly accepted theory

of second language acquisition that clearly explains how all learners in all circumstances acquire any language.

There are four different aspects to the acquisition of a second language. Some theories or hypotheses explain certain aspects of the process, where as others attempt to account for more of the whole process depicted below (Gass & Selinker, 2001).

Input → **Intake** → **Developing System** → **Output**

Each learner is exposed to input in his/her second language when listening to others' speaking and reading texts in the L2. However, whatever concepts and vocabulary words the learner actually attends to are considered intake. The intake then becomes part of the developing system of the learner. As the learner is exposed to more input and gets more intake, then the developing system constantly restructures itself to be, what teachers hope, more like the target language. The developing system controls what learners produce, which is output. Output is manifested through the learner's speaking and writing.

The second language acquisition community has conceived of various theories to explain the previously described process. There have also been hypotheses developed which explain certain aspects of the process. It is important to note that these theories did not arise one after another, as some of them were developed concurrently. However, when dissatisfaction grew with one theory, experts developed another.

Brief Explanation of Second Language Acquisition Theories

In the 1950s when Behaviorism was popular, it was applied to language learning. Language learning was believed to be about habits. In the learning situation, learners were to memorize parts of scripts, which they frequently practiced with a partner. The

learners also listened to audiotapes, which were to help them form habits. The learners did not have to know what their lines or their partners lines meant, as long as they memorized the words (Bloomfield, 1942; Ausubel, 1968). However, others perceived language learning differently; one of whom Noam Chomsky. He conceived of another way to explain second language acquisition.

Chomsky (1965; 1966) believed that all people were born with the ability to learn a language. Children are innately predetermined to learn languages, since he observed them doing this within a few short years. Chomsky created the Universal Grammar Theory which alleges the existence of a set of basic grammatical elements that are common to all natural human languages and that predetermine people to organize the input in certain ways. As views changed, Stephen Krashen (1987) developed the Monitor Theory, which purports that first and second language acquisition are similar.

Krashen's Monitor Theory is one of the most influential and widely-accepted second language acquisition theories. Krashen developed five parts to his theory. The five hypotheses include the Learning-Acquisition Hypothesis, Natural Order Hypothesis, the Monitor Hypothesis, Input Hypothesis, and the Affective Filter Hypothesis (Krashen, 1987). While the Monitor Theory has been widely accepted, others, such as the Cognitive Theory have arisen.

According to the Cognitive Theory, second language learning is viewed as the acquisition of a complicated cognitive skill. For a learner to become proficient, a learner has to master the sub skills, which should be practiced, automatized, integrated, and organized into inner representations or symbols, that are always being restructured as a learner's proficiency increases. The learner's internal organizational structure

constantly being added to as the system expands with new information. New information will ultimately become automatized (Ausubel, 1968; Larsen-Freeman & Long, 1991).

The final second language acquisition theory is Connectionism. Connectionism is based on instance learning. Learners build a larger network as exposure increases. The practitioners have used artificial intelligence to find evidence to support their theory. The first observation is that the form of the input provided to the artificial intelligence is very controlled and limited to selected words or short sentences repeated over many trials. A second observation is that many connectionist models have a built-in “back-propagation” capability which provides feedback to the network after each learning trial about how close its own output comes to the target output. It is new and not widely known among language teaching practitioners (Gasser, 1990).

More Explanation about Two Theories

Krashen’s Monitor Model. Stephen Krashen’s theory of second language acquisition offers his five hypotheses as a comprehensive explanation of second language acquisition. He developed five hypotheses to explain the various processes. The hypotheses are the Acquisition-Learning Hypothesis, the Natural Order Hypothesis, the Monitor Hypothesis, the Input Hypothesis, and the Affective Filter Hypothesis.

The first is the Acquisition-Learning hypothesis. This is used to explain what Krashen believed are two independent systems for developing knowledge of a second language. The first is through acquisition, which, in non-technical terms, is the “picking-up” of a language. Acquisition is subconscious and does not really deal with grammar rules. The second manner of developing second language competence in a language

is through the learning system, which is concerned with the grammar rules and being aware of them (Krashen & Terrell, 1983). Each system has different functions. The acquired system is used to produce language. The learned system acts as an evaluator of the acquired system to make sure that what the acquired system is producing is correct.

The second hypothesis is the Natural Order Hypothesis. This hypothesis supports the idea that the rules of language are acquired in a predictable order. The order is the same regardless of whether the language is learned through instruction or not. The natural order is part of the acquired system, which is not interfered with by the learned system (Krashen & Terrell, 1983).

The Monitor Hypothesis is the third of Krashen's. He uses it to explain initiating speech. The learned system is responsible for monitoring the output of the acquired system. Krashen claimed the Monitor could only be used under certain conditions. The learners need time to consciously think about and utilize the appropriate rule. A learner must also be able to pay attention to what is being said, be able to focus on form. Finally, the learner must know the grammar rule, whatever it happens to be, in order to apply it (Krashen & Terrell, 1983).

The Input Hypothesis is the fourth of Krashen's explanations. Krashen theorized that learners need comprehensible input in order to move through the natural order of acquisition. Learners acquire a second language by "understanding messages, or by receiving 'comprehensible input'" (Krashen & Terrell, 1983). Comprehensible input is that language which is only one level higher than what the learner has already acquired. The language needs to have structures and vocabulary unknown to the learner so that

the learner's current knowledge can be advanced. Krashen characterized this as $i+1$. The student is to receive one level of *input* above that which he/she already knows; hence the $i+1$.

Krashen's final hypothesis, the Affective Filter Hypothesis, was used to explain differences in individual learners. The Affective Filter is a potential barrier to language acquisition. Picture the Affective Filter as a wall that is either up or down allowing language input into the developing system or effectively blocking it. If the Filter is up, input cannot get through; however, if the Filter is down or low, then input can get through and acquisition can happen. The hypothesis accounts for the failure of language acquisition through insufficient input of the appropriate kind or a high Affective Filter. In other words, learners must receive comprehensible input and must have a low Affective Filter for acquisition to take place (Krashen & Terrell, 1983).

In summary, all of these hypotheses work together to explain the language acquisition process. The process starts with the input hypothesis, which provides the information that the learner needs in order to acquire the language. As the input becomes intake, it makes its way into the developing system, which is the acquisition part of the first hypothesis. The rules that students are taught about the language, metalinguistic knowledge, make the learning part of the learning-acquisition hypothesis. The learning-acquisition hypothesis has two separate functions. The metalinguistic knowledge of the learning part of the hypothesis becomes the monitor, which corrects output that the learner produces. Any difference that may exist between language learners is explained through the final hypothesis, the Affective Filter. In order for Input

to get through to the learner, the Affective Filter must be low. All of these hypotheses function in concert to produce the language of the learner.

Universal Grammar. Chomsky's Universal Grammar Theory is relevant to this study because it speaks to an innate mechanism that all people have to learn languages. It has long been applied exclusively to first language acquisition, but only recently to second language acquisition. What is at the core of the debate for some modern scholars (Gass & Selinker, 2001) deals with whether learners have continued access to the Universal Grammar. No one particularly disputes that all children learn languages rather easily when they are young, so the question becomes one of whether or not the learners have access to that Universal Grammar when they are older and learning a second language. If the learner learns his/her first and second language at the same time, then it is believed learners have equal access to the Universal Grammar for the learning of both languages. However, that is rare; most of the time learners learn their second language later.

Here, that debate is not attempted to be resolved. However, what is relevant is that the Universal Grammar theory supports the idea that there is a common source from which learners draw to learn their languages. This is very important to the Cummins' (1979) Developmental Interdependence Hypothesis, a part of which is the Common Underlying Proficiency Model. In the continuum of processes through which learners' new information must pass, the hypothesis explains part of the developing system. If one recalls the original model that explains how input can become intake and then part of the developing system resulting in output, the developmental

interdependence hypothesis explains part of what happens in the developing system in the learner's brain.

Theoretical Literature

When considering the different educational programs through which learners learn a second language, it is no wonder that different methods take into account different theoretical bases.

Difference Between Common Underlying Proficiency Hypothesis and the Separate Underlying Proficiency Model

Educational policies in the United States have been made essentially along two different paths. Policies that have encouraged immersion, two-way immersion, and foreign language programs have been set up based on the Common Underlying Proficiency (CUP) Model. ESL programs have been set up the way they have because of the Separate Underlying Proficiency (SUP) model (Cummins, 1986).

Policy makers have made the assumption that the way to help students with the development of their English academic skills is to maximize the amount of exposure the students have to English. This is a logical and intuitively appealing supposition, which presupposes the SUP model. The SUP model supports the notion that the students L1 and L2 proficiency are not coming from a common source. If this is true, then content, concepts, and skills learned through the L1 cannot transfer to the L2 and vice versa. According to Cummins and Swain(1986), despite the logical and intuitive appeal of the SUP model, there is little evidence to support it.

However, there is a substantial amount of support for the Common Underlying Proficiency Model. The CUP Model alleges that there is a common source from which

bilinguals draw their language proficiency. This Common Underlying Proficiency is also often referred to as the Developmental Interdependence Hypothesis. This notion supports the idea that L1 and L2 proficiency are intimately intertwined.

Developmental Interdependence Hypothesis

Jim Cummins put forth the Developmental Interdependence Hypothesis. It supports the view that the development of proficiency in the L2 is in part a function of prior development of proficiency in the L1. Furthermore, the theory intimates that a “common underlying proficiency characterizes bilingual proficiency, especially as regards academic and cognitive aptitude, and there is one integrated source of thought for both languages.... Transfer can occur both ways between L1 and L2...” (Kecskes & Papp, 2000, p. 47). The developmental interdependence hypothesis purports that the level of L2 competence that a “bilingual child attains is partially a function of the type of competence the child has developed in L1 at the time when intensive exposure of L2 begins” (Cummins, 1979, p. 233). If a learner has an initial high level of L1 development, a similar level of competence is possible in L2. What is even more fortunate is that while a learner is learning his/her second language, as long as development in their L1 is encouraged, the learner will not suffer a loss in either language (Cummins, 1979).

The interdependence hypothesis is supported by consistently highly correlations between L1 and L2 reading abilities. According to a study cited in Cummins’ premier work on the Developmental Interdependence Hypothesis, one study has show the correlation between students’ English language vocabulary and the native language oral competence was $r=.76$. The correlation between English reading comprehension and

oral competence in the native language ($r=.66$) also indicated a very strong relationship (Cummins, 1979).

The hypothesis has a number of areas in which it can be applied. Practitioners use it as a basis to study the relationship between L1 and L2 language proficiency, using all four language skills of reading, writing, listening, and speaking. They also use it to consider the connection between L1 and L2 reading ability or L1 and L2 reading proficiency. Furthermore, it can also be used to examine the two aspects of literacy, reading and writing proficiency in the first and second language. “The hypothesis proposed that the development of literacy-related skills in L2 was partly a function of prior development of literacy-related skills in L1” (Cummins, 1991, p. 77).

According to a study conducted by Chu-Chang, after having reviewed 16 experimental programs where experimental groups were reading first in their L1 and then in their L2 and the control groups were taught all subjects in their L2, he determined that the experimental groups were more successful in their L2 reading (Roberts, 1994). Few studies will deny that there seems to be a common underlying proficiency from which students build their language proficiencies. According to Cummins (1992b), other studies carried out in Canada suggest that the development of minority students’ L1 proficiency can positively influence the learning of additional languages.

Furthermore, this hypothesis has implied that L1 and L2 academic skills are manifestations of a common underlying proficiency. What is important to remember is not whether L1 or L2 was used as the language of first instruction, but that students will be able to remember the concept. It is important to note that what is often transferred

from one language to another is conceptual knowledge rather than specific linguistic elements. For example, if a student learns about the Spanish Civil War in a Spanish history class being taught in Spanish, then the student would be more likely to recall the facts learned rather than specific grammar points used in the sentences that conveyed that information.

Transfer

In addition to the developmental interdependence theory, which maintains the idea that proficiency in one language can influence the literacy in the second, another commonly accepted idea in second language acquisition is that of transfer. Some skills and knowledge from one language are transferred from the first language to the second language. Since the mid-twentieth century, there has been scholarly dispute about the exact nature of transfer. Although, the pendulum has swung back and forth, according to Gass and Selinker (1992), most scholars are in agreement with Robert Lado's statements of 1957 in *Linguistics across cultures*. He claimed

that individuals tend to transfer the forms and meanings and the distributions of forms and meanings of their native language and culture to the foreign language and culture—both productively when attempting to speak the language and to act in the culture, and receptively when attempting to grasp and understand the language and culture as practiced by natives (Lado, 1957, p. 2; Gass & Selinker, 1992, p. 1).

The skills and knowledge of the first language will have a continued strong influence on the development of the second language.

According to Bialystok and Hakuta (1994), second language learning starts with the first language. The first language of the learner provides the linguistic context upon which the learner will base his or her assumptions about the second language. "...It shapes not only the general principles of language acquisition but also the specific route one takes when attempting to master a particular language." (Bialystok & Hakuta, 1994, p. 11) The authors further speculate that the first language provides innate biases that provide important linguistic parameters. The learner, when encountering the second language, uses the information from the new language to choose from among the possible parameters made by the learner's first language. Depending upon the new information, the learner begins to move from the native language parameters to the second language parameters. This means that, as the learner gains more information and is exposed to the target language, the learner will hopefully exhibit more target language-like features. Finally, it appears that the mechanics of language perception remain intact in second language learning, which can be attested to through the speech patterns of the learner, because they are often influenced by the native language speech patterns (Bialystok & Hakuta, 1994). For example, it can be difficult for a native English speaker learning Spanish to remember to put the adjective after the noun. The English vowel sounds can often be heard, when the Spanish language learners are speaking. Consequently, the nature of transfer can be found in speech patterns, syntax and whole host of other linguistic aspects.

Once people are literate in their first language and begin to learn a second language, then some knowledge from L1 is transferred to L2. Two of the main components of literacy that are directly impacted by transfer are vocabulary and writing

system knowledge. When people begin to develop another language, they start down a long road. Luckily, many times the learner's first language can serve him/her in good stead.

The first aspect to be considered when developing biliteracy is knowledge of vocabulary. According to Ringbom (1987), many times a learner can grasp new L2 words without conscious effort. This gives support to the idea that cross-linguistic similarity is a very vital factor in facilitating the learning of second language words. When speaking of absolute knowledge of a word, it is difficult to say that a person knows a word. Knowing a word implies more than just the meaning, knowledge ranges through a whole continua. The continua of knowledge include the many intimate layers of a knowledge a speaker comes to understand about a word in the culture in which it is used. The learners have no knowledge, some knowledge or full knowledge of the use of the word, given the various types of lexical knowledge (Ringbom, 1987). There are also phonological and semantic similarities in the lexicon, which can help the L2 learner. When the L2 learner encounters a word that he/she does not know, the learner can use his L1 and L2 knowledge to help him/her determine the meaning of the word (Ringbom, 1987). To be able to read vocabulary from the L2, a learner must have knowledge of the writing system.

A second aspect of literacy that can be influenced by transfer knowledge from L1 is the knowledge of the writing system. If the first and second languages are similar, then the process of learning the second language is easier. If the alphabet and sound system are similar, then through increased practice of understanding L2 pronunciation, learners can learn to write in their L2. Of primary significance is if the alphabetic or

syllabic system are similar in L1 and L2, then the learner will acclimate him/her self to the writing system. Some languages do not even have writing systems, so it can be difficult for researchers to run cross-linguistic comparisons (Odlin, 1989). After the learner has developed an understanding of the L2 writing system, he/she is well down the path to biliteracy.

Language Aptitude

While scholars do not agree about the nature of the relationship between aptitude and foreign language learning, it is an important relationship to explore. JB Carroll (1962) identified four components of language aptitude. The first component is phonetic coding ability, which is typified by a learner being able to discriminate among foreign sounds and to encode them in a manner such that they can be remembered at a later time. The second component is grammatical sensitivity, which involves a learner being able to recognize the function of words in sentences and being able to discern whether or not words in different sentences perform the same function. Rote learning ability is the third component and is characterized by the ability to make and recall associations between words and phrases in the native and second/foreign language. Inductive language learning is the final component and is typified by a learner's ability to infer the rules or make generalizations about language from samples of the language.

Aptitude is often an important contributor to successful foreign language learning. According to Stansfield (1989), language aptitude is actually different from general aptitude. There are a number of foreign language aptitude tests that have been developed to measure this kind of aptitude. They include Pimsleur Language Aptitude Battery or PLAB developed by Pimsleur and the Modern Language Aptitude Test or the

MLAT developed by Carroll and Sapon. Both are used extensively in secondary settings. The Army Language Aptitude Test or ALAT is used by the U. S. Department of Defense. These are just some of the many different language aptitude tests.

Motivation in Language Learning

Lambert and Gardner (1972) posit that in order for successful learning of a second language, a learner must be prepared to take on various aspects of behavior characterized by another linguistic-cultural group. The learner's ethnocentric tendencies and attitudes towards the members of the new linguistic-cultural group will either help or hinder the learner's successful acquisition of another language. A learner can either be instrumentally or integratively motivated. A learner is instrumentally motivated if the learner is learning the language for utilitarian reasons, such as advancement of his/her career. A learner is integratively motivated if the student wishes to become part of the new cultural community about which he/she is learning. For example, a person marrying into a different linguistic-cultural community would be integratively motivated, because he/she would want to be able to participate in activities with his/her new family.

Empirical Research

There have not been any studies completed identical to the one proposed for this study. However, some of the relevant themes from the study, such as the strength of the relationship between L1 and L2 proficiency, L2 reading ability, and transfer studies using multiple regression analysis. Additionally, a foreign language aptitude study and motivation in language learning studies are also considered.

Jiang and Kuehn (2001) conducted a study with 22 volunteers from their English language learning classes. The students were divided into two groups. The first group consisted of late arrivals, who had had at least 10 years of instruction in their L1 and had a mean age of 33.7 years. The authors put their volunteers through the Academic Language Assessment and Development for Individual Needs (ALADIN) curriculum, which is designed to meet the needs of students under-prepared in academic English proficiency. The study had qualitative and quantitative aspects. First, the students were given parallel pre-tests and post-tests to measure students' English academic proficiency. The test included sections on lecture note-taking, lecture and short answer question, dictation of lecture sentences, self-assessment of academic vocabulary (dictation), self-assessment of academic vocabulary (reading), reading sentence completion (modified cloze), reading underlining of important information, reading note-taking, and reading short answer questions. Each of these sections was intended to measure a specific piece of the learner's academic language proficiency. The students were also given language use questionnaires. The students submitted writing samples. The students also went through interviews, which was the qualitative piece of the study.

To control for years of English instruction and years in the United States, the authors examined the differences between the two groups through an Analysis of Covariance (ANCOVA). Additionally, t-tests were conducted to find significant differences between the various parts pre-test and post-test, as well as correlational analyses.

It was found that the first group, who arrived to the United States after receiving at last 10 years of instruction in their L1, made better progress than the second group

who arrived later. This was a result not only of instruction, but also a result of transfer of L1 skills and strategies relating to academic language development. It was also found when the writing sample scores were correlated that there was a positive correlation of $r=.382$. After the interviews were completed, the researchers concluded that transfer of L1 prior knowledge and strategies does occur for students with higher L1 language proficiency.

This study was relevant to the present study for a variety of reasons. First of all, it correlated L1 and L2 writing samples and found that there was a positive relationship between the two of them. This means that if the score on the L1 writing sample goes up, then the L2 writing sample score goes up. Additionally, the findings from the interview support the Developmental Interdependence Hypothesis and the Common Underlying Proficiency Model.

The second study to be considered was conducted by Canale, Frenette and Belanger in 1988. Operating in bilingual Quebec, the researchers had access to a significant population of 9th and 10th graders in French language secondary schools. The authors chose 32 Franco-Ontarian minority students from a subsample of 230 students who were a subsample of 1,407 students from 12 French language secondary schools.

The students were to write, in French and English, a maximum one-page narrative and a half-page letter, resulting in each student producing four writing samples. Participating teachers scored the four writing samples from each student. The essays were scored on a scale of 1-10 by at least two teachers. The samples were also scored analytically by three trained project members on a scale of 1-5 based upon

the five different factors of standard of language usage, standard of written document, effectiveness for the reader, the image of the writer, and the quality of the message.

The researchers completed an array of statistical analyses. The researchers completed Pearson Product Moment correlations on the five analytic criteria, the combined analytic and holistic scores, and the scores between the French narrative and letter scores and those scores of the English narrative and letter. Factor analysis was completed on the analytic scores.

There were some findings that were relevant to this current study. The researchers found that the correlations were different depending upon whether the writing samples were scored holistically or analytically. For the analytic scores, the French and English writing sample correlations were high. For the narrative, the correlation was .77 and for the letter, the score was .78. However, when the correlations were run on the writing samples scored analytically, the correlations were .43 for the narrative and for the letter, the correlation score was .34. In the social sciences, even a .43 and a .34 are considered strong. The authors concluded that the difference in the correlation scores was due to the type of scoring, as to the strength of the relationship between the French and English writing scores.

Because this current study is considering reading and writing proficiency, Canale, Frenette, and Belanger's study is relevant because it looks at the strength of the relationship of L1 and L2 writing scores. While the findings may have been ambiguous, it is clear that there is a connection between writing scores in a student's first and second language.

In the third study, Lopez and Greenfield, in 2004, studied the transfer of oral language skills and phonological awareness. The researchers used 100 Hispanic children with a mean age of 56 months from Miami Dade County Communication Action Agency Head State. The parents of the students had to provide consent forms.

Since the students were all pre-literate, they were given the pre-Language Assessment Scale 2000 edition to measure oral language proficiency in Spanish and in English. Additionally, the authors developed a Phonological Sensitivity Test that was then administered to the students to measure their phonological awareness. After the data was collected, the researchers ran a hierarchical multiple regression using the English phonological awareness as the dependent variable. The independent variables were the English oral proficiency, Spanish oral proficiency, and Spanish phonological awareness. They were entered respectively in a stepwise multiple regression format to control for the variance attributable to proficiency when comparing phonological awareness across languages.

The researchers found intriguing results. All three independent variables were significant predictors of English phonological awareness. English oral proficiency was the strongest variable, accounting for 27% of the variance, Spanish oral proficiency accounting for 8%, and Spanish phonological awareness accounting for 6%. Once Spanish phonological awareness was included in the equation, the effect of Spanish proficiency on English phonological awareness, although still significant, dropped to 3%. This indicated that most of the variance attributed to Spanish proficiency was shared with Spanish phonological awareness.

Lopez and Greenfield's study is relevant to the present study. First, it uses a standardized language test, which will be done upon the collection of the data. Second, the researchers used the multiple linear regression analysis, which will be used in this study as well. Third, the authors were exploring transfer, which is also of interest in this study.

In Carrell's 1991 study, she studied how L1 reading ability and L2 language proficiency contributed to L2 reading ability. She used two groups from Southern Illinois University at Carbondale. The first group included 45 native Spanish speakers, mainly from Central and South America, who had various levels of proficiency in English. The second group consisted of 75 native English speakers who were studying Spanish in different proficiency levels. Before beginning the study, the students were matched on proficiency levels.

In the study, students were given 2 reading passages in their first language and in their second languages. Students were given L2 reading tasks before L1. The topics were similar so that the students would be using similar schemata. The students were given 10 multiple-choice questions about each text. The questions were meant to tap deep levels of text processing, based on careful reading and a more profound comprehension of the text.

Once the data were collected, the researcher found the following results. When taken together, both first language reading ability and second language proficiency are significant predictors of second language reading ability. There are different strengths of the 2 predictor variables for each group. For the first group, the Spanish L1 group, first language reading is a stronger predictor of second language reading than is the

level of second language proficiency. For the second group, the English L1 group, the level of second language proficiency was a stronger predictor of second language reading than is first language reading.

Carrell's research is relevant this current study for a few of reasons. First of all, the statistical analysis is multiple linear regression. The research is primarily concerned with L2 reading ability, which is of interest. Both predicting factors were found to be significant contributors to the L2 reading ability score.

The fifth study to be considered was completed by Cummins, Swain, Nakajima, Handscombe, Green and Tran in 1984. The authors were essentially interested in testing the Developmental Interdependence Hypothesis. The authors tests 59 Japanese students in grades 2 and 3 and grades 5 and 6 from 91 possible subjects. The Vietnamese sample consisted of 45 students, arriving in North America between 5 and 22 months previously. The median age for these students was 13.17 years.

The authors collected the data from a variety of sources. All Japanese students were administered English and Japanese language proficiency tests. The smaller Japanese sample was given the English academic measures. The smaller sample was selected because of length of residence (LOR) and sex. The Vietnamese were given Vietnamese and English language proficiency measures.

The study yielded important findings. The correlations indicated that interactional style is interdependent across languages. In other words, a learner who has a habit of volunteering information and providing detailed responses to questions in Japanese will probably exhibit the same linguistic behaviors in English. Another valuable finding was that the analyses carried out are consistent with the interdependence hypothesis that

alleges that development of L2 cognitive/academic proficiency is partially a function of the level of L1 cognitive/academic proficiency at the time of intensive L2 exposure. Finally, because similar findings were found in the Vietnamese and Japanese study, the interdependence hypothesis was shown to be robust.

Cummins, Swain, Nakajima, Handscombe, and Tran's study is the most relevant study because it directly speaks to the Developmental Interdependence Hypothesis. This study, in particular, shows the hypothesis to be robust in the Japanese and Vietnamese setting.

Cummins, Lopes, and King completed the next study relevant to the present study in 1987 as cited in Cummins, Harley, Swain, and Allen (1990). They wanted to examine the "relationship between language use patterns, language attitudes, and bilingual proficiency" (p. 119). The authors collected data using 191 students enrolled in Portuguese heritage language programs in seven inner-city Toronto schools. More than 50% of the students were of Azorean background.

The authors collected the data from a variety of sources. The students were given two questionnaires. The first one concerned the student's language use patterns, self-perceived language proficiency in English, French and Portuguese and family background. The other was about the student's language attitude, the nature of their motivation, and a host of other issues.

The students were also given tests in English and Portuguese. The students were divided into three groups. The first group completed multiple-choice tests in English and Portuguese. Students in the second group were given a multiple-choice discourse test, as well as individual oral tests in English and Portuguese. The oral test

for the second group tested areas of grammar, discourse, and sociolinguistic proficiency. The third group was given a sociolinguistic written production test in each language.

Through the analysis of the qualitative data, the researchers had some intriguing findings. From the questionnaires, the authors concluded that the students believed that their English proficiency was higher than their Portuguese, as well as their use of English over Portuguese. The students indicated that while they preferred to use English when talking about things that happened in school, they would like to use Portuguese when speaking with family members. The students wanted to continue maintain their Portuguese language skills.

When the authors analyzed the data from the tests, several conclusions could be made. The data were analyzed using correlational analysis and multiple linear regression. Across languages, self-ratings in English, Portuguese, and French tended to be significantly related to each other. The relationship was found to be strong, $r=.5$ for the cross-lingual relationship for each set of written measures. The correlational analysis help to support the idea that there is “strong evidence of interdependence of academic skills across languages...” (Cummins, Harley, Allen & Swain, 1990, p. 123). Multiple regression analysis revealed that 34% of the variance in the self-ratings of Portuguese proficiency could be accounted for by the attitudinal and language use variables. Forty-two percent of the variance was accounted by such variables in the written self-rating. For oral self-rating, the most strongly related variable was students’ like of English.

The findings from Cummins, Lopes, and King are relevant to the present study, primarily because of the way the study and the analysis were completed. Although the multiple regression analysis uses factors that will not be used in this study, the process is quite similar. Additionally, the correlational analysis shows a strong relationship between written measures, which supports the findings of other studies already examined.

The language aptitude study to be considered was completed by Sparks, Ganschow and Patton in 1995. They completed two experiments with 9th and 10th graders who were in their first year of foreign language study. In both experiments, eight variables were used in the multiple linear regression equation. The first experiment involved 154 ninth and tenth grade girls attending a private all girls high school. In the first experiment, they included results from the Modern Language Aptitude Test—Long Form, the Nelson-Denny Reading Test, Wide Range Achievement Test –Revised (the spelling subtest), Lindamood Auditory Conceptualization Test, the Peabody Picture Vocabulary Test—Revised, the Woodcock Reading Mastery Test—Revised: Word Identification and Word Attack subtests, eighth-grade English grade, and High School Placement Test—Total Test Score. The first year foreign language grade was the dependent variable. The four measures found to be the best predictors were the English grade, the foreign language aptitude measure, native language spelling subtest score, and the Lindamood Auditory Conceptualization Test score, which provided a measure of phonemic awareness.

The second experiment's subjects were a mixed gender population of 100 ninth graders in a public high school. In the second experiment, six of the eight predictor

variables were the same as in the first experiment, but the Iowa Tests of Basic Skills—Total Test Score was used instead of the High School Placement Test—Total Test Score and instead of using the Nelson-Denny Reading Test, the predictor variable became the Iowa Tests of Basic Skills—Reading Comprehension subtest. For the second experiment, the best two predictor variables were the eighth grade English grade and the Modern Language Aptitude Test—Long Form.

The next study deals with the relationship between first language and second language writing skills. Lanuaze and Snow (1989) looked at the writing skills of 38 fourth and fifth grade students in a Spanish-English bilingual program. Before beginning the study, the students were divided into three groups based upon teacher ratings. Students were either designated as performing well in both English and Spanish (GG), performing well in one language and not in another (PG), or performing poorly in both languages (PP). The learners had been in the bilingual program from one to four years. The students were given a picture description task administered in both languages. The students were given lined paper with a colored picture of a beach scene; the students were told to write a description of the picture. The writing samples were scored on a number of different criteria, including language complexity and sophistication, language variety, and indicators of how much and what kind of information was provided about the picture. Three-way analyses of variance were run on all dependent variables with grade (four and five) and group (GG, PG, and PP) as between subject factors and language (English or Spanish) as within-subject factor. Of more relevance to this study are the cross-language correlations. The authors expected to have positive correlations between the PP and the GG groups, but no correlations

were significant. In the PG group, measures of linguistic variety were shown to be significant with correlations ranging from .54 to .82. The authors believe that the PG group, at this early stage in their L2 acquisition, is relying in English much more heavily on writing skills transferred from Spanish than either of the other two groups. The authors explain the lack of correlations for the GG group by pointing out that the students' English and Spanish skills must be well developed and, therefore, independent of one another. The negative correlation for the PP group suggest that the students were not transferring syntactic and semantic knowledge from one language to another and that any skills students display in English or Spanish are unrelated to the other.

The final studies to be considered are those concerned with motivation in language learning. Lambert and Gardner (1972) were concerned with which type of motivation in language learning was more predictive of success—integrative or instrumental. The authors went to Maine and Louisiana because there had been a French language presence there in the past. The authors went to Connecticut because it was quite representative of the U. S. population at large. In Louisiana, the authors had access to 80 French-American first and second-year high school students who were taking French. The mean for the number of years the students had taken French was 1.05. In Maine, the students attended Catholic parochial school—one for boys and one for girls. Many of the 98 students spoke French at home and had taken a French course every year of their schooling. They were all in their first or second year of high school, with a mean number of years of French study being 9.91. In Hartford, CT, principals and French teachers were enlisted to use their first or third year French

students, with 74 students at the first level and 68 from the third level. Using a factor analysis, the authors were able to examine the influence of many variables. For example, they examined language aptitude, French listening comprehension, oral production in French, the results of many motivational inventories, and a variety of other factors. In all settings, language aptitude was found to be a strong predictor of second language proficiency, as well as motivation. In the Connecticut study, students seemed to be experiencing integrative motivation, as they wanted to become part of the French community. In the Maine setting, students seem to experience an instrumental motivation, as many students lived in homes where parents had French friends. In the Louisiana setting, the authors believed those French-American students were perhaps no different from students in other parts of the country taking French, as parents of the Louisiana students were more likely to encourage their children to learn French for instrumental than integrative reasons. However, the authors started with the theory that integrative rather than instrumental motivation will be a stronger predictor of second language proficiency and their findings supported this.

Table 1 Summary of Empirical Research Studies

Study	Subjects	Method of Study	Findings
<p>Jiang & Kuehn (2001)</p>	<p>22 volunteers</p> <ul style="list-style-type: none"> • Group 1 (Late): 13 students who had at least ten years of L1 education; Mean age 33.7 years • Group 2 (Early): 9 students who had fewer than 10 years of education in the U. S. (L2 education); Mean age of 22.2 years 	<p>Qualitative/Quantitative Study</p> <p>Quantitative</p> <ul style="list-style-type: none"> • Instrument used to measure students' English academic language proficiency with a parallel pre- and post-test. • Language Use Questionnaire • L1 & L2 writing samples <p>Qualitative</p> <ul style="list-style-type: none"> • Interviews <p>Treatment: Instructors implemented the Academic Language Assessment and Development for Individual Needs (ALADIN) curriculum, which is designed to meet the needs of students under-prepared in academic English proficiency.</p> <p>Statistical Analyses</p> <ul style="list-style-type: none"> • T-tests • ANCOVA • Pearson's <i>r</i> correlation 	<p>Results found that:</p> <ol style="list-style-type: none"> 1. The late group made better progress than the early immigrant group. 2. The authors found a positive correlation between students' L1 and L2 writing scores ($r=.382$). 3. The interview findings indicate that transfer of L1 prior knowledge and strategies does occur for students with high L1 language proficiency.

Study	Subjects	Method of Study	Findings
<p>Cummins, Swain, Nakajima, Handscombe, Green, & Tran (1984)</p>	<p>Japanese Sample 91 high SES attending grades 2 & 3 and grades 5 & 6. From this sample 59 (32 male, 27 female)</p> <p>Vietnamese Sample 45 students consisting of 33 male and 12 female. They had been in North America ranging from 5-22 months. The median age was 158 months (13.17 years)</p>	<p>Qualitative/Quantitative Quantitative</p> <ul style="list-style-type: none"> • All Japanese students were administered English and Japanese language proficiency tests. • The smaller Japanese sample was given the English academic measures. Smaller sample selected because of length of residence (LOR) and sex. • The Vietnamese were given Vietnamese and English language proficiency measures. <p>Qualitative</p> <ul style="list-style-type: none"> • Interviews in native language and English <p>Statistical Analyses</p> <ul style="list-style-type: none"> • Correlational analysis • T-tests of performance of older and younger students • Multiple regression 	<p>Results found that:</p> <ol style="list-style-type: none"> 1. The correlations indicate that interactional style is interdependent across languages. 2. The analyses carried out are consistent with the interdependence hypothesis. 3. Because similar findings, the interdependence hypothesis was shown to be robust.

Study	Subjects	Method of Study	Findings
Canale, Frenette, & Belanger (1988)	32 subjects selected from 230 of 1407 Franco-Ontarian Minority Students in grades 9 & 10 in from 43 classes in 12 French language secondary schools	<p>Quantitative</p> <ul style="list-style-type: none"> • Students were to write a maximum one-page narrative and a half-page letter in French and English. • The four writing samples from each student were scored holistically and analytically. <p>Statistical Analyses</p> <ul style="list-style-type: none"> • The researchers completed Pearson Product Moment correlations. • Factor analysis was completed on the analytic scores. 	<p>Relevant to this study, the results found that:</p> <ol style="list-style-type: none"> 1. The correlation between analytic scores in French and English narrative was strong. 2. The correlations between holistic scores were much lower. 3. It depends upon the type of scoring, as to the strength of the relationship between the French and English writing scores.

Study	Subjects	Method of Study	Findings
Carrell (1991)	2 groups of subjects <ul style="list-style-type: none"> • Group 1: 45 Native Spanish speakers with different proficiency levels in English • Group 2: 75 native English speakers studying Spanish 	Quantitative <ul style="list-style-type: none"> • Students were given 2 reading passages in their first language and in their second languages. • The students were given 10 multiple-choice questions about each text. • Students were given L2 reading tasks before L1. Statistical Analyses <ul style="list-style-type: none"> • General Linear Models and Regression procedures in the model of L2 Reading=L1 Reading + L2 Language Proficiency 	Results found that: <ol style="list-style-type: none"> 1. First language reading ability and second language proficiency are significant predictors of second language reading ability. 2. There are different strengths of the 2 predictor variables for each group. .

Study	Subjects	Method of Study	Findings
López & Greenfield (2004)	100 Hispanic children with a mean age of 56 months from Miami Dade County Community Action Agency Head Start. Parents had to provide consent	<p>Quantitative</p> <ul style="list-style-type: none"> • Students were given tests to measure oral language proficiency in Spanish and English. • Students were given the author-developed Phonological Sensitivity Test to measure the phonological awareness. <p>Statistical Analyses</p> <ul style="list-style-type: none"> • A hierarchical multiple regression 	<p>Results indicated that:</p> <ol style="list-style-type: none"> 1. All three independent variables were significant predictors of English phonological awareness. 2. English oral proficiency was the strongest variable. 3. Most of the variance attributed to Spanish proficiency was shared with Spanish phonological awareness.

Study	Subjects	Method of Study	Findings
Cummins, Lopes, & King (1987) as cited in Cummins, Harley, Swain, & Allen (1990)	191 students enrolled in Portuguese heritage language programs in seven inner-city Toronto schools.	<p>Quantitative</p> <ul style="list-style-type: none"> • 1 language use questionnaire • 1 language attitude questionnaire • Tests in English and Portuguese <p>Statistical Analyses</p> <ul style="list-style-type: none"> • Correlational Analyses • Multiple Linear Regression 	<p>Results found that:</p> <ol style="list-style-type: none"> 1. Students prefer to use English for social interactions 2. Prefer to use Portuguese when speaking with family members 3. Correlation $r=.5$ for each set of written measures 4. Strong evidence of interdependence of academic skills across languages

Study	Subjects	Method of Study	Findings
Sparks, Ganschow, & Patton (1995)	<p>Experiment 1:</p> <ul style="list-style-type: none"> 154 9th and 10th grade girls from a private all girls high school <p>Experiment 2</p> <ul style="list-style-type: none"> 100 coeducational 9th grade students in a public high school 	<p>Experiment 1:</p> <p>Multiple Linear Regression with 8 predicting variables</p> <ul style="list-style-type: none"> Modern Language Aptitude Test—Long Form Nelson-Denny Reading Test Wide Range Achievement Test—Revised (the spelling subtest) Lindamood Auditory Conceptualization Test (a phonemic awareness test) Peabody Picture Vocabulary Test—Revised Woodcock Reading Mastery Test—Revised: Word Identification and Word Attack subtests Eighth-grade English grade High School Placement Test—Total Test Score. <p>The first year foreign language grade was the dependent variable.</p> <p>Experiment 2:</p> <p>8 predictor variables in a multiple linear regression equation with the first year foreign language grade as the</p>	<p>Experiment 1:</p> <p>Four Best Predictors</p> <ul style="list-style-type: none"> English grade Foreign language aptitude measure (MLAT-LF) Native language spelling subtest score Lindamood Auditory Conceptualization Test score <p>Experiment 2</p> <p>2 Best Predictors</p> <ul style="list-style-type: none"> English grade Foreign language aptitude measure (MLAT-LF)

		<p>dependent variable.</p> <ul style="list-style-type: none"> • Modern Language Aptitude Test—Long Form • Iowa Tests of Basic Skills—Reading Comprehension subtest • Wide Range Achievement Test—Revised (the spelling subtest) • Lindamood Auditory Conceptualization Test (a phonemic awareness test) • Peabody Picture Vocabulary Test—Revised • Woodcock Reading Mastery Test—Revised: Word Identification and Word Attack subtests • Eighth-grade English grade • Iowa Tests of Basic Skills—Total Test Score 	
--	--	--	--

Study	Subjects	Method of Study	Findings
Lanauze & Snow (1989)	<p>38 fourth and fifth graders in a Spanish-English bilingual program. Students were divided up according to a teacher rating into 3 groups.</p> <ul style="list-style-type: none"> • GG students who perform well in both languages • PG students who perform well in one language and not so well in the other • PP students who perform poorly in both languages 	<p>Students were given a picture of a beach scene and were asked to describe it. The writing samples were evaluated on different measures of language complexity and sophistication, language variety, semantic information, and for indicators of how much and what kind of information was provided about the picture.</p> <p>3-way ANOVA</p> <ul style="list-style-type: none"> • Grade (four or five) was a between subject factor • Group (GG, PG, or PP) was a between subject factor • Language (English or Spanish) was a within-subject factor <p>Pearson's r</p> <ul style="list-style-type: none"> • Cross language correlations 	<p>Results relevant to this study:</p> <ol style="list-style-type: none"> 1. No significant correlations for the GG or PP groups. 2. Negative correlations for PP group suggest that skills in one language are not transferring to another and are independent of the other language

Study	Subjects	Method of Study	Findings
Lambert & Gardner (1972)	<p>Maine</p> <ul style="list-style-type: none"> • 98 French-American freshman and sophomore students from all boys and all girls Catholic parochial schools • All students had taken at least 1 year of French every year they were in school <p>Louisiana</p> <ul style="list-style-type: none"> • 80 French-American students in French I & II <p>Connecticut</p> <ul style="list-style-type: none"> • 74 students in French I • 68 students in French II 	<p>Factor Analysis with many factors including:</p> <ul style="list-style-type: none"> • Language aptitude test scores • Results from motivational inventories • Results of various French tests 	<p>Results</p> <ul style="list-style-type: none"> • Language aptitude test scores are a strong predictor of second language proficiency • Instrumental motivation can be a strong predictor, but integratively motivated students are often more successful

While the Developmental Interdependence Hypothesis has been supported through different research studies, there has not been a study like this one. This current study explored the relationship between L1 and L2 proficiency, as well as the contributing factors of L2 proficiency. While Carrell's study examined L2 reading ability, this study goes further and examines L2 reading and writing proficiency, a person's literacy proficiency. This study will contribute to academic knowledge by further exploring the role of L1 literacy skills in the contribution of L2 literacy skills, not simply explore reading ability. Finally, it examines how different aspects of L1 reading and writing proficiency contribute to L2 reading and writing proficiency.

CHAPTER 3 - Overview of the Methodology

This chapter explains the methods used in carrying out the study, giving special emphasis to the analysis of data.

The General Perspective

As a quantitative study, the researcher describes a statistical perspective on what contributes to a learner's second language proficiency. In addition, she will examine the differences between foreign language learners and second language learners.

The Research Context

The research context included two settings. The first setting includes subjects from Spanish foreign language classrooms, while the second setting includes subjects from ESL programs. It should be noted in subsequent editions, after the data were collected, the schools have fictitious names in order to safeguard confidentiality.

The first setting was from rural schools in Northeast Kansas. They include Stoney Brooke High School and County High School. The goal was to obtain 75 subjects from this sample, but only 48 subjects volunteered.

Stoney Brooke High School is rural and is consolidated with three communities. The district has a total enrollment of 764 students with 363 being at the high school. Females make up 49.49% of the student body while males make up 50.41% of the population. Whites make up the largest ethnic group with 95.59% of the population with students considered African American and Other each making up 1.65% of the

population and Hispanic students comprising 1.10% of the student body. The graduation rate in 2004 was 96.2%. None of the students are considered to be limited English proficient or have migrant status. Finally, 24.24% of the students are considered to be economically disadvantaged (*Kansas state department of education report card 2004-2005 search, 2006*).

County High School has 667 students in the district and 239 students at the high school. Females make up 53.14% of the student body with males coming in second with 46.86% of the population. Whites comprise the largest ethnic group with 96.23%; students considered to be Hispanic, African American or Other each make up 1.26% of the student body. The graduation rate in 2004 was 95.9%. None of the students are limited English proficient or have migrant status. Lastly, 22.59% of the student body is considered to be economically disadvantaged (*Kansas state department of education report card 2004-2005 search, 2006*).

The second setting was from Western City High School. Here, there are a large number of Spanish-speaking students who are learning English. The goal was to obtain 75 subjects from this sample, but data were successfully collected from 48 volunteers.

Western City High School has an enrollment of 1,997, with a total enrollment of 7,572 in the district. Males make up 50.38% of the population while females make up 49.62%. Hispanics are the largest ethnic group, comprising 51.88% with students denoted as white coming in second with 40.31% of the population. Finally, African Americans make up 1.65% of the student body and other ethnic groups make up 6.16% of the student body. The graduation rate in 2004 was 82.5%. Limited English proficient students make up 7.21% of the population; 41.16% of the students are economically

disadvantaged and 4.01% are migrant (*Kansas state department of education report card 2004-2005 search, 2006*).

The data for this study were collected in January and February 2006. Official permission was obtained from Western City High School in November 2005 and permission for the other two sites was secured in December 2005.

RESEARCH QUESTIONS:

- Do first language (L1) literacy skills predict second language (L2) literacy skills?
- Is there a positive relationship between the degree of proficiency in L1 and the degree of proficiency in L2?
- Is there a difference between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers?

RESEARCH HYPOTHESES:

1. First language (L1) literacy skills are a predictor of second language (L2) literacy skills. ($p < .05$)
2. There will be a positive relationship between L1 literacy skills and L2 literacy skills. ($p < .05$)
3. There will be no significant difference on the scores of the Idea Proficiency Test (IPT) between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers. ($p < .05$)

The Research Participants

The foreign language students are native English-speakers. They have studied English in a formal setting all of their academic careers. They only began to study Spanish after they entered high school. All of the students attended rural high schools,

where there is only one foreign language teacher. All of native English-speaking students had completed at least 3 semesters of Spanish study. During that time, they were exposed to various curricula and philosophies about how much Spanish the teacher and students should speak in the classroom. These students were chosen as a result of their teacher's volunteering her class and permission given by the student and his/her guardians.

The native Spanish-speakers were learning English. The researcher identified several characteristics about the participants based upon conversations with them. Some of the students have lived in the United States for several years, while others have only arrived within the previous 12 months. Some of the students have studied Spanish extensively in Mexico, in other Spanish-speaking countries, or on their own. However, others have only heard Spanish in their homes and perhaps at school from their friends or teachers, although the number of situations like this was at a minimum. This sample was quite diverse and presented some special challenges. Finally, the students were chosen on a volunteer basis. Again, these students participated in the study because permission was obtained from the student and his/her guardians.

Both foreign language students and ESL students shared certain characteristics. For example, the students were of high school age. Subjects were both girls and boys. However, the foreign language students and ESL students also differed in that the English speakers were of European descent and the Spanish speakers were mostly of Hispanic descent.

Instruments Used in Data Collection

Five instruments were used to collect data, including a questionnaire, the reading proficiency test in English and Spanish, and the writing proficiency test in English and Spanish.

Questionnaire

Before the tests were administered, each student was asked to fill out a questionnaire to gain additional information. The questionnaire included questions about the students' grade point average, the number of semesters that they had studied their second language, their fall semester second language (English or Spanish) grades in percents as supplied to the students by the classroom teacher, their native language, their year in school, and how many languages the student has studied.

To ensure clarity of the questions, the questionnaire were first given to a group of four high school sophomores. These students were conferred with on a one-on-one basis to determine what they believed the questions were asking. The students universally agreed that the questions were clear and no further changes were made.

IDEA Reading and Writing Proficiency Tests

The IPT Reading & Writing Test offers an assessment for Limited English Proficient (LEP) student identification, placement, redesignation, and progress based on their reading and writing skills. The diagnostic information is ideal for program planning. The test was written and normed according to American Psychological Association (APA) standards. The reading test assesses vocabulary, vocabulary in context, reading for understanding, reading for life skills, and language usage. The writing test assesses student ability to generate writing that reflects common usage and academic grade-level standards. New covers on the IPT 2004 test booklets and updated scannable answer

sheets capture all student and score information required by NCLB. The Examiner's Manual contains instructions on how to administer and score the IPT 2004 in order to be NCLB-compliant (IPT 3B English R & W-Test Set & IPT 3 Spanish R & W-Test Set, 2005).

Reading test. The Cronbach alpha reliability is .96 for the forms 3B, which is for students in grades 7-12. The alphas for the various subtests are lower, ranging from .68 to .86, which is because the subtests are much shorter (*Technical Manual IPT 3 Reading & Writing, 2004*).

The authors work to establish content validity in tables of item specifications that list the competencies or concepts being tested in each subtest and the corresponding item numbers. Content Validity is concerned with how well a test is sampling from the domain to be assessed. Content sampling is important to ensure that all major aspects are satisfactorily represented by the test items. This form of validity rests mainly on the extent of efforts to include good items from the important domains being measured (*Technical Manual IPT 3 Reading & Writing, 2004*).

Construct Validity refers to the confirmation of some underlying construct that is being assessed but that cannot be directly seen. Therefore, it is often more relevant to psychological tests than to academic tests, but the test-makers believe that since “reading ability” and “writing ability” are somewhat abstract concepts, some insight for the construct validity can be gained. Evidence of this type of validity would be found in how the subtests of the test correlate with each other and the total score defined by the sum of the subtests. To the degree that expected patterns conform, support for the validity of the underlying construct can be understood. The authors make a case for

construct validity by examining the intercorrelations among the subtests and similarities in subtest-total correlations, as well as by comparing the mean scores of different grade levels and types of students (as determined by amount of English language instruction). The subtest intercorrelations range from .55 to .94 (*Technical Manual IPT 3 Reading & Writing*, 2004).

A third kind of validity examined was criterion-related or concurrent validity. This indicates how strongly the test correlated with other independent measures of what the test is designed to assess. For example, in assessing reading achievement, one would expect performance on the test to correlate with other ways of measuring the same thing. The authors also explore criterion-related (concurrent) validity by examining the correlations of reading test percentile scores with the California Test of Basic Skills percentile scores. This coefficient was .53. Then, the correlations with teachers' opinions are shown to range from .35 to .54 for Test form 3B (*Technical Manual IPT 3 Reading & Writing*, 2004).

Writing test. The writing test is scored in a holistic fashion. Concurrent validation of the scores was determined through inter-correlations of the total scores for each of the first two ratings with the teacher's estimate of overall academic ability in writing ability specifically. The test developers or writers examined validity through examination of correlations between the writing subtest scores and three criterion measures: (a) teacher opinions of students' academic and writing abilities, (b) students' Writing Conventions subtest scores, and (c) norm-referenced language scores. These correlations range from .26 to .52 for Level 3, validated for seventh through twelfth graders. These moderate correlations provide support for validity while simultaneously

indicating that the IPT writing sample is assessing something qualitatively different from the components of writing measures with the IPT multiple-choice test. Finally, the authors approximate the reliability of the writing subtests by examining inter-rater correlations (.54 to .66) and exact agreement between raters (66% to 72%) (*Technical Manual IPT 3 Reading & Writing*, 2004).

Procedures Used

In a descriptive study such as the current one, several steps needed to be taken. The first step was to identify the language proficiency test to be used. At least two tests have Spanish and English versions, the Language Assessment Scale (LAS) and the Idea Proficiency Test. Both tests provide much the same information. But, because one of the school districts was already using the IPT 3B with its English language learners, this was the test that was selected for the study. The next task to be completed was gaining access to the schools.

The second step was to identify the Spanish teachers in selected schools in Northeast Kansas and ask if they were interested in participating in the research. Once their interest was determined, the teachers secured permission from their administrators. Securing permission from Western City High School involved contacting the assistant superintendent who set up the meetings with the appropriate secondary personnel. After permission was obtained from the district, permission slips (see Appendix B) in English and Spanish were made that were appropriate for a high school setting. The ESL coordinator received the needed documents electronically and made the appropriate copies and distributed them to the students. Information regarding the

study and the permission slips were sent home with the students and returned to the school.

The third step was to determine the population. In the schools where foreign language students were to be tested, the sample was chosen from students who had completed a minimum of three semesters of Spanish study. The students were asked to participate in the study on a volunteer basis, but only those students who had been given permission by their parents. In Western City High School, the Spanish-speaking sample was determined by school personnel based upon the students' presence in the ESL program.

Once permission was secured, then the questionnaire (See Appendix A) and tests were administered in January 2006. The tests were administered at Western City High School and then at the schools in Northeast Kansas. All of the schools had a block schedule and to administer the tests and questionnaire required up to four class sessions of 80-90 minutes. Because there was no time limit on the test, the students were free to take as much time as they needed.

First, all the students were given the questionnaire. For the students in Western City, they had already been given the IPT English 3B test by the district earlier in the school year, starting in November and going through January, as part of regular district practice. Consequently, the students only needed to take the Spanish reading and writing proficiency test. For the foreign language students of Stoney Brooke High School and County High School, they were given the English test and then the Spanish test. While the researcher administered the English reading and writing tests, the

individual teachers administered the Spanish reading and writing proficiency tests, after they had signed the appropriate paperwork from the Institutional Review Board.

Once all of the data were collected, the tests had to be graded and evaluated. There were two evaluators for the writing test in each language. The writing evaluators went through training to help ensure inter-rater reliability, which was completed in January and February of 2006.

After the data were evaluated, they were analyzed using the Statistical Package for the Social Sciences (SPSS). It was analyzed for major differences, interactions, and what factors contribute to second language proficiency.

Data Analysis

Ballard and Tighe (2004) created equivalent versions of the IPT 3 in Spanish and English. The test examines the proficiency of oral skills, reading skills, and writing skills. Because this study concentrated on literacy, the reading and writing proficiency tests were used. The reading test explored different pieces of a learner's proficiency. They included vocabulary, vocabulary in context, reading for understanding, reading for life skills, and language usage. In the vocabulary section, students are given ten pictures and they have to choose the word from four choices that best describes the picture. In the vocabulary in context section, students are given a sentence and have to choose which word would best fit in the blank based upon the context of the sentence; this is designed to test for meaning rather than grammar understanding. In the reading comprehension or reading for understanding part, students are to read a passage and then answer two to four questions about the passage, with the passages varying in length. In the reading for life skills part, students are given such things as maps,

newspaper ads, or graphs and then they have to answer multiple choice questions about them. In the final part of the reading test, students' grammar knowledge is evaluated in the language usage part. The writing test examined learner's knowledge of conventions such as capitalization and punctuation, the ability to write a story based upon a pictorial sequence, and the learner's ability to write their own story, based upon a beginning premise provided by the test.

Each one of the subtests provided a sub- score, which contributed to the overall test score of reading and writing proficiency. The subscale scores were used in a multiple linear regression model to explore exactly what contributed to the second language (L2) reading and writing proficiency score. Additionally, information from the questionnaire was used in the equation.

- Factors coming from the questionnaire
 - Number of semesters student has spent studying the second language (b_1X_1)
 - Gender of student (b_2X_2)
 - Student's GPA (b_3X_3)
 - Student's estimated grade from fall semester in Spanish or English as provided by the teacher (b_4X_4)
 - Student's year in school (b_5X_5)
 - Number of languages the student has studied (b_6X_6)
- Reading and Writing Proficiency Subscales
 - Native Language Vocabulary (b_7X_7)
 - Native Language Vocabulary in Context (b_8X_8)

- Native Language Reading for Understanding (b_9X_9)
- Native Language Reading for Life Skills ($b_{10}X_{10}$)
- Native Language Language Usage ($b_{11}X_{11}$)
- Native Language Conventions ($b_{12}X_{12}$)
- Native Language “Write a Story” ($b_{13}X_{13}$)
- Native Language “Write Your Own Story” ($b_{14}X_{14}$)

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} + b_{12}X_{12} + b_{13}X_{13} + b_{14}X_{14} + e$$

Y=L2 total reading and writing proficiency score

As one can see, the equation to be used is laid out. There are fourteen variables that were considered. The letter “b” is the regression coefficient for the predictor variable. It is used to weight each variable relative to the other variables. The letter “X” is the predictor variable and it represents each factor in the regression equation.

A hierarchical regression was run. The variables were entered in the following order, first based upon the Developmental Interdependence Hypothesis, then possible language aptitude measures, and then the other variables. First, native language vocabulary was entered, followed by native language vocabulary in context, native language reading for understanding, native language reading for life skills, native language language usage, native language writing conventions, native language story, native language own story, grade point average, first semester second language grade, class, number of semesters studied, number of languages studied, and gender. The beta coefficients, standardized regression coefficient to make the comparison between the variables and similar to a z score, were examined to see which variables had the

greatest effect on the dependent variable. Additionally, multicollinearity diagnostics were run to check for redundancy. The variables were entered hierarchically.

Additionally, backward elimination multiple linear regression models were run using the fourteen variables, but with each of the second language totals for the two subgroups. Using the information from the beta coefficients three different variables were selected for either subgroup, native English speakers or native Spanish speakers, and a hierarchical multiple linear regression was run.

Beyond the simple and multiple linear regression equations that were completed, several variables were correlated with the others to assess the strength of the relationship between all variables. The findings for this are reported.

Finally, two univariate analyses of covariance (ANCOVA) were run to examine the differences between the two groups of native speakers, controlling for the number of semesters studied. The independent variable was the native language of the student. The dependent variables for each of the tests were the students' native language reading and writing proficiency score and the second language reading and writing proficiency score. The covariate being the number of years controlled for the differences across languages and student experiences.

Summary of the Methodology

This chapter has explained the methods used in this quantitative study of the examination of what factors contribute to students' L2 literacy proficiency scores. The next chapter presents the results obtained using those methods.

CHAPTER 4 - Presenting the Results

As stated in Chapter 1, the study reported here examined in detail the effects of first language literacy skills on second language literacy skills. The chapter is organized in terms of the three specific research questions and their corresponding hypotheses. It reports the relationship between different aspects of first language literacy skills and second language literacy skills, as well as a variety of other factors.

RESEARCH QUESTIONS:

- Do first language literacy skills predict second language literacy skills?
- Is there a relationship between the degree of proficiency in L1 and the degree of proficiency in L2?
- Is there a difference between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers?

RESEARCH HYPOTHESES:

1. First language (L1) literacy skills are a predictor of second language (L2) literacy skills at the .05 level.
2. There will be a positive relationship between L1 literacy skills and L2 literacy skills at the .05 level.
3. There will be no significant difference on the scores of the Idea Proficiency Test between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers. Significance will be measured at the .05 level.

First Language Literacy Skills Predicting Second Language Literacy Skills – Complete Group

The Developmental Interdependence Hypothesis supports the notion that native language literacy skills will have a significant influence on second language literacy skills.

To test this hypothesis 14 independent variables were entered into a regression formula to determine what effect they might have on the acquisition of a second language; however, prior to conducting the regression analysis, a Pearson-product moment correlation was run to determine what relationships existed among the independent and dependent variables. These correlations revealed some statistically significant correlations. The results are listed below.

- As native language vocabulary scores decreased, second language total scores increased ($r=-.016$).
- As scores of native language vocabulary in context decreased, second language totals increased ($r=-.319$).
- As scores of native language reading for understanding decreased, second language totals increased ($r=-.348$).
- As scores of native language reading for life skills decreased, second language totals increased ($r=-.354$).
- As scores of native language language usage increased, second language totals increased ($r=.059$).
- As scores of native language writing conventions decreased, second language totals increased ($r=-.337$).

- As scores of native language story writing decreased, second language totals increased ($r=-.563$).
- As scores of native language own story decreased, second language totals increased ($r=-.373$).

With significant r values of near .30 or above, there was clear evidence that a regression procedure might identify a significant relationship between the independent variables and the dependent variable. Prior to conducting the regression the following procedures were conducted to check for assumptions to identify multicollinearity among independent variables, tolerance, and the variance inflation factor (VIF). The data were also evaluated for outliers. Multicollinearity exists when two independent variables are correlated so highly that they are likely measures of the same effect. In Table 3 the variance inflation factor (VIF) are all below 10 and the tolerance values are all above .10. The values in both of these columns indicate there is no multicollinearity among the independent variables.

With the correlations and check for assumptions completed, the multiple regression formula was run. The 14 independent variables used in the regression are listed below. The final eight variables are subscores from the IPT.

Multiple Linear Regression of 14 Factors of Native English and Spanish Speakers

The independent variables are:

- Number of Semesters Studied,
- Gender,
- Grade Point Average (GPA),
- First Semester Second Language Grade (L2grade),

- Grade in School (Class),
- Number of languages studied,
- Native language vocabulary,
- Native language vocabulary in context,
- Native language reading for understanding,
- Native language reading for life skills,
- Native language language usage,
- Native language conventions,
- Native language story, and
- Native language own story.

With all 14 independent variables entered into the equation (See Table 2), after eliminating two outliers, 83% of the variance is accounted for, which is considered quite high in endeavors involving human subjects. If one examines the ANOVA table (Table 3) which tests the null hypothesis that multiple R in the population equals 0, it is revealed that this model reaches statistical significance (Sig=.000).

After examining the Beta values (Table 4), it was determined that several independent variables make a significantly unique contribution to the prediction of the dependent variable. The variables include native language vocabulary (Beta=1.195; Sig=.000), native language vocabulary in context (Beta=-.565; Sig=.000), native language reading for understanding (Beta=.314; Sig=.002), second language grade (Beta=.504; Sig=.000), grade point average (Beta=-.675; Sig=.000), and class (Beta=-.524; Sig=.000).

Table 2 Hierarchical Multiple Regression of 8 First Language Independent Variables and 6 Demographic Variables with the Total Second Language Score Model Summary

Ind. Var.	R Square	R Square Change	Std. Error
NL Vocab NL Vocab in Context NL Read Understand NL Read Life Skills NL Lang Usage NL Wr Conventions NL Story NL Own Story L2 grade Gender GPA Class No Sem Studied No. Languages	.825	.789	.62937

Table 3 ANOVA for 14 Variable Hierarchical Linear Regression Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	125.424	14	8.959	22.618	.000(a)
	Residual	26.539	67	.396		
	Total	151.963	81			

a Dependent Variable: L2Totals

Table 4 Coefficients for 14 variable Equation

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	5.284	1.374		3.845	.000		
NLVocab	8.866	.946	1.195	9.375	.000	.161	6.228
NLVocabContext	-4.514	1.012	-.565	-4.460	.000	.162	6.159
NLReadUnderstand	1.901	.592	.314	3.211	.002	.273	3.669
NLReadLifeSkills	-1.878	.610	-.292	-3.076	.003	.289	3.465
NLLangUsage	-.264	.564	-.033	-.468	.641	.525	1.906
NLWrConventions	.783	.614	.082	1.274	.207	.632	1.582
NLStory	-1.753	.567	-.243	-3.095	.003	.423	2.364
NLOwnStory	-.882	.464	-.139	-1.901	.062	.484	2.064
L2grade	.079	.014	.504	5.433	.000	.303	3.304
GPA	-1.430	.232	-.675	-6.152	.000	.217	4.613
class	-.669	.096	-.524	-6.951	.000	.459	2.180
NoLanguages	.361	.286	.077	1.263	.211	.697	1.434
NoSemStudied	.042	.035	.077	1.204	.233	.642	1.557
1=M;2=F	.056	.153	.020	.365	.716	.843	1.186

a Dependent Variable: L2Totals

Relationship between L1 Literacy Skills and L2 Literacy Skills

To determine the strength of the relationship between L1 literacy skills and L2 literacy skills, the Pearson's r correlation was run, along with several aspects of the point totals.

Correlation between L1 Totals and L2 Totals

When considering the L1 and L2 totals for both subgroups, the resulting correlation is a negative $-.466$, which is considered significant at the $.05$ level of a 1-tailed test. An examination of a scatter plot illustrated the negative correlation between the second language total scores and the native language total scores for both the native English and Spanish speakers, as well as its linear nature.

In order to gain a clearer picture of the relationship within the two subgroups, correlations were run for the two subgroups.

- As the scores for the native language scores for the native Spanish speakers increased, the second language totals increased ($r=.154$).
- For the native English speakers, as the scores for the native language scores increased, the second language scores increased ($r=.053$).

Because the previous correlations were weak, further analysis was warranted to determine the strength of the relationship between different aspects of the data.

- As the second language reading scores for native English speakers increased, the first semester second language grade increased ($r=.335$).
- For the native Spanish speakers, as the native language reading scores increased, the second language reading scores increased ($r=.326$).
- Finally, for the native Spanish speakers, as the native language writing scores increased, the second language writing scores increased ($r=.268$).

Differences between Native English and Spanish Speakers Proficiency Scores

As the study began it became clear that there was a substantial difference between the native English speaking group of students and the native Spanish speaking group of students. The native English speaking students were in a familiar environment where their native language was spoken all of the time with the exception of their Spanish class which they attended one hour per day five times a week. On the other

hand the native Spanish speakers were in an environment at a minimum of 40 hours a week where their second language, English, was spoken and where they were expected to interact using their second language. Because of this difference in the two subgroups, determining whether one group would have an advantage in learning a second language over the other proved interesting. However, because there would be such a wide range of time that the students had been studying the language, it was determined that an Analysis of Covariance should be run in order to control for the number of semesters the students had been studying the second language.

Univariate Analysis of Covariance for Native English and Spanish Speakers for the L2 Totals

This Analysis of Covariance (ANCOVA) was run with the number of semesters studied as the covariate and the dependent variable was the second language reading and writing total scores. Group 1 is the native Spanish speakers and Group 2 is the native English speakers. Both the group factor and the number of semesters studied were found to be significant. In fact, these two variables explained 50.6% of the variance. The ANCOVA revealed a significantly higher mean on the performance of the IPT for the native Spanish speakers (4.83) than for the native English speakers (3.06). (See Table 5). Based upon these results, the data sets for the native English speakers and native Spanish speakers were separated. The Levene's test of equal variance was run and it was found to have unequal variance. However, after squaring the standard deviation, it was found that the unequal variances were not an issue because the F-value was deflated. This means that the chance for a significant difference in the

equation was diminished. Even so the results were significant at the .000 level (see Table 6).

Table 5 Native Spanish speaker and Native English speaker Group Means (Descriptive Statistics) for Second Language Totals

Group	Mean	N	Std. Deviation
Native Spanish Speakers	4.8314	48	1.09178
Native English Speakers	3.0553	41	.76662
Total	4.0132	89	1.30246

Table 6 ANCOVA For Between Subjects Effects for Native Spanish Speakers and Native English Speakers

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	74.941	2	37.471	45.856	.000
Intercept	230.907	1	230.907	282.578	.000
Semester	8.130	1	8.130	9.950	.002
Group	66.050	1	66.050	80.830	.000
Error	69.457	85	817		
Total	1544.100	88			
Corrected Total	144.399	87			

a. R Squared=.519 (Adjusted R Squared=.506)
89 of the 96 cases were included.

Univariate Analysis of Covariance for Native English and Spanish Speakers for L1 Totals

After analyzing the results of the two subgroups results, another ANCOVA was run to determine, while controlling for the number of semesters studied, which group would have a significantly higher native language proficiency score. In this test, the number of semesters studied was the covariate and was found to be significant, as well as a significant difference was found between the native Spanish and English speakers. The mean for the native Spanish speakers was 6.14 and the mean for the native English speakers was 7.49. (See Table 7). Furthermore, this model explained 59.9% of the variance. The Levene's test of equal variance was run and it was found to have

unequal variance. However, after squaring the standard deviation, it was found that the unequal variances were not an issue because the F-value was inflated. To adjust for the inflated value, the probability value was changed from $p > .05$ to $p > .01$. The significance level was .000. (See Table 8).

Table 7 Descriptive Statistics for Native English and Spanish speakers Group Means (Descriptive Statistics) First Language Totals

Native Language	Mean	Std. Deviation	N
Native Spanish Speakers	6.1439	.83894	44
Native English Speakers	7.4924	.30149	48
Total	6.8475	.91553	92

Dependent Variable: NLTotals

Table 8 ANCOVA for Native English and Spanish Speakers Between-Subjects Effects for First Language Totals

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	46.389(a)	2	23.194	69.069	.000	.608
Intercept	993.058	1	993.058	2957.142	.000	.971
NoSemStudied	4.648	1	4.648	13.842	.000	.135
Students	38.954	1	38.954	115.997	.000	.566
Error	29.888	89	.336			
Total	4389.950	92				
Corrected Total	76.276	91				

a R Squared = .608 (Adjusted R Squared = .599)

Dependent Variable: NLTotals

The results presented above indicate clearly that the students in this study developed greater English proficiency in a second language environment than students developing a Spanish proficiency in a foreign language environment. The analyses of the data point to a difference in the environments in which the students in the study learned their languages.

Comparing Native Language Scores of Native English and Spanish Speakers

In order to gain a clearer picture of what was going on with the two subgroups, a multiple regression was used to determine what aspects of native language might have affected their success in learning a second language. Since the number in each group was smaller (native Spanish speakers, $N = 48$; native English speakers, $N = 41$), the number of independent variables used in the regression formula had to be reduced. To determine which of the 14 variables used with the total group regression had the greatest impact on total second language scores of the two subgroups, a backward elimination regression was run on the data, which identified the independent variables that were significant in their impact upon learning the second language.

Regression for Native English Speakers. After completing a backward elimination with all 14 original variables, it was found that the variables of class, native language story and first semester second language grade were making the most unique contributions to the variance. Then those three factors were entered into the equation hierarchically to determine how those factors would explain the variance. Forty-two percent of the variance is explained by the three variables. In fact, all three variables were found to be significant: native language story (Beta=-.388; Sig=.004), first semester second language grade (Beta=.346; Sig=.013), and class (Beta=.335; Sig=.016). If one examines the ANOVA table (Table 10) which tests the null hypothesis that multiple R in the population equals 0, it is revealed that this model reaches statistical significance (Sig=.000). In Table 11, the variance inflation factor (VIF) are all below 10 and the tolerance values are all above .10. The values in both of these columns indicate there is no multicollinearity among the independent variables

Table 9 Native English Speakers 3 Variable Hierarchical Regression Model Summary

Ind. Var.	R Square	Adjusted R Square	Std. Error
ClassNES NESNLstory L2gradeNES	.420	.372	.60752

a Dependent Variable: L2totalsNES

Table 10 ANOVA for Native English Speakers 3 Variable Hierarchical Regression

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	9.633	3	3.211	8.700	.000(a)
Residual	13.287	36	.369		
Total	22.920	39			

a Dependent Variable: L2totalsNES

Table 11 Coefficients for Native English Speakers 3 Variable Hierarchical Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.256	1.670		.153	.879		
NESNLstory	-3.329	1.093	-.388	-3.045	.004	.994	1.006
L2gradeNES	.031	.012	.346	2.608	.013	.913	1.095
classNES	.291	.115	.335	2.531	.016	.917	1.091

a Dependent Variable: L2totalsNES

Regression for Native Spanish Speakers. After running a backward elimination with the original 14 variables for the native Spanish speakers, it was determined from looking at the Beta values that first semester second language grade, the native language language usage subscale from the IPT, and the number of semesters studied make the most individually unique contributions to the variance of the regression model. After entering these variables into a hierarchical regression, they explained 32% of the variance. All three factors were found significant: native language language usage subscale (Beta=.425; Sig.=.003) number of semesters studied (Beta=.427; Sig.=.006),

and first semester second language grade (Beta=.300; Sig=.052). If one examines the ANOVA table (Table 13) which tests the null hypothesis that multiple R in the population equals 0, it is revealed that this model reaches statistical significance (Sig=.001). In Table 14, the variance inflation factor (VIF) are all below 10 and the tolerance values are all above .10. The values in both of these columns indicate there is no multicollinearity among the independent variables.

Table 12 Native Spanish Speakers 3 Variable Hierarchical Regression Model Summary

Ind. Var.	R Square	Adjusted R Square	Std. Error
L2gradeNSS NSSNLLangusage NoSem StudiedNSS	.320	.269	.93345

Table 13 ANOVA for Native Spanish Speakers 3 Variable Hierarchical Regression

	Sum of Squares	df	Mean Square	F	Sig.
Regression	16.402	3	5.467	6.275	.001(a)
Residual	34.853	40	.871		
Total	51.256	43			

a Predictors: (Constant), L2gradeNSS, NSSNLLangusage, NoSemStudiedNSS

b Dependent Variable: L2totalsNSS

Table 14 Coefficients Native Spanish Speakers 3 Variable Hierarchical Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.614	1.827		-.336	.739		
NSSNLLangusage	2.116	.666	.425	3.175	.003	.949	1.054
NoSemStudiedNSS	.138	.048	.427	2.909	.006	.788	1.269
L2gradeNSS	.036	.018	.300	2.003	.052	.758	1.320

a Dependent Variable: L2totalsNSS

The results presented above indicate clearly that while native Spanish and English speakers can be used in a sample to help explain the effects of first language

literacy skills on second language literacy skills, it also illustrates that the native Spanish speakers and native English speakers are two distinct groups and should be treated as such. A more detailed summary and a discussion of the findings are presented in the next chapter.

CHAPTER 5 - Summary and Discussion of Results

As an aid to the reader, this final chapter of the dissertation restates the research problem and reviews the major methods used in the study. The major sections of this chapter summarize the results and discuss their implications.

The Problem Statement

Foreign language teachers are confronted with the reality of students who do not learn a second language well. The new language frequently confuses the learners. According to Cummins' Developmental Interdependence hypothesis, strong first language literacy skills have a positive impact on a learner's second language skills, but there has been limited research to adequately verify this theory.

RESEARCH QUESTIONS:

- Do first language literacy skills predict second language literacy skills?
- Is there a relationship between the degree of proficiency in L1 and the degree of proficiency in L2?
- Is there a difference between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers?

RESEARCH HYPOTHESES:

1. First language (L1) literacy skills are a predictor of second language (L2) literacy skills at the .05 level.
2. There will be a significantly positive relationship between L1 literacy skills and L2 literacy skills at the .05 level.

3. There will be no significant difference on the scores of the Idea Proficiency Test between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers. Significance will be measured at the .05 level.

Review of Methodology

Data were collected from 96 high school students. Two sub-groups were used, which included 48 native English speakers who were learning Spanish in a foreign language and 48 native Spanish speakers who were learning English in a second language setting. This setting includes an English as a second language class and other forms of sheltered instruction where the students are taught in appropriate methods for second language learners. The native English speakers were in classes of Spanish II or higher in rural schools in Northeast Kansas. The native Spanish speakers were attending Western City High School. Both sub-groups were given the English IPT 3B and the Spanish IPT for reading and writing. The IDEA proficiency test is a language proficiency test that can assess the learner's proficiency in reading, writing, and speaking. Since this study was concerned with literacy, the reading and writing tests were the only ones utilized. The reading test was made up of five smaller tests that were entitled vocabulary, vocabulary in context, reading for understanding, reading for life skills, and language usage. The writing test examines learner's knowledge of conventions, the ability to write a story based upon a pictorial sequence, and the learner's ability to write their own story, based upon a beginning premise provided by the test.

Students were first given a questionnaire that included questions about their grade in school, their gender, their GPA, their first semester second language grade in a percentage as supplied by their teacher, the number of languages they had studied, and the number of semesters they had spent studying their second/foreign language (see Appendix A). Then the foreign language students were given the English tests by the researcher. In the class periods that followed, the students' Spanish teachers administered the Spanish test. For the native Spanish speakers, school personnel gave them the English tests before the researcher arrived at the school. Upon arriving at the school, the researcher administered the Spanish tests. Once all the tests were administered and the data were collected, then the tests were scored. The reading tests were graded using an answer key. Two trained evaluators evaluated the writing tests. Finally, the data were prepared to be analyzed.

The data were analyzed by many statistical means. First, a multiple linear regression was run to determine which factors from the subtests of the native language reading and writing tests, along with the information from the questionnaire contributed most to second language literacy skills. Second, a Pearson's product moment correlation coefficient test was run to determine the strength of the relationship between native language literacy skills and second language literacy skills for both subgroups. Third, two Univariate Analyses of Covariance (ANCOVA) were run to determine if one sub-group had an advantage over the other when it came to learning another language by controlling for the number of semesters as a covariate.

Summary of Results

Hypothesis #1

Question 1. Do first language literacy skills predict second language literacy skills?

Hypothesis 1. First language (L1) literacy skills are a predictor of second language (L2) literacy skills. ($p < .05$)

Hypothesis 1 was accepted. The results of the research showed that 83% of the variance in the total test score on the IPT second language test is accounted for by 8 variables from the first language test and 6 demographic variables. In addition, 42% of the variance of native English speakers acquisition of Spanish is accounted for by 3 variables. Likewise 32% of the variance of native Spanish speakers acquisition of English is accounted for by 3 variables.

For the first research question and hypothesis, a 14 variable multiple linear regression was run. The variables were native language vocabulary, native language vocabulary in context, native language reading for understanding, native language reading for life skills, native language language usage, native language conventions, native language story, and native language own story, first semester second language grade, grade point average (GPA), class, number of languages studied, number of semesters studied, and gender, in that order. The factors were entered hierarchically. The significant predicting factors were native language vocabulary, native language vocabulary in context, native language reading for understanding, first semester second language grade, grade point average, and class (the grade the student is in school). Of these six significant variables, native language vocabulary contributed the most.

The hypothesis explored is the Developmental Interdependence Hypothesis. In a practical manner, this means that native language reading and writing proficiency should indicate the strength of the proficiency in the second language. In this model,

subscale tests of the native language reading proficiency were found to be the most significant.

Multiple linear regressions were run for the native English and Spanish speaker subgroups. Backward elimination linear regressions were run to determine the variables that made the most unique contributions. For the native English speakers, the variables were the native language story, first semester second language grade, and class were found to be the most unique contributing factors. They accounted for 42% of the variance. For the native Spanish speaker subgroup, native language language usage, number of semesters studied, and first semester second language grade offered the most unique contributions. These variables accounted for 32% of the variance.

Hypothesis #2

Question 2: Is there a relationship between the degree of proficiency in L1 and the degree of proficiency in L2?

Hypothesis 2: There will be a positive relationship between L1 literacy skills and L2 literacy skills at the .05 level.

Hypothesis 2 was accepted. For the second research question and hypothesis concerned with the strength of the relationship between native language and second language literacy skills, the results were surprising when both sub-groups were considered. The correlation was found to be significant at $-.466$. When the two sub-groups were separated and correlations ran for each group, positive correlations were found—.154 for the native Spanish speakers and $.053$ for the native English speakers. To further evaluate the strength of the relationship between some of the factors for the native English speakers, a Pearson's r was run between the second language reading

proficiency score and the second language grade and it was found to be a positive significant correlation of .335. For the native Spanish speakers, a correlation was run between their native language reading scores and their second language reading scores. A positive correlation of .326 was found. Also a positive correlation of .268 was found between the first language and second language writing scores for the native Spanish speakers.

Hypothesis #3

Question 3: Is there a difference between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers?

Hypothesis 3: There will be no significant difference on the scores of the Idea Proficiency Test between the Spanish proficiency of native English speakers and the English proficiency of native Spanish speakers. Significance will be measured at the .05 level.

Hypothesis 3 was rejected. For the third research question and hypothesis of whether there would be a difference between the proficiency of native English speakers learning Spanish and native Spanish speakers learning English, a difference was found. When controlling for the number of semesters studied by doing an ANCOVA, native Spanish speakers do have a significantly higher proficiency in English than the native English speakers' proficiency in Spanish. This particular model explained 50.6% of the variance. Also, the covariate of the number of semesters was found to be significant. When completing the reverse to see if native English speakers' English proficiency is higher than native Spanish speakers' Spanish proficiency, the native English speakers

have a higher proficiency. This model explained 59.9% of the variance. Also, the covariate of the number of semesters was found to be significant.

Discussion of the Results

Interpretation of the Findings & Relationship to Previous Research

No research findings would be complete without a careful interpretation of them and their potential implications. The findings of this study could potentially impact government policies with regards to English language learners and the employment of their native language.

Living the Language. To understand the results of the data, it is most revealing to start with the research question of whether Spanish speakers have a higher proficiency in English than English speakers of a higher proficiency in Spanish. Perhaps the most significant findings were the results of the first ANCOVA that indicated that Spanish speakers' English proficiency was significantly higher than English speakers' Spanish proficiency. What these findings indicate is that Spanish speakers have a lead over the English speakers. The most obvious benefit is the amount of time that Spanish speakers get to spend learning their second language. Based upon a traditional or block class schedule, the English speakers spend perhaps 180-270 minutes a week learning and being around Spanish. Spanish speakers spend roughly 2,400 minutes a week learning and being surrounded by English when they are in school. This really speaks to the heart of the difference between a foreign language learning environment and a second language learning environment. These findings clearly show that learners in a second language learning environment will learn their target language better than students learning a language in a foreign language learning environment. In other

words, if foreign language students want to learn their target language as well as the second language learners, they need to place themselves deliberately in situations where they are immersed in the language and really “living it.” These results of this study point to what everyone has thought for decades—being immersed in a language with instruction can yield dramatic results over simply attending a class two to five times a week.

L1 Does Predict L2. When combining both subgroups and completing the simple linear regression with the second language totals as the dependent variable and the native language totals as the independent variable, it is clear that the native language proficiency does not explain the second language proficiency well. What is even more revealing about the poor prediction potential for both subgroups of the native language proficiency is the Pearson's r of $-.466$. This correlation is inconsistent with most of the literature (Cummins, 1979; Cummins, Swain, Nakajima, Handscombe, Green, & Tran, 1984; Lopez & Greenfield, 2004) that has shown a strong positive correlation between some aspect of a person's native language and their second language. When the two subgroups were separated, both subgroups did have slight positive correlations between their native language and second language literacy proficiency scores. What this may well be indicating is that the principles that have always been accepted to apply to both foreign language and second language environments really do not equally apply to both in the same manner. Carrell (1991) found similar results after completing a general linear regression model. She used a group of English speakers and a group of Spanish speakers. When she separated the two sets of data, both of her predicting variables were significant, but the researcher had different levels of significance

depending upon whether the group was native English-speaking or native Spanish-speaking.

When completing the multiple linear regression model with the fourteen variables with data from both subgroups, 83% of the variance was explained. This is extremely high. The best predicting factors are the native language vocabulary, native language vocabulary in context, native language reading for understanding, first semester second language grade, grade point average, and class. The Beta values indicate that native language vocabulary, second language grade, grade point average, and class made the most unique contribution to the equation. These findings support Cummins' Developmental Interdependence Hypothesis (1979).

Native Spanish Speakers. More regression models were run, but the data from the subgroups were separated as Carrell (1991) did. First, backward elimination regressions were run for both subgroups using the 14 original independent variables to determine which variables were making a unique contribution. The variables were for the native Spanish speakers language usage component from the native language proficiency test, number of semesters studied, and the first semester second language grade. All of these were found to make a statistically significantly unique contribution. It stands to reason that language usage was significant because it would reflect, in part, how the students are able to use Spanish and therefore how they use English. The native language language usage is a subscale in the reading IPT. Having any reading subscales as contributing factors is supported by Cummins' Developmental Interdependence Hypothesis (1979). The first semester second language grade was significant because it could in part speak to the aptitude a student has for learning a

second language. Gardner and Lambert (1972) found similar results with their investigation of French speakers. Finally, the number of semesters studied was significant, which makes sense in the light of the fact that they are able to receive so much time studying their second language. More importantly, one of the native language reading proficiency scores was found significant. Native Spanish speakers could do a variety of things to help them learn their second language, usually English. Students should be given time and opportunity to learn their native language. The findings of this study clearly show that if students were given more time to study their native language, then they would be performing better in English. As always, however, the willingness of the students to put forth their best effort and work hard will always influence their second language proficiency.

Perhaps another reason why the developmental interdependence hypothesis seemed to apply so much more to native Spanish speakers had to do with the nature of the motivation. Lambert and Gardner (1972) found there were two different kinds of motivation involved with language learning—instrumental and integrative. The native Spanish speakers would be experiencing integrative motivation because they would be wanting to integrate into a new culture and language.

Native English Speakers. For the native English speakers, the three variables entered with native language story, second language grade, and class. Native language story is one of the writing subscales. This is interesting, since most of the time, reading is typically a more significant factor. However, having any reading or writing subscale from the IPT be a significant factor is supported by Cummins' Developmental Interdependence Hypothesis (1979). The second language grade is a

significant factor which is consistent with the findings from the original 14 variable regression, Gardner and Lambert's (1972) research, and the native Spanish speakers' regression model. Finally, class is significant perhaps because as the students grow older and gain in maturity and cognitive development, they are able to understand intellectual pursuits better, including language study.

The results of the foreign language learners seem to warrant further explanation. Originally, when it was decided to collect from the students their first semester second language grade, it was to be a brief measure of language aptitude. According to Gardner and Lambert (1972), aptitude and motivation are the two of the greatest contributors to a student's second language grade. When it comes to learning another language, most students in the U. S. are instrumentally motivated, which means they are learning the language for utilitarian reasons. Most of the students included in the study were taking Spanish in order to qualify for scholarships, which is a very utilitarian reason. Therefore, to consider their Spanish grade a measure of their language aptitude and motivation is valid. Consequentially, it is not surprising that the Spanish grade was the most significant predicting factor for the native English speakers. When limiting the study to foreign language learning, Sparks, Ganschow, and Patton (1995) found similar results about aptitude being a major contributing factor to a student's foreign language grade.

The developmental interdependence hypothesis did apply to the native English speakers, but not to the degree that it did to the native Spanish speakers. Lambert and Gardner (1972) found that when students were instrumentally motivated, for utilitarian

reasons, then students were not as successful at acquiring their second language than if they were integratively motivated as the native Spanish speakers were, in general.

Relationship of L1 & L2. Regarding the strength of the relationship between L1 and L2 proficiency, the results of the Pearson's r in this study bear examining. When the data from both subgroups were used together, a significant negative correlation was found. Because this does not agree with the breadth of literature (Cummins, 1979; Cummins, Swain, Nakajima, Handscombe, Green, & Tran, 1984; Lopez & Greenfield, 2004), the two subgroups were separated in the hopes of gaining of greater insight into the data. However, the correlations that were run for the native English speakers and native Spanish speakers can shed further light on this subject. For the native English speakers, the second language reading proficiency score and the first semester second language grade had a significantly positive correlation, which indicates that if the student reads well in his second language, his grade in that language should be high as well. For the native Spanish speakers, when the correlation of second language and native language reading proficiency scores was run, it was significantly positive. This also supports Cummins' theory. What this seems to be telling us is that Cummins' Developmental Interdependence Hypothesis will hold true for second language learners, but may not always hold true for foreign language learners.

Recommendations For Educators And Education. This study is important in today's present political climate. During the first part of 2006, there was a renewed movement to crack down on illegal immigration; embedded within that was the equally divisive movement to make English the United States' official language. Many believe that immigrants should learn English as quickly as possible and forget their old language.

However, what this study is indicating is that a person's native language is very important for second language learners. The data was indicating a strong relationship between the second language learner's native language reading score and the second language reading score. These findings are also very important in light of No Child Left Behind and the importance that it places on reading. If a student is able to learn how to read in his/her first language, then he/she should be able to read better in his/her second language.

Another important aspect of the study is that foreign language learners are at a distinct disadvantage to second language learners when attempting to learn a new language. If language learning is to be given its rightful place of importance in today's educational climate, then all students should be learning languages in a second language learning environment, rather than a foreign language learning environment where the exposure is so limited that students do not really have a chance to develop proficiency.

Suggestions for Additional Research. There are some very exciting possibilities for further research based upon the results of this study. There should be more comparison studies done with second language learners and foreign language learners. Experimental research could be done using the same treatment in both environments and then seeing what kind of results come from that treatment. Studies need to be done to explore to what extent Cummins' Developmental Interdependence Hypothesis applies in foreign language versus second language learning environments or if it applies equally to both situations. Additionally, another interesting factor that could be

added into the mix would be language aptitude. That would also be extending the Sparks, Ganschow and Patton's 1995 study with predicting foreign language grades.

In conclusion, the findings of this study explored the relationship between first language literacy skills and second language literacy skills. The data clearly supported the first hypothesis that native language literacy proficiency, along with other demographic data, does, in fact, help to predict second language literacy proficiency. In regards to the second hypothesis and question, the strength of the relationship was found to be slightly positive for the separated subgroups and negative for the entire sample. This is a contradiction to a wide array of literature, but could present some interesting possibilities for further research. Finally, the third hypothesis was not supported; a significant difference was found between the native Spanish speakers and native English speakers second language literacy proficiency scores. However, if one considers the difference in the nature of the two environments in which the students learn their second language, that difference begins to make sense. Taken in totality, the data offer many new opportunities for extending the research into new areas of study and old ones as well.

This study is important for a variety of reasons. This particular study is unique because there has not been a study that has examined the developmental interdependence hypothesis in this manner. If this study can account for 83% of the variance using the IPT and 6 pieces of demographic data, how much more interesting would it be to add students to the sample size, gather more data, and see if even more variance can be accounted for. Additionally, the differences between the foreign language learners and the second language learners is very valuable because the way

the two environments are studied could be radically changed by the information in this study. However, the primary reason this study is important is because there is a whole generation of English language learners who are coming to the United States for a chance at a better future and perhaps now if this study is taken into proper consideration they may be able to keep their first language, learn a new language, and find a productive place in their new country, the United States of America.

References

- Ausubel, D. (1968). *Educational psychology: A cognitive view*. New York: Hold, Rinehart, and Winston, Inc.
- Bialystok, E. & Hakuta, K. (1994) *In other words, The science and psychology of second language acquisition*. New York, New York: Basic Books.
- Bloomfield, L. (1942). *Outline guide for the practical study of foreign languages*. Baltimore, MD: Linguistic Society of America at the Waverly Press, Inc.
- Brice, A. (2002). *The Hispanic Child, Speech, Language, Culture and education*. Boston, MA: Allyn and Bacon.
- Canale, M., Frenette, N., & Belanger, M. (1988). Evaluation of minority student writing in first and second language. In J. Fine (Ed.) *Second language discourse: A textbook of current research* (pp. 147-165). Norwood, NJ: Ablex Publishing.
- Carrell, P. L. (1991). Second language reading: Reading ability or language proficiency? *Applied Linguistics*, 12, 159-179.
- Carroll, J. B. (1962). The prediction of success in intensive foreign language training. In R. Glaser (Ed.) *Training research and education* (pp. 87-136). Pittsburgh: University of Pittsburgh Press. (ERIC Document Reproduction Service No. ED. 038 051)
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, Mass.: The M. I. T. Press.
- Chomsky, N. (1966). *Syntactic structures*. The Hague, Netherlands: Mouton & Co.

- Cummins, J. (Spring, 1979). Linguistic interdependence and the educational development of bilingual children. *Review Of Educational Research*, 49, 222-251.
- Cummins, J. & Swain, M. (1986). *Bilingualism in education: Aspects of theory, research and practice*. London: Longman.
- Cummins, J., Harley, B. Swain, M. and Allen, P. (1990) Social and individual factors in the development of bilingual proficiency. In Harley, B., Allen, P., Cummins, J. and Swain, M. (eds.) *The Development of Second Language Proficiency*. Cambridge: Cambridge University Press.
- Cummins, J., Swain, M, Nakajima, K., Handscombe, J., Green, D., & Tran, C. (1984). Linguistic interdependence among Japanese and Vietnamese immigrant students. In C. Rivera (Ed.) *Communicative competence approaches to language proficiency assessment: Research and application* (pp. 60-81). Clevedon, England: Multilingual Matters, Ltd.
- Curtain, H. & Dahlberg, C. A. (2004) *Languages and children, Making the match*. Boston, MA: Allyn and Bacon.
- Esquivel, G. B. & Stephens, M. A. (1997). Bilingualism, creativity, and social problem-solving (Doctoral dissertation, Fordham University, 1997). *Dissertation Abstracts International*, 58/04, 1185.
- Gardner, R. & Lambert W. (1972). *Attitudes and motivation in second-language learning*. Rowley, MA: Newbury House Publishers.

- Gass, S. & Selinker, L. (1992). Introduction. In S. Gass, & L. Selinker (Eds.), *Language transfer in language learning* (pp. 1-17). Philadelphia, PA: John Benjamins Publishing Company.
- Gass, S. M. & Selinker, L. (2001) *Second language acquisition, An introductory course, 2nd edition*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Gasser, M. (1990). Connectionism and universals of second language acquisition. *Studies in Second Language Acquisition*, 12, 179-199.
- Hadaway, N. L., Vardell, S. M. & Young, T. A. (2002). *Literature-Based instruction with English language learners*. Boston, MA: Allyn & Bacon.
- Hancock, M. (2004). *A celebration of literature and response, Children, Books, and Teachers in the K-8 classroom, 2nd edition*. Upper Saddle River, NJ: Pearson-Merrill Prentice Hall.
- IPT 3B English R & W-Test Set*. Retrieved July 19, 2005 from <https://www.ballard-tighe.com/Ballard-Tighe/Source/Product/ProductGroup.Asp?ProductTopicId=1&ProductId=596&ProductSubTopic=IPT+2004+R%26W+Tests&ProductTopic=Assessment&ProductSubTopicId=22>
- IPT 3-Spanish R & W-Test Set*. Retrieved July 19, 2005 from <https://www.ballard-tighe.com/Ballard-Tighe/Source/Product/ProductGroup.asp?ProductId=392&ProductTopicId=1&ProductSubTopicId=2&ProductTopic=Assessment&ProductSubTopic=IPT+Reading+%26+Writing+Tests>

- Jiang, B. & Kuehn, P. (Fall 2001). Transfer in academic language development of post-secondary ESL students. *Bilingual Research Journal*, 25 (4), 653-672.
- Kansas state department of education report card*. Retrieved July 20, 2006 from <http://online.ksde.org/rcard/searchpage.aspx>
- Kecskes, I. & Papp, T. (2000) *Foreign language and mother tongue*. Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Krashen, S. (1987). *Principles and practices in second language acquisition*. Englewood, NJ: Prentice-Hall International.
- Krashen, S. D. & Terrell, T. D. (1983). *The natural approach, Language acquisition in the classroom*. Oxford, England: Pergamon Press.
- Lanauze, M. & Snow, C. (1989). The relationship between first-and second-languauge writing skills: Evidence from Puerto Rican elementary school children in bilingual programs. *Linguistics and education*, 1, 323-339.
- Larsen-Freeman, D. & Long, M. (1991). *An introduction to second language acquisition research*. London: Longman.
- Latham, A. S. (Nov 1998). The advantages of bilingualism. *Educational Leadership*, 56(3), 79.
- Lee, J. F. & Van Patten, B. (2003). *Making communicative language teaching happen*, 2nd edition. Boston: McGraw Hill.
- López, L. M., & Greenfield, D. B. (Spring 2004). The cross-language transfer of phonological skills of Hispanic Head Start children. *Bilingual Research Journal*, 28 (1), 1-18.

- Moll, L. C. & Arnot-Hopffer, E. (May-June 2005). Sociocultural competence in teacher education. *Journal of teacher education*, 56, 242-248.
- Moll, L. C. & Dworin, J. E. (1997). Biliteracy development: The appropriation of literacy in English and Spanish by second and third grade students (Doctoral dissertation, The University of Arizona, 1996). *Dissertation Abstracts International*, 58/01, 64.
- Mora, J. (July 26, 1998) *Transition in bilingual reading: A smooth road to biliteracy*. Retrieved March 24, 2005 from <http://coe.sdsu.edu/people/jmora/TransitionMMdl/>
- Odlin, T. (1989). *Language transfer, Cross-linguistic influence in language learning*. Cambridge: Cambridge University Press.
- Omaggio Hadley, A. (2001) *Teaching language in context, 3rd edition*. Boston, MA: Heinle & Heinle Publishers.
- Paige, R. (February 19, 2005). *Secretary Paige announces new policies to help English language learners*. Retrieved May 24, 2005 from <http://www.ed.gov/news/pressreleases/2004/02/02192004.html>
- Papalia, D. E. & Wendkos Olds, S. (1995). *Human development, 6th edition*. New York, NY: McGraw-Hill, Inc.
- Pikulski, J. J. & Cooper, J. D. (1997). *Issues in literacy development*. Retrieved March 23, 2005 from <http://www.eduplace.com/rdg/res/literacy/>
- Reutzel, R., & Cooter, Jr., R. B. (2004). *Teaching children to read—Putting the pieces together*. Upper Saddle River, NJ: Pearson-Merrill Prentice Hall.
- Roberts, C. (1994). Transferring literacy skills from L1 to L2. *The Journal of Educational Issues of Language Minority Students*, 13, 209-221.

- Shrum, J. L. & Glisan, E. W. (2000). *Teacher's handbook, contextualized language instruction*. Boston, MA: Heinle.
- Snow, C. E., Griffin, P., & Burns, M. S. (eds.). (2005). *Knowledge to support the teaching of reading, Preparing teachers for a changing world*. San Francisco, CA: Jossey-Bass.
- Sparks, R. L., Ganschow, L, & Patton, J. (1995, Dec.). Prediction of performance in first-year foreign language courses: Connections between native and foreign language learning. *Journal of educational psychology*, 87 (4), 638-655.
- Technical manual IPT 3 reading & Writing, Grades 7-12, English forms 3A & 3B*. (2004). Brea, CA: Ballard & Tighe Publishers.
- U. S. census bureau question & answer center. (August 8, 2004). Retrieved May 25, 2005 from http://ask.census.gov/cgi-bin/askcensus.cfg/php/enduser/std_adp.php?p_faqid=623&p_created=1092150238&p_sid=jmAwbmGh&p_lva=&p_sp=cF9zcmNoPTEmcF9zb3J0X2J5PSZwX2dyaWRzb3J0PSZwX3Jvd19jbnQ9OCZwX3Byb2RzPSZwX2NhdHM9JnBfcHY9JnBfY3Y9JnBfcGFnZT0xJnBfc2VhcmNoX3RleHQ9cnVyYWw*&p_li=&p_topview=1
- United States. Congress (107th, 1st session : 2001). **No Child Left Behind Act** of 2001: conference report to accompany H.R. 1. Washington : U.S. G.P.O., 2001. United States. Congress. House. Report ; 107-334.
- Zavodny, M. (July 2000). The effects of official English laws on Limited-English-Proficient workers. *Journal of labor economics*, 18 (3), 427.

Appendix A - Questionnaires

FOR THE ENGLISH SPEAKERS LEARNING SPANISH

Voluntarily answer these questions briefly and completely. Thank you for answering these questions.

1. What is your high school grade point average (GPA)? _____
2. What is your first semester Spanish grade in percent as given to you by your teacher? _____
3. What is your native language? _____
4. What grade are you in? _____
5. How many languages have you studied (including your native)?

6. How many semesters have you studied your foreign/second language? _____
7. Gender: ___M ___F (choose one)

FOR THE SPANISH SPEAKERS LEARNING ENGLISH

Voluntarily answer these questions briefly and completely. Thank you for answering these questions.

1. What is your high school grade point average (GPA)? _____
2. What was your first semester English grade in percent as given to you by your teacher? _____
3. What is your native language? _____
4. What grade are you in? _____
5. How many languages have you studied (including your native language)?

6. How many semesters have you studied your foreign/second language? _____
7. Gender: ____M ____F (choose one)

Appendix B - Parent Notification and Consent Forms

English Version

Hello Students:

I would like to invite you to participate in my research study. I am a doctoral student at Kansas State University and I am studying how people learn the second language. I am really interested in studying how well you can read and write in your first language and how that influences how well you can read and write in your second language.

I would like to ask you to participate in my study. First, I would give you a questionnaire. You would have to answer questions about how many languages you speak, what grade in school you are in, your grade in your language class, how many years you have studied your second language, what your native language is, and your GPA. I would then give you a reading and writing test in Spanish and a reading and a writing test in English. I will then take all of the scores and run them through computer programs to see if there are any patterns that show up.

I know that sounds like a lot of work, but it will help you, your friends, and your school in a number of ways. The information that I can learn from your scores will help your school help you and other students. The information may help your teachers find ways for you to score higher on Kansas State Assessment tests. The school should have more knowledge about how to help you learn your first language so that you could learn your second language more easily. Wouldn't it be nice to have an easier time learning English?

It is your choice to volunteer to be part of my study. You could perhaps miss part of up to 2 class periods, but I would make sure that the teacher was informed of the reason for your being gone. You would have to do some reading and writing in both English and Spanish. But the information that we could learn if you help with the study would be useful to your friends, parents, little brothers and sisters, and other family members.

I hope that you will agree to be part of my study. I thank you in advance for your time and participation.

Sincerely,

Sarah P. Watkins Mace

Parent Notification & Letter of Consent

Purpose:

The purpose of the study is to conduct research, which will help to determine the nature of the relationship between how well learners read and write in their first language and how well the learners read and write in their second language. The results of the study will be given to your son or daughter's school to help them make decisions about their language programs. No judgments will be made about your son or daughter based on the results of the test.

Duration of the study:

The information needed for the study will be collected during the first part of January and February 2006. The student may miss one or two class period's depending upon how long it takes to complete the test.

Explanation of Benefits & Disadvantages:

Any potential benefits outweigh the potential risks. The students will be asked to fill out a questionnaire where they will have to answer seven questions. The students will be asked their grade in school, their grade point average, their first semester English or Spanish grade, what their native language is, the number of languages they have studied, the number of semesters they have studied their second language, and their gender. The students will then be asked to complete a standardized reading and writing test in English and in Spanish. There are not any anticipated disadvantages.

Selection Process:

Your son or daughter is being asked to participate in this project because he or she is taking a class in a second language.

Confidentiality of the Data:

Students will complete the questionnaire, the answer sheets, and provide a writing sample. An identifying number will be written on each of the student answer sheets so they can be matched; however, students will not be identified by these numbers. The information will not be able to be used to identify the subjects.

Reporting the Findings:

Results will be reported to the school districts. Additionally, results will be used as a part of scholarly research and/or published in professional journals.

For Additional Information, Comments, or Concerns:

Contact Dr. Mike Perl at 785-532-5907 or Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 1 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224. The researcher will be utilizing the expertise of various language teachers in your district as well as staying in contact with administration at the high school. Additionally, expertise will be utilized from the College of Education at Kansas State University to assist in the analysis of the data and its collection.

Statement of Informed Consent:

I understand this project is research, and that my participation is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or academic standing to which I may otherwise be entitled.

I verify that I have read and understand this consent form and willingly agree to participate in this study under the terms described, and that my signature acknowledges that I have received a signed and dated copy of this consent form.

Participant Name: _____ (please print)

Participant Signature: _____ Date: _____

Parent Signature: _____ Date: _____

Student & Parent Copy

Purpose:

The purpose of the study is to conduct research, which will help to determine the nature of the relationship between how well learners read and write in their first language and how well the learners read and write in their second language. The results of the study will be given to your son or daughter's school to help them make decisions about their language programs. No judgments will be made about your son or daughter based on the results of the test.

Duration of the study:

The information needed for the study will be collected during the first part of January 2006. The student may miss one or two class period's depending upon how long it takes to complete the test.

Explanation of Benefits & Disadvantages:

Any potential benefits outweigh the potential risks. The students will be asked to fill out a questionnaire where they will have to answer seven questions. The students will be asked their grade in school, their grade point average, their first semester English or Spanish grade, what their native language is, the number of languages they have studied, the number of semesters they have studied their second language, and their gender. The students will then be asked to complete a standardized reading and writing test in English and in Spanish. There are not any anticipated disadvantages.

Selection Process:

Your son or daughter is being asked to participate in this project because he or she is taking a class in a second language.

Confidentiality of the Data:

Students will complete the questionnaire, the answer sheets, and provide a writing sample. An identifying number will be written on each of the student answer sheets so they can be matched; however, students will not be identified by these numbers. The information will not be able to be used to identify the subjects.

Reporting the Findings:

Results will be reported to the school districts. Additionally, results will be used as a part of scholarly research and/or published in professional journals.

For Additional Information, Comments, or Concerns:

Contact Dr. Mike Perl at 785-532-5907 or Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 1 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224. The researcher will be utilizing the expertise of various language teachers in your district as well as staying in contact with administration at the high school. Additionally, expertise will be utilized from the College of Education at Kansas State University to assist in the analysis of the data and its collection.

Spanish Version

Hola Estudiantes:

Me gustaría invitarles a participar en un estudio. Soy una estudiante del programa de doctorado en Kansas State University, actualmente estoy estudiando la manera en que las personas aprenden un segundo lenguaje. Estoy realmente interesada en aprender que tan bien leen y escriben en su idioma natal, y como influye esto cuando leen y escriben en un segundo lenguaje.

Me gustaría que participaran en este estudio. Primero les daría un cuestionario. Las preguntas a contestar son acerca de cuantos lenguajes hablan, en que grado están, su nota en la clase de lenguaje, cuantos años han estudiado un segundo idioma, cual es su lenguaje natal, y por último su nota promedio general (GPA). Después les daría un examen de escritura y lectura en español, y otro en inglés. Luego, esta información sería procesada en un programa de computación para después buscar patrones similares en la puntuación.

Se que parece mucho trabajo, pero esto les beneficiaría a ustedes, sus amigos, y su escuela en diferentes maneras. La información que obtenga de estas puntuaciones les ayudara a ustedes, y a otros estudiantes. La información puede ayudar a sus maestros a conseguir mayor puntuación en los exámenes estatales (Kansas State Assessment Tests). La escuela entonces sabría como ayudarles a aprender su lenguaje natal, así aprenderías un segundo lenguaje mas fácil. ¿No sería mucho mejor aprender inglés de una manera más fácil?

Es su elección se voluntario en mi estudio. Quizás podrían perder hasta dos clases, pero yo me encargaría e que la maestra (o) fuese informada en referente a esta ausencia. Tendrían que escribir algo en español e inglés. Pero, la información que aprenderían sería muy útil para sus amigos, padres, hermanos (as), y otros miembros de su familia.

¡Muchas gracias por su ayuda!

Sinceramente,

Sarah P. Watkins Mace

Propósito:

El propósito es una investigación que ayudará a determinar la naturalidad de la relación entre lo bien que lo aprendices leen y escriben en su lenguaje natal, y en su lenguaje adquirido. Los resultados del estudio serán entregados a la escuela de su hijo (a), para ayudar a la escuela a tomar decisiones acerca de sus programas de lenguaje. No se tomará ninguna decisión con respecto a su hijo (a) basados en los resultados de el examen.

Duración del estudio:

La información necesaria será adquirida la primera semana de enero del año 2006. Quizás el estudiante pierda una o dos clases, dependiendo en cuanto tiempo se tome en contestar el examen.

Explicación de los beneficios y desventajas:

Cualquier beneficio potencial sobrepasa los riesgos. Los estudiantes llenarán un cuestionario con 7 preguntas a contestar. Los estudiantes proporcionarán información tal como, en que grado en la escuela están, promedio académico escolar (GPA), lenguaje natal, y sexo. Los estudiantes completarán un examen estándar en escritura y lectura, en inglés y español. No hay ninguna desventaja anticipada.

Proceso de Selección:

A su hijo (a) se le ha pedido su participación en este estudio porque actualmente esta tomando una clase de segundo lenguaje.

Confidencialidad de Datos:

Los estudiantes llenarán los cuestionarios, la hoja de respuestas, y proveerán una muestra de escritura. Un número de identificación será escrito en la hoja de respuesta de los estudiantes para identificar las hojas; De cualquier manera, los estudiantes no serán identificados por estos números. Con esta información no podrá ser identificado el individuo.

Reportando los resultados:

Los resultados serán reportados al distrito escolar. Adicionalmente, los resultados serán usado como parte de una investigación estudiantil y/o publicados en un diario profesional.

Para obtener más información, o hacer comentarios:

Contactar Dr. Mike Perl al (785) 532-5907 o Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 1 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224. El investigador estará utilizando la maestría de vario maestros de lenguaje en su distrito, así como estará en contacto con la administración en la escuela. Adicionalmente, algunos expertos del colegio de educación en Kansas State University serán utilizados para asistir en el análisis de los datos y su colección.

Declaración del Consentimiento Informado:

Entiendo este proyecto de investigación, y que mi participación es voluntaria. También entiendo que si decido participar en este estudio, puedo retirar mi consentimiento, y dejar de participar en el en cualquier momento, sin ninguna explicación, penalidad, o pérdida de beneficios, o académica en la cual tenga.

Nombre del Participante: _____(Letra de molde)

Firma del participante: _____ fecha: _____

Firma del padre/tutor: _____ fecha: _____

Propósito:

El propósito es una investigación que ayudará a determinar la naturalidad de la relación entre lo bien que lo aprendices leen y escriben en su lenguaje natal, y en su lenguaje adquirido. Los resultados del estudio serán entregados a la escuela de su hijo (a), para ayudar a la escuela a tomar decisiones acerca de sus programas de lenguaje. No se tomará ninguna decisión con respecto a su hijo (a) basados en los resultados de el examen.

Duración del estudio:

La información necesaria será adquirida la primera semana de enero del año 2006. Quizás el estudiante pierda una o dos clases, dependiendo en cuanto tiempo se tome en contestar el examen.

Explicación de los beneficios y desventajas:

Cualquier beneficio potencial sobrepasa los riesgos. Los estudiantes llenarán un cuestionario con 7 preguntas a contestar. Los estudiantes proporcionarán información tal como, en que grado en la escuela están, promedio académico escolar (GPA), lenguaje natal, y sexo. Los estudiantes completarán un examen estándar en escritura y lectura, en inglés y español. No hay ninguna desventaja anticipada.

Proceso de Selección:

A su hijo (a) se le ha pedido su participación en este estudio porque actualmente esta tomando una clase de segundo lenguaje.

Confidencialidad de Datos:

Los estudiantes llenarán los cuestionarios, la hoja de respuestas, y proveerán una muestra de escritura. Un número de identificación será escrito en la hoja de respuesta de los estudiantes para identificar las hojas; De cualquier manera, los estudiantes no serán identificados por estos números. Con esta información no podrá ser identificado el individuo.

Reportando los resultados:

Los resultados serán reportados al distrito escolar. Adicionalmente, los resultados serán usado como parte de una investigación estudiantil y/o publicados en un diario profesional.

Para obtener más información, o hacer comentarios:

Contactar Dr. Mike Perl al (785) 532-5907 o Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 1 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224. El investigador estará utilizando la maestría de vario maestros de lenguaje en su distrito, así como estará en contacto con la administración en la escuela. Adicionalmente, algunos expertos del colegio de educación en Kansas State University serán utilizados para asistir en el análisis de los datos y su colección.

