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The Relationship Between Social, Cultural and Educational Factors and English Language Acquisition in Third Grade Second Language Learners

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THE RELATIONSHIP BETWEEN SOCIAL, CULTURAL AND EDUCATIONAL FACTORS AND ENGLISH LANGUAGE ACQUISITION IN THIRD GRADE SECOND LANGUAGE LEARNERS

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This study identified key background variables that are highly correlated with Limited English Proficient student outcomes, either individually or in combinations. Archival data for primary grade second language learners was gathered from the records of a large urban school district in Central Ohio, including specific social, cultural and educational factors and multiple administrations of the Ohio Test of English Language Acquisition (OTELA).

Analyses conducted indicated that nearly every predictor variable addressed through this study impacted OTELA performance across the board (the exception being the variables of Sex and Student Mobility). Findings from this study support the recommended best practice literature that suggests investigating multiple factors associated with student language development, and ideally will help to spur legislative action to align the law with practices that are informed by what we know about the process of second language acquisition, or at least are supported by theory and research as it currently stands. An unexpected finding from this study suggests that access to institutional supports and services (e.g., Free Lunch programming) for LEP families and students may need to be increased.

The variables of SES and Student Mobility were both problematic for this study, and may benefit from reexamination. Future research should examine more complex path models that include a broader range

of variables than could be represented here, such as the impact of home variables (e.g., parental education level, home literacy environment, level of acculturation) and 'within-student' variables (e.g., cognitive ability, motivation and attitude). Ideally this research would lead to the creation of a comprehensive model that captures enough of the causal structure underlying second language acquisition to allow for reliable and valid recommendations for educational decision making.

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FACTUM EST

TABLE OF CONTENTS

Chapter		Page
1	INTRODUCTION	1
	Statement of the Problem	4
	Research Questions and Hypotheses	8
	Research Question #1	8
	Research Question #2	10
	Problem Significance	10
	Definition of Terms	11
	Assumptions	12
	Limitations of the Study	13
	Summary	13
2	LITERATURE REVIEW	15
	LEP Students and the Law	18
	Second Language Acquisition	25
	Current Practice in the State of Ohio	30
	Ohio English language learner programming	31
	Ohio English language proficiency assessment	34
	Variables for this study	36
	Demographic factors and language development in young children	36
	Cultural factors and language development in young children	38
	Educational Experience and language development in young children	39
	Interaction of multiple variables and language development in young children	41
	Summary	43
3	METHODOLOGY	45
	Design	45
	The Population	47
	Selection of the Sample	47
	Assignment	47
	Background Variables	48
	Measurement	50
	Data Collection Procedures	51
	Data Analysis Procedures	52
	Sample Size	53
	Research Questions and Hypotheses	54
	Research Question #1	54
	Research Question #2	56
	Statistical Analyses	56
	Summary	58
4	RESULTS	60
	Complications	60

Computer Program 62
Demographic Characteristics of the Data Sets 62
Analysis of Research Questions 65
Research Question #1 65
Research Question #2 98
Summary 114

5 DISCUSSION 118

Major Findings 118
Comparison to the Literature 120
Socioeconomic Status 120
School Mobility 122
Home Language 122
Time 123
Multiple Variables 124
Limitations of the Study 125
Implications for Practice and Policy 126
Implications for Future Research 128
Summary 129

REFERENCES 131

Appendices 149

Appendix A – English Proficiency Levels-Descriptions ..149

LIST OF TABLES

Table		Page
1	Timeline for Research Study	52
2	Research Questions, Hypotheses, Variables, Statistical Analyses, and Statistical Assumptions	59
3	Composite OTELA Score Results by Race/Ethnicity Group	66
4	Results of ANOVA on the Effects of Race/Ethnicity on the Composite Score of the OTELA	66
5	Composite OTELA Score Results by SES	67
6	Results of ANOVA on the Effects of SES on the Composite Score of the OTELA	67
7	Composite OTELA Score Results by Sex	68
8	Results of ANOVA on the Effects of Sex on the Composite Score of the OTELA	68
9	Composite OTELA Score Results by Home Language	69
10	Results of ANOVA on the Effects of Home Language on the Composite Score of the OTELA	69
11	Composite OTELA Score Results by Country of Birth	70
12	Results of ANOVA on the Effects of Birth Country on the Composite Score of the OTELA	70
13	Composite OTELA Score Results by Time in the USA	71
14	Results of ANOVA on the Effects of Time in the USA on the Composite Score of the OTELA	72
15	Linear Regressions Descriptive Statistics on Predictor Variables 1.7 and 1.8 and the OTELA Composite Score	72
16	Results of Linear Regressions on the Effects of Predictor Variables on the OTELA Composite Score	73
17	MANOVA Analysis Descriptive Statistics on Race/Ethnicity and the OTELA Subscales of Listening, Reading, Speaking, and Writing	75
18	Results of MANOVA on the Effects of Race/Ethnicity on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing	76

19 Results of Individual ANOVA's on the Effects of Race/Ethnicity on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 76

20 MANOVA Analysis Descriptive Statistics on SES and the OTELA Subscales of Listening, Reading, Speaking, and Writing 78

21 Results of MANOVA on the Effects of SES on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 79

22 Results of Individual ANOVA's on the Effects of SES on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 79

23 MANOVA Analysis Descriptive Statistics on Sex and the OTELA Subscales of Listening, Reading, Speaking, and Writing 81

24 Results of MANOVA on the Effects of Sex on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 81

25 Results of Individual ANOVA's on the Effects of Sex on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 82

26 MANOVA Analysis Descriptive Statistics on Home Language and the OTELA Subscales of Listening, Reading, Speaking, and Writing 83

27 Results of MANOVA on the Effects of Home Language on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 84

28 Results of Individual ANOVA's on the Effects of Home Language on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 84

29 MANOVA Analysis Descriptive Statistics on Country of Birth and the OTELA Subscales of Listening, Reading, Speaking, and Writing 86

30 Results of MANOVA on the Effects of Birth Country on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 87

31 Results of Individual ANOVA's on the Effects of Birth Country on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 87

32 MANOVA Analysis Descriptive Statistics on Time in USA and the OTELA Subscales of Listening, Reading, Speaking, and Writing. . .. 89

33 Results of MANOVA on the Effects of Time in USA on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing..... 90

34 Results of Individual ANOVA's on the Effects of Time in USA on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 90

35 Linear Regressions Descriptive Statistics on Predictor Variables 1.7 and 1.8 and the OTELA Subscales of Listening, Reading, Speaking, and Writing..... 92

36 Results of Linear Regression's on the Effects of Predictor Variables on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing..... 93

37 Results of Structural Equation Modeling (Path Analysis) on the Impact of Predictor Variables on the Composite scale of the OTELA 104

38 Regression Paths for Predictors and Composite score of the OTELA – Final Model..... 106

39 Covariance for Predictors and Composite score of the OTELA – Final Model..... 107

40 Results of Structural Equation Modeling (Path Analysis) on the Impact of Predictor Variables on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing 109

41 Regression Paths for Predictors and Four OTELA Subscale scores of Listening, Reading, Speaking, and Writing – Final Model..... 111

42 Covariance for Predictors and Four OTELA Subscale scores of Listening, Reading, Speaking, and Writing – Final Model 113

LIST OF FIGURES

Figure		Page
1	Research path diagram	46
2	Initial model (standardized results) – Composite OTELA score	102
3	Final model (standardized results) – Composite OTELA score	105
4	Initial model (standardized results)– OTELA subscale scores	108
5	Final model (standardized results) – OTELA subscale scores	110

CHAPTER 1

INTRODUCTION

On January 8th of 2002, President George W. Bush signed into law the No Child Left Behind Act of 2001 (NCLB), the latest reauthorization of the Elementary and Secondary Education Act (ESEA) that was first enacted in 1965. A major component of this legislation is that 95% of all students must participate in their state academic assessment program. This includes students who fall into several specific subgroups, including students who are Limited English Proficient (LEP). Each subgroup must demonstrate 'Adequate Yearly Progress' (AYP) for each assessment, and the stated goal of this legislation is to have 100% of students fully proficient by the 2013-2014 school year. The rate of academic growth is judged independent of any factor other than years of education

According to the Ohio Department of Education website, more than 35,000 LEP students/English Language Learners (ELL), out of a total student population of more than 2,000,000, were enrolled in the state's elementary and secondary public schools during the 2006-2007 school year. The terms "Limited English proficient" and "English Language Learners" refer to those students whose native or home language is other than English, and whose current limitations in the ability to understand, speak, read or write in English inhibit their effective participation in a school's educational program. The number of LEP students reported in Ohio for school year 2006-2007 represents an increase of 68% over the number reported five years previously and an increase of 182% over the number reported 10 years ago. This growth mirrors changes in student demographics at the national level, and is not attributable to an overall increase in student enrollment. From 1979 to 1999, the population of 5- to 24-year-olds increased by six % nationally. In contrast, the

percentage of those who spoke a language other than English at home increased by 118 % during this period (National Center for Education Statistics, 2003).

The responsibility for educating these diverse learners falls on all educators, from the classroom teacher to support teachers and specialists to building and district administrators. Historically this population of students has often demonstrated higher school dropout rates and achievement gaps when compared with typical peers. In the Educational Testing Service Policy Information Report titled *Parsing the Achievement Gap*, 14 correlates of elementary and secondary school achievement were examined (Barton, 2003). The report stated that, "The results are unambiguous. In all 14 correlates of achievement, there were gaps between the minority and majority student populations" (p.7).

Additionally, LEP students have often been represented disproportionately in special education programming. This issue has been studied by bodies such as the National Research Council (NRC), the presidential Commission on Excellence in Special Education, the U.S. Office of Civil Rights (OCR), and the Civil Rights Project at Harvard University, all of which concur that this disproportionate representation continues to exist (Rhodes, Ochoa & Ortiz, 2005).

Finally, federal law acknowledges that this population presents unique challenges. In fact, specific exclusionary language has long been imbedded in the Individuals with Disabilities Education Act (IDEA) requiring that the identification of a disability not be due to "environmental, cultural, or economic disadvantage." (U.S. Department of Education, 1977, p.65083; IDEA 2004). Additionally, the LEP population of a school district is one of a number of specific subgroups identified by current federal law (NCLB) to be specifically monitored for Adequate Yearly Progress on state academic assessments.

The most recent update to IDEA, however, also codified the Response to Intervention (RTI) methodology into law as a means for the identification of a Specific Learning Disability. Guidance from the professional literature for school-based problem solving, pre-referral, and/or intervention assistance teams advocates that, "The more that personnel know about the development of oral language, early literacy, students' home language, contextual consideration, and the cultural background of students, the better informed they will be in making appropriate decisions about interpreting screening and assessment results and in designing appropriate interventions." (Vaughn & Ortiz, 2007, p.2) If a school-based team is considering special education placement, the approach to nondiscriminatory assessment described in the most recent Best Practices manuals from the National Association of School Psychologists involves a 10-step framework, of which the first five involve information gathering prior to beginning an evaluation (Ortiz, 2008).

While numerous sources identify factors that should be examined in the context of an LEP student's learning, practical recommendations on how to use information related to many of these factors in a practical way are hard to find. The most recent guidelines for the identification and assessment of LEP students in the state of Ohio are a good example. One component of this packet is a Home Language Survey (HLS) that includes questions about the length of time the student has attended school in the United States, the language first spoken by the student, the language the student speaks in most frequently at present, and the language that other family members speak most frequently at present (Ohio Department of Education, 2008). No guidance is given as to what to do with this information once it is compiled. The remainder of the packet discusses only the evaluation of language proficiency with no

consideration of the possible impact of the background variables identified in the HLS. A recent reference work in this area includes lengthy and reproducible outlines of questions to be asked by pre-referral teams and through direct interviews with parents, teachers, and students themselves. These questions cover educational background, language considerations, family and cultural factors, acculturation, and so forth. The specific interpretation of the responses to these questions is largely left up to the reader, however, with no real examination of how different profiles of responses could inform the actions of a pre-referral or evaluation team (Rhodes, Ochoa, & Ortiz, 2005).

What a wide range of authors do note is that LEP students are not a homogeneous population, and that the consideration of background variables related to student culture, language, and situation is of particular importance when attempting to understand the educational functioning of a particular child (Garcia, 2000; Gitomer, Andal, & Davison, 2005; Rhodes et al., 2005). Ohio's LEP students represent more than 110 different native or home languages, with the top 10 language groups including Spanish, Somali, Arabic, Japanese, Pennsylvania Dutch (a dialect of German used by the Amish), Russian, Vietnamese, Ukrainian, Serbo-Croatian and Korean (Ohio Department of Education, 2007). Many of Ohio's LEP students are children of families who have recently immigrated to the United States from other countries. According to a survey conducted by the Ohio Department of Education in March-April 2007, 129 Ohio school districts reported serving 11,356 immigrant students who have been enrolled in U.S. schools less than three years.

Statement of the Problem

While the recommendation is repeatedly made to consider background variables, actual guidance on how to interpret this information once it

is gathered is decidedly lacking. The purpose of this study, then, was to examine the relationship between educational, social and cultural factors and English language development in elementary-age students who are LEP. The Ohio Test of English Language Acquisition (OTELA) was the state-approved assessment instrument that measures English proficiency and was used as the outcome measure for this study. The factors examined in this study were the relationships, if any, between the students' OTELA scores and:

a) Acculturative factors such as the primary language in the household and the number of years the student has lived in the United States;

b) General demographic factors such as the student's sex and socio-economic status (SES); and,

c) Educational factors such as school mobility and the number of years the student has received LEP programming.

Research suggests that the more a child or parent's language or culture differs from that which is dominant where they live, the greater the chances that learning will be adversely affected (Ortiz, 2001). Further, some research has reported differences in test scores among students with different non-English language backgrounds (Liu, Albus, Thurlow, Bielinski, & Spiccuza, 2000). A review of data from the National Center for Education Statistics (NCES) indicates that 43% of 5- to 9-year olds who spoke Spanish at home, 29% of those who spoke any Asian language, 35% of those who spoke all other European languages, and 32% of those who spoke any other language spoke English with difficulty (NCES, 2003). These findings support the inclusion of Race, as defined for state data collection purposes (i.e., Hispanic, White (non-Hispanic), Black (non-Hispanic), Asian or Pacific Islander) and Home Language as variables of interest for this study. Given that there is some subjectivity to the

racial categories used for statistical records (e.g., how to categorize multiracial students, the heterogeneous nature of groupings such as "Hispanic" or "Black", etc.), the directionality of the possible impact of the variable of Student Race on English language acquisition cannot be predicted. The variable of Home Language provides somewhat clearer findings, however, with children from Spanish-speaking homes identified as having higher rates of difficulty speaking English than any other language category (NCES, 2003). It was therefore predicted that those students who speak Spanish at home would have generally lower OTELA scores than students from other home language backgrounds.

Previous studies have suggested that length of time in the United States may be related to English-language acquisition (Gitomer, Andal, & Davison, 2005), and NCES data indicates that among 5- to 9-year-olds who spoke a language other than English at home, 28% of those born in the United States spoke English with difficulty versus 57% of those born in other countries, and that nearly 71% of foreign-born children who had lived in the United States for four or fewer years spoke English with difficulty, versus 45% of those who had been in the United States for five or more years (NCES, 2003). These findings support the inclusion of Birth Country and Length of Time in the US as variables of interest for this study. It was predicted that foreign-born status would have a negative relationship with English proficiency, while years of US residency would show a positive relationship overall.

General education research indicates that, in practice, more boys are identified for retention, reading remediation and special education services than girls in many districts (Snow, Burns & Griffin, 1998), and some studies have found gender differences in student outcomes in conjunction with other risk factors (Carlson, 1995). A review of the literature indicates that many LEP students live in a low SES environment

(Gonzalez, 2001, Ortiz & Flanagan, 2002). According to the NCES, children from poor family backgrounds have lower assessment scores in reading upon entering school in kindergarten, and this gap widens by the end of 1st grade. In the 4th, 8th, and 12th grades, the average mathematics scores of students decline as the percentage of students who receive free or reduced-price lunch in the school increases (NCES, 2003). These findings support the inclusion of student Sex and SES as variables of interest for this study. It was predicted that male students and those from low-SES backgrounds would have lower scores on the OTELA.

Previous studies have identified strong correlations between years in U.S. schools and assessment performance (Liu, Albus, Thurlow, Bielinski, & Spiccuza, 2000), and some possible negative effects from educational disruptions in terms of student mobility (Garcia, 2000; Medway, 2002). A review of the literature indicates that many families of LEP students may be transient with frequent moves from school to school and district to district due to their financial status or for migratory work. These moves can be disruptive to the continuity of a child's education (Garcia, 2000), and can have a negative impact on the performance of children who were already academically struggling (Medway, 2002). How long students stay in ELL programs, the type of programming that they receive, and the process for transitioning out of ELL programs can impact student outcomes (Gitomer, Andal, & Davison, 2005), and some research has reported differences in test scores between students who were consistently receiving ELL services and those who were not (Liu, Albus, Thurlow, Bielinski, & Spiccuza, 2000). These findings support the inclusion of Length of Time in the school district and student Mobility as variables of interest for this study. It was predicted that greater student mobility would have a negative relationship with English

proficiency, while years of consistent district enrollment would show a positive relationship overall.

The study sample was selected from the LEP population of a large urban school district in Central Ohio. The OTELA is the state-approved assessment instrument that measures English proficiency in the four major areas: listening, speaking, reading, and writing. It was administered state-wide annually to all identified or suspected LEP students, and was used as the outcome measure for this study.

Research Questions and Hypotheses

The overall research question of this study was whether one or more of the predictor variables from this study (in isolation or combination) will have a significant impact on the rate of English language development as measured by the dependent variable. With regard to the problem studied and according to the purpose of the study, the following research questions was examined by analyzing demographic data and the students' scores on the OTELA assessment. These research hypotheses were tested through the use of statistically appropriate methods and procedures.

Research Question #1

What is the significance of differences between levels of each individual predictor variables and student performance on the OTELA as measured by the four subscales and the composite score?

It was hypothesized that a significant difference exists between each of the identified predictor variables and student performance on the OTELA. To answer Research Question #1, the eight predictor variables were partitioned into sub-questions 1.1-1.8.

1.1 Is there a difference in student performance between American Indian or Alaska Native, Asian or Other Pacific Islander, Black, Hispanic, and White students on the OTELA?

It was hypothesized that English language proficiency at a given point in time would vary significantly relative to student race, but no directional hypothesis can be made at this time.

1.2 Is there a difference in student performance between students who are low SES or not low SES (as measure by participation in the free/reduced lunch program) on the OTELA?

It was hypothesized that English language proficiency at a given point in time would be negatively impacted by lower student SES.

1.3 Is there a difference in student performance between males and females on the OTELA?

It was hypothesized that male students would display lower levels of English language proficiency at a given point in time then comparable female students.

1.4 Is there a difference in student performance on the OTELA among four categories of home language backgrounds (Spanish, Other Indo-European, Asian/Pacific Islander, All others)?

It was hypothesized that students whose home language is Spanish would display lower levels of English language proficiency at a given point in time than students from other home language backgrounds.

1.5 Is there a difference in student performance on the OTELA between foreign-born and native-born students?

It was hypothesized that foreign-born status would have a negative relationship with English language proficiency at a given point in time.

1.6 Is there a difference in student performance on the OTELA between students who have resided within the United States for greater than three years, one to three years, or less than one year?

It was hypothesized that years of US residency would show a positive relationship with English language proficiency at a given point in time.

1.7 Is there a difference in student performance between students who have attended the cooperating district for 0-80 months on the OTELA?

It was hypothesized that English language proficiency would increase over time for all students, but with greater increases noted for students who are consistently attending the district for this study.

1.8 Is there a difference in student performance between students who have changed districts from 0-6 times on the OTELA?

It was hypothesized that English language proficiency would be negatively impacted as the number of student moves increases.

Research Question #2

From among the predictor variables identified, what is/are the best predictor(s) of student performance on the OTELA?

Review of the literature in this area supports that second language acquisition is impacted by many inter-related factors (Garcia, 2000). Research supports a general timeline for the progression of English language skills that includes 1-3 years for basic interpersonal communicative skills (BICS) and 4-7 years for cognitive academic language proficiency (CALP) (Cummins, 1984). It was hypothesized that the rate of English language development for an individual would reflect the typical language acquisition process as impacted by combinations of the variables identified for this study. No directional hypothesis can be made at this time.

Problem Significance

The long-term goal of this research was to contribute to the development of a format for the systematic and meaningful interpretation of the wealth of background data that could, and should, be gathered when evaluating the educational progress of an LEP child. As an initial step in that process, key variables must be identified that are strongly predictive of LEP student outcomes, either individually or in

combinations. This initial set of data will be used to refine data collection and analysis in the hopes of eventually producing practical guidelines for the consideration of such factors by school problem solving teams when concerns are expressed about an individual student's educational progress.

Definition of Terms

In this section, operational and technical terms of the study are defined in order to enable the reader to better understand the context in which these terms were used.

Basic Interpersonal Communication Skills (BICS): BICS is described as a more 'surface level proficiency' that involves the use of language during context-embedded, interpersonal situations such as an informal conversation (Cummins, 1984).

Cognitive Academic Language Proficiency skills (CALP): CALP involves the use of language in context reduced academic situations (Cummins, 1984).

English as a Second Language (ESL): The term ESL describes a specific type of instructional programming provided for students with primary languages other than English. ESL programming consists of specific instructional techniques and methodology designed to teach second language learners English language skills. Students spend the majority of their instructional day in mainstream classes and receive additional instruction by ESL instructors in a resource room setting. Instruction is in English, and instructors are not necessarily familiar with the student's primary language (Rhodes, Ochoa, & Ortiz, 2005).

English Language Proficiency: A child's level of proficiency with the English language is gauged by assessing their competency with the functional communication areas of speaking and listening and the academic areas of reading and writing. Conversational English may develop differently than academic English, as indicated in the theoretical

distinctions between BICS and CALP (see above). In the school systems, English language proficiency would be operationally defined by performance on a test of English proficiency (e.g., the OTELA).

L1 and L2: L1 and L2 are common abbreviations used to designate a child's first language (L1) and second language (L2).

Limited English Proficient (LEP): LEP students can also be referred to as English Language Learners (ELL) or Culturally and Linguistically Diverse learners. An LEP student is an individual who 1) is 3 to 21 years old; 2) is enrolled in an elementary or secondary school; 3) was not born in the United States or whose native language is not English, who is a Native American or Alaska Native, who comes from a background where English is a non-major language, who is migratory and from a non-English-language environment; and 4) whose level of English proficiency may deny him or her the ability to reach a proficient level on state tests, to succeed in English-led classrooms, or to participate fully in society (No Child Left Behind [NCLB], 2003).

Low Level of Family Income: For purposes of this study, a student's family will be considered to have a low level of income if that student would qualify for a free or reduced lunch.

Assumptions

This study was based on the following assumptions:

1) The students' academic records which were examined in this study are accurate and reliable.
2) Parents have given accurate information about their social and academic background and about the students' social and academic history.
3) Students' academic records from abroad are reliable and authentic.

4) Teachers administered the OTELA instrument to all individual students according to the administration guidelines of the instrument.

5) Students were motivated to perform to the best of their ability on the OTELA test.

Limitations of the Study

The generalizability of the findings of this study was expected to be limited due to the following factors:

1) The study population was limited to LEP students enrolled at elementary schools in a single Ohio school district.
2) The sample was derived from a school system that provides only ESL services (no other service options).
3) The study population was limited to the students who attended elementary school during the 2005-2007 academic years and were still enrolled at the time of the collection of the data.
4) The English language skill of the study population was measured only by using the OTELA instrument.
5) While many factors might be related to English language development in LEP elementary age students, this study only focuses on the relationship between specific social, cultural, and educational factors.
6) Finally, this study was confined to collecting demographic data from the students' academic records.

Summary

Historically, students from culturally and linguistically diverse backgrounds have often demonstrated higher school dropout rates and achievement gaps when compared with typical peers, and been represented disproportionately in special education programming. The proposed study was intended to assist school problem solving teams to better serve this

population by identifying key background variables that are highly correlated with LEP student outcomes, either individually or in combinations. Archival data for primary grade second language learners will be gathered from the records of a large urban school district in Central Ohio, to include specific social, cultural and educational factors and multiple administrations of a measure of English language proficiency. This initial set of data will be used to refine data collection and analysis in the hopes of eventually producing practical guidelines for the consideration of such factors by school problem solving teams.

CHAPTER 2

LITERATURE REVIEW

Young English language learners are presented with a complex set of learning challenges. At a time when their first language is not likely to be fully developed they are asked to simultaneously learn a second language, develop the content-related knowledge and skills defined by state standards (oftentimes through instruction in that second language), and demonstrate that knowledge on assessments administered in that second language. Not surprisingly the literature consistently indicates that the subgroup of students who are identified as Limited English Proficient (LEP) lag behind their native-English speaking peers in all grades and content areas (Gitomer, Andal & Davison, 2005; Liu, Albus, Thurlow, Bielinski, & Spiccuza, 2000; Ochoa, 2005b; Richardson, 2009). For example, 7% of formally identified fourth grade LEP students met or exceeded the criteria to be considered proficient on a national assessment of reading comprehension that was administered in 2005, while 32% of native English speakers met or exceeded the criteria on the same assessment. At the eighth grade level only 4% of LEP students met or exceeded the criteria to be considered proficient, as compared to 30% of native English speakers. In the area of mathematics, only 11% of fourth grade LEP students met or exceeded the proficiency standard, as compared to 36% of the total fourth grade population (Francis, Rivera, Lesaux, Kieffer, & Rivera, 2006).

National Center for Education Statistics (NCES) data indicate that language minority students who spoke English were still three times as likely to fail to complete high school as language majority students, while those who spoke English with difficulty were five times as likely to fail to complete high school (NCES, 2003). Within the school setting, LEP students as a whole have been found to be disproportionately

represented for grade retention, academic remediation services, and special education identification (Ochoa, 2005a; Sullivan, 2011).

The need to address these concerns will only increase, as this subgroup is the fastest growing segment of the U.S. student population. According to the NCES, from 1980 to 2009 the number of school-age children (5–17 years of age) who spoke a language other than English in their home grew from 4.7 to 11.2 million. In terms of the total population in this age range, linguistically diverse children more than doubled their proportional representation in the student body, growing from 10% of the population to more than 20% over this 30-year span (NCES, 2011). The rate of growth continues to increase, with some projections estimating that this group will represent 30% of the school-aged population by the year 2015 (Francis, et al., 2006). Although Spanish is the most common language reported (i.e., spoken by 70% of English language learners), over 400 different languages are spoken in homes across the nation (NCES, 2011).

According to NCES data for 2009, differences in demographic characteristics such as student race/ethnicity, socioeconomic status, and/or age were reflected in the percentage of school-age children who both spoke a language other than English at home and spoke English with difficulty (NCES, 2011). For example, only 1% of the students identified by the race/ethnicity categories White, Black, or two or more races had a home language other than English and had difficulty speaking English themselves, as compared to 3% of American Indians/Alaska Natives, 6% of Pacific Islanders, and a full 16% of students classified as Hispanic or Asian. In terms of age, 7% of 5- to 9-year-olds spoke a non-English language at home and spoke English with difficulty, compared to 4% of each of the 10- to 13-year-old and 14- to-17-year-old groupings (NCES, 2011).

Clearly this is not a single, homogenous population, though current legislation and much of the available research treats it as such. Some studies have identified significant differences between different groupings of students, however, which highlight the need to conduct more nuanced research in this area. For example, findings cited for the U.S. Commission on Civil Rights indicated that while Hispanic, African American, and Native American students are overrepresented in special education nationally, Asian American students are actually overrepresented in gifted and talented programming and underrepresented in special education (USCCR, 2009). These are nearly opposite findings that are obscured by folding students from all of the different race/ethnicity categories into a single population grouping.

As a topic of professional interest for school psychologists, the growing ranks of students from more diverse cultures and language backgrounds present some unique challenges for practice in the schools. Guidance from the professional literature acknowledges this need and is readily available, but there appears to be a marked disconnect between established research, the formulation of legislation and policy at the local, state, and federal levels, and the demands of actual practice in the schools. For example, the number of articles primarily related to this issue in the Best Practices in School Psychology series of reference texts more than doubled from the third edition to the fourth (BPSP-III, 1995; BPSP-IV, 2002). Among their recommendations, these professional resources consistently encourage the consideration of sociocultural variables such as the demographic and socioeconomic characteristics mentioned in the statistics above (Lopez, 1995; Ortiz & Flanagan, 2002; Ortiz, 2008), as do the guidelines currently available from the Ohio Department of Education (ODE). In Ohio schools, which were the setting for the current study, these sociocultural data are often gathered

through the use of structured interviews and questionnaires such as the Home Language Survey (ODE, 2008a), which includes questions about the length of time the student has attended school in the United States, the language first spoken by the student, the language the student speaks in most frequently at present, and the language that other family members speak most frequently at present and is included as part of the state LEP guidelines packet (ODE, 2008a).

The question often left unanswered in actual practice, however, is how to use this information once it is gathered. Nowhere within any of these resources can concrete guidance be found on how to incorporate these responses into any actual problem solving process that a school or district may engage in when attempting to address student needs.

The purpose of this study, then, was to examine the relationships between specific student variables and student outcomes. To understand this issue fully it is first important to have at least a general understanding of who falls within this subset of our student population, current theories of how language is acquired, current practice in the state and district in which this study was conducted, and a review of previous research findings relating to the possible impact of specific demographic and socioeconomic characteristics on student outcomes.

LEP Students and the Law

Any history book will show that the United States of America has always been comprised of a blend of cultures and languages, including those of the different Native American tribes, the original colonizing forces of England, France, and Spain, and the steady flow of immigrants from across the world seeking out new opportunities. It is only relatively recently, however, that specific legislation acknowledging the educational needs of children from culturally and linguistically diverse backgrounds has been written.

As stated by Fernandez (1992), the Civil Rights Act of 1964 laid the initial foundation for the recognition of the needs of this population. Title VI, Section 601, of the Act prohibits discrimination against individuals on the basis of their race, color, or national origin by school districts that receive federal funding. The Department of Health, Education and Welfare (HEW) was authorized to issue regulations and ensure compliance with Section 601, and in 1968 HEW issued formal guidelines that required districts to ensure that all students had the same opportunity to receive the curriculum, classes and activities available to any other student. Also in 1968, Congress passed the Bilingual Education Act, the first federal legislation on behalf of LEP students (Fernandez, 1992). The Act did not actually require school districts to provide bilingual education, but it did acknowledge the needs of LEP students and offered federal funds to encourage the development of such programs. Additional civil rights protections for this population were outlined by HEW in a 1970 memorandum that directed districts to actively remediate student language deficiencies, to communicate with parents about school activities in a language that they understood, and to refrain from placing a student into classes for the mentally handicapped or into a permanent educational track on the basis of their English language skills (Fernandez, 1992).

The key court case to address the rights of LEP students under these laws was *Lau v. Nichols* (1974), in which 1,800 LEP students of Chinese origin sued the San Francisco School System for denying them language-appropriate instruction. The Supreme Court, referring to the 1968 and 1970 HEW guidelines, ruled for the plaintiffs based on violations of Section 601 of Title VI. The Court ordered the establishment of procedures to adequately assess and teach LEP students.

Congress reinforced the *Lau v. Nichols* decision by making it the law

of the land through the Equal Educational Opportunity Act of 1974 (EEOA), which extended the responsibility of the federal government to enforce nondiscrimination policies even in school systems not receiving federal funds (Fernandez, 1992). According to section 1703(f) of this Act, "no state shall deny equal educational opportunity to an individual on account of his or her race, color, sex or national origin by ... the failure by an educational agency to take appropriate action to overcome language barriers that impede equal participation by its students in its instructional programs."

Current federal law continues to acknowledge that this population presents unique challenges. Specific exclusionary language has long been embedded in the Individuals with Disabilities Education Act (IDEA) requiring that the identification of a disability not be due to "environmental, cultural, or economic disadvantage." (IDEA, 1990; Individuals with Disabilities Education Improvement Act of 2004). Additionally, the No Child Left Behind Act of 2001 (NCLB), the latest reauthorization of the Elementary and Secondary Education Act (ESEA) that was first enacted in 1965, specifically identifies the LEP population of a school district as one of a number of specific subgroups that must be specifically monitored for Adequate Yearly Progress (AYP) on state academic assessments.

NCLB does require additional attention, however, as it presents significant challenges for schools that educate LEP students. As referenced in a 2005 policy brief by the Civil Rights Project at Harvard University, NCLB requires that all children in grades three through eight participate in standardized reading and mathematics assessments annually. States are required to not only report the overall results of these assessments, but to also separate out the performance of specific segments of their student populations. These subgroups of students

include all of the major racial and ethnic categories as well as students with disabilities, economically disadvantaged students, and LEP students. States, districts, and even individual schools are evaluated on the percentage of their students, both as a whole and by subgroup, who score at or above a state-determined proficiency level. Schools must steadily increase the percentage of students in all groupings achieving proficiency to meet the overall goal of 100% proficiency by the year 2014. States set incremental goals to build to 100% proficiency over the 12-year period from the initial implementation of NCLB to the 2014 goal date. These yearly benchmarks are called Annual Measurable Objectives (AMOs), and a school is considered successful at meeting AYP if it meets all of the AMOs for a given year and tests at least 95% of the students in each of the defined subgroups. Failing to meet the goals for a given year in even one area results in a failure to make AYP for an entire school.

Not all individual schools have to report scores for all of the individual subgroups, however, as there is a state-determined minimum group size that must be met or exceeded. In this way a school is not unfairly impacted by the performance of only a handful of students (Abedi, 2004b). Any school that enrolls enough LEP students to constitute a subgroup must calculate AYP separately for these students in both reading and mathematics. If the LEP students as a group fail to meet the state's proficiency goals in either reading or mathematics the entire school is judged to have failed to make AYP, regardless of the performance of the student body as a whole. The same is true for any other defined subgroup that may be represented.

As has been seen, however, schools reporting an LEP subgroup are also likely to be identified as needing improvement (Batts, Kim & Sunderman, 2005). For example, 53 middle schools in North Carolina

reported an LEP subgroup for the 2002-2003 school year. Their disaggregated AYP results indicate a high level of diversity, with 45 out of 53 schools reporting findings for all of the individual subgroups. Of these subgroups the LEP population was the least likely to make AYP, with 83% failing to meet their goals. The white and Asian subgroups, by comparison, were most likely to make AYP, with 100% of white subgroups and 92% of Asian subgroups meeting their goals.

It is also important to remember that there is no restriction on the number of NCLB subgroups to which a student may be assigned. That is, a student can belong to multiple subgroups at the same time. For example, a student who is of Asian descent, from a low-income household, and is LEP would have his academic achievement scores simultaneously factored into the AYP calculation for at least three different subgroups (Batts, et al., 2005). In effect, NCLB takes the segment of the student population that is already likely to struggle with meeting AYP requirements, then multiplies their scores when calculating their school's AYP status. As a consequence of this accountability structure, larger and more diverse schools and districts are likely to have far greater numbers of student subgroups for which to report AYP than smaller schools and districts. With the failure of any one subgroup to meet AYP equating to failure as a whole, those schools and districts that serve our most challenging student populations are at exponentially greater risk of suffering the negative consequences attached to NCLB.

There are also several issues with NCLB that are specific to the LEP population. Membership in the LEP subgroup is not stable due to students continuously moving into the subgroup as they are first identified, and moving out as they meet the exit criteria. As a result, the highest-performing members of the subgroup are removed from accountability calculations each year while new lower-performing students

are added, effectively depressing overall subgroup performance. For no other reason than how this subgroup is defined and served it is unlikely that escalating accountability standards can be consistently met (Abedi, 2004).

Additionally, standardized testing itself can be problematic for the LEP poplulation. One reason is that performance on standardized tests can be a reflection of the students language and cultural development along with the content area that they were originally designed to assess (Abedi, 2004; Ochoa & Ortiz, 2005a, 2005b). Questions might assume a level of English language proficiency and/or cultural knowledge that LEP students simply may not possess. Standardized tests are typically constructed and normed for native English speakers, which can significantly impact reliability and validity when used with LEP students (Ochoa & Ortiz, 2005a, 2005b; Scribner, 2002). In other words, until an LEP student reaches a level of learning experiences, cultural understanding, and language development that is comparable to that of individuals from the normative sample, then it is possible that an assessment is functioning more as a measure of acculturation and/or English language proficiency than it is as a measure of the intended skill or ability.

The U.S. Department of Education acknowledged this reality on page 34 of its 2004-2006 Biennial report to Congress (Office of English Language Acquisition (OELA), 2008), and identifies certain accommodations that can be used to reduce this confounding effect, such as simplified directions, use of dictionaries, extended time for assessment, and so forth. Considerable work has been done in recent years in relation to individually administered assessments of ability and achievement and estimates of the relative linguistic and cultural demands of the tasks comprising them (Ochoa & Ortiz, 2005a, 2005b), and a better understanding

of the particular difficulties associated with assessment of a culturally and linguistically diverse population has developed. Translating or altering directions in a non-standardized way does not account for the relative difficulty of individual assessment items (which may not be the same from one language to another) or the assumption of cultural knowledge inherent in the task itself (Gitomer, et al., 2005). Giving additional time or administering assessments in small group settings in no way lessens the linguistic or cultural loading inherent in the design of that assessment. If the basic assumptions that underlie an assessment (e.g., comparable levels of cultural experience/language development as a function of age) do not hold true for the student being assessed, than the validity of the results obtained and the generalizability of the findings are suspect (Ochoa & Ortiz, 2005a, 2005b; Ortiz, 2008; Scribner, 2002).

Finally, as will be reinforced throughout this chapter, the LEP subgroup encompasses a broad range of students with vastly different backgrounds. Research has found that LEP student performance on achievement tests can vary depending on sociocultural factors such as family make-up and acculturation (Abedi, Leon, & Mirocha, 2003), and these background characteristics vary widely from region to region. How LEP students are identified for and exited from services is not standardized, and LEP individuals are not likely to be distributed equally across a single city, much less a state or the country as a whole (OELA, 2008). Despite this diversity, under current law all LEP students are pooled together into a single subgroup (Batts, et al. 2005).

The definition of English language proficiency itself has also shifted over time, as summarized by Miura (2006), from purely oral language proficiency in the Bilingual Education Act of 1968, to including literacy skills in the 1978 Amendment of the law and higher level

comprehension skills in the 2001 Reauthorization (The Bilingual Education Act, 1968; NCLB, 2001). As a result, the states have had to evolve their own working definitions of what it means to be an LEP student, as well as the tools available to make those distinctions. Additionally, discussions of English language proficiency must now account for those factors shown to potentially impact the acquisition of literacy based academic skills for any child, as well as those that are particular to oral language development for second language learners. This progression of our conceptualization of what it is to be an LEP student relates to current theory on how language is acquired.

Second Language Acquisition

An understanding of the central theories of how we learn languages is helpful when examining how and why legislation, practice, and even the primary definitions used may have changed over time. Many writers and theorists have contributed to the dialogue surrounding this issue, but the main body of literature in use in the field of school psychology shares some commonalities in beliefs and primary theorists referenced (Ochoa, 2005a; Ochoa, 2005b; Ortiz, 2008; Scribner, 2002). Although a full treatment of theories of second language acquisition is beyond the scope of this chapter, some key concepts will be presented.

Current theorists accept that LEP learners progress along a continuum ranging from no knowledge of the new language to native level proficiency (Krashen, 1982; NWREL, 2003; Ochoa, 2005b). The number and names of the different stages of second language development can vary, but follow this general progression:

1. The Silent/Receptive or Preproduction Stage can last from 0-6 months, often involves a "silent period", and communication is often gestural or restricted to one-word responses.
2. The Early Production Stage can last an additional 6 months after the

initial stage, with communication now involving short phrases and answering simple questions (e.g., yes or no, who/what/where, etc.).

3. The Speech Emergence Stage can range from the 6-month point to 2 years into the language acquisition timeline. Students can use short phrases and simple sentences to communicate, ask simple questions, and use longer sentences with some grammatical errors.
4. The Intermediate Language Proficiency Stage may take up to another year after speech emergence. Students have adequate conversational language proficiency, and are developing the more complex language for predicting, debating, stating opinions, and so forth.
5. The Advanced Language Proficiency Stage can take five years or more to reach, and essentially means that students can speak English using grammar and vocabulary comparable to that of native language speakers of the same-age. This would include content-related vocabulary needed to participate in the regular classroom.

It should be noted that the five stages identified above relate primarily to oral language proficiency. As will be seen later in this chapter, the state of Ohio has also adopted a five-stage framework for understanding language acquisition, but in line with current law, assessment practice, and the work of James Cummins, the Ohio framework includes consideration of literacy based academic skill development (ODE, 2008a).

Cummins was born in Ireland, but his training and major work has been done in Canada. His initial doctoral research on the effects of bilingualism on children's cognitive development, completed in 1974, and subsequent research on language acquisition and related constructs has been drawn from large-scale data as well as the direct study of French Immersion programs in Canada (Cummins, 1984). A theory that is widely referenced within the research on second language acquisition,

educational policy, and current legislation is Cummins' distinction between two types of language: basic interpersonal communications skills (BICS) and cognitive academic language proficiency (CALP; Cummins, 1984). Cummins further expanded on this concept to include distinctions based on level of contextual support and cognitive demands. Context-embedded communication includes different supports for the listener or reader to assist with understanding, such as visual aids, gestures, or tone of voice. Examples could include storytelling with puppets or a picture book to illustrate, or an informal conversation with the generous use of hand gestures and body language. Context-reduced communication, on the other hand, has few clues to support comprehension, such as during a phone conversation or while reading an email. Cognitively undemanding communication involves relatively little higher order thinking, such as during a playground conversation or in answering a simple yes/no question in class. Cognitively demanding communication can involve abstract concepts, specialized vocabulary, or the need to identify and analyze multiple sources of information. Examples could include a science lesson or a multiple-choice test.

Research by Cummins, as well as other published work such as the longitudinal studies of Thomas and Collier (1997,2002), has shown that the average student can develop conversational fluency within one to five years, but that developing more technical, academic language can take from four to ten years depending on a range of variables such as first language proficiency, first language academic skills, age of first exposure to the second language, and type of educational programming (Cummins, 1984; Collier, 1989; Thomas & Collier, 1997, 2002). These timelines are reflected within the progressive stages of language proficiency discussed at the beginning of this section. The initial stages cover the development of BICS, leading to conversational language

proficiency at stage four. The context-reduced, cognitively demanding skills associated with CALP, on the other hand, are found in level five. The distinctions that Cummins has drawn are important, as a number of researchers have noted that students achieving the initial surface-level proficiency with English that is associated with BICS can easily appear to be more linguistically competent than they really are (Cummins, 1984; Ochoa, 2005b; Scribner, 2002; Thomas & Collier, 1997). This can lead to an unreasonable expectation of competency within short timeframes with the more demanding academic language requirements within the classroom.

In practice, this distinction can be observed by examining the performance of students who have been exited from formal LEP programming due to their language proficiency. As stated above during the discussion of NCLB, the designation of LEP within state accountability systems is unlike others, such as gender or ethnicity, as membership in the LEP subgroup is inherently unstable. The regular exiting of LEP students who have gained sufficient English language proficiency and the addition of new English language learners will tend to underestimate the achievement of the LEP group over time (OELA, 2008a, 2008b). In an attempt to address this issue, current NCLB guidelines indicate that students can be counted within the LEP category for up to two years after becoming proficient in English, thus allowing students to contribute to the percent proficient for accountability purposes. This has allowed for some data to be collected for recently exited LEP students, though it should be noted that data collection was not consistent across the country (OELA, 2008b), and statistics at a national level are problematic. Each state determines its own standards, assessments, and exit criteria for LEP students, so populations from state to state are not directly comparable (OELA, 2008a, 2008b).

Recent efforts to examine the performance of former LEP students

have shown that, while some of these students do quite well over time, many others who are no longer formally identified for support continue to struggle with academic text and language (Francis, et al., 2006). A three year longitudinal study conducted in Salt Lake City, Utah examined the growth trajectories in reading for students from three ELL categories (i.e., non-English speakers, limited English speakers, and fluent English speakers) and native English speaking peers (Richardson, 2009). The findings from this study indicate that oral reading fluency rates improved along with oral language proficiency for the ELL students, but all three ELL groupings performed significantly below the level of their native English speaking peers, including the ELL group considered fluent. Data from a 2008 presentation by the Office of English Language Acquisition (OELA, 2008a) mirror these statements, stating that exited ELLs continue to struggle with content-area knowledge and academic text, and that findings from the Grade 4 National Assessment of Educational Progress (NAEP) indicated that they were less likely to score "proficient" on state tests than native English speaking peers (OELA, 2008a). In other words, even though they have been exited from formal programming they are continuing to struggle with CALP expectations.

Another commonly cited theorist, including in Cummins own 1984 work, is Stephen Krashen. Krashen's theories indicate that optimal input for comprehension must be understandable by the learner and interesting or relevant. He further suggests that learners best acquire language by taking in and understanding language that is a "little beyond" their current level of competence (Krashen, 1982). Providing consistent, comprehensible input that stretches a learner's skills would require a realistic understanding of each student's language proficiency at any given time. As noted previously, misconstruing conversational speech as a true representation of total language mastery can lead to crediting

students with a higher level of language proficiency than they have truly attained. The consequences of this error can be long-term as the level of academic language deemed "comprehensible" to a specific student for everyday instruction may actually be outside their ideal learning range, potentially leading to academic underachievement as some studies suggest (Francis, et al., 2006; OELA, 2008).

Krashen's Affective Filter Hypothesis relates to the emotional context of the learning environment (Krashen, 1982; NWREL, 2003). According to Krashen, learning a new oral language differs from most other types of learning in that it requires the public display of the skill being developed. He suggests that the anxiety, frustration, or embarrassment that an individual can feel when attempting to use a new language can directly inhibit new learning. Strong, negative emotions can prevent the learner from processing new or difficult words. Classrooms that are welcoming, engaging, and nonthreatening, on the other hand, can improve performance by increasing motivation and encouraging risk taking (Krashen, 1982; NWREL). This aspect of Krashen's theories in particular provides support for the potential impact of external factors that could be expected to raise student stress levels, such as recent immigration, overall low levels of acculturation, or high student mobility.

Current Practice in the State of Ohio

In the state of Ohio, students are considered to be LEP if "their level of English proficiency is not adequate to participate effectively in mainstream classroom settings in which English is the only language of instruction." (ODE, 2010c, p. 4) The current guidelines from the Ohio Department of Education categorize LEP students into five different stages of English language proficiency: Pre-functional, Beginning, Intermediate, Advanced and Proficient/Trial Mainstream. It

is also acknowledged that these are broad categories, and that individual students can be at the low, mid, or high range of a particular stage. Appendix I consists of specific examples of skills demonstrated at each level.

Current ODE data indicate that more than 110 different languages and dialects are spoken by students in the state of Ohio (ODE, 2008). The students themselves can range from recent immigrant refugees to long-time residents who simply speak a different language in their home or community, and from no formal schooling to extensive education in one or more languages.

As noted earlier, the U.S. Supreme Court did not go so far as to require specific educational programs, or even types of programs, when deciding the 1974 Lau v. Nichols case. According to guidelines from the Office for Civil Rights (U.S. Department of Education, 1991), for a given strategy or program serving LEP students to be considered legally adequate it must be judged by at least some experts in the field to be based on sound theory or a legitimate experimental strategy, be designed to effectively implement the theory or strategy, and after a reasonable trial be producing positive results. As a result LEP programming can vary substantially from state to state and district to district.

Ohio English language learner programming

School districts in Ohio use a variety of programs or combination of programs. According to the National Clearinghouse for English Language Acquisition and Language Instruction Educational Programs (NCELA), and the Office of English Language Acquisition, Language Enhancement, and Academic Achievement for Limited English Proficient Students (OELA), there are currently four general types of English-only Language Instruction Educational Programs (LIEPs), and five general types of LIEPs that provide instruction in two languages (OELA, 2008). The ODE website

provides a summary of five approaches that may be found in Ohio school districts (ODE, 2010b). The ODE listed approaches, and how they relate to the NCELA/OELA categorization, are as follows:

Bilingual education. "Bilingual education operates on two basic premises: 1) Students are more likely to learn anything, including English, if they understand what they are being taught, and 2) Students who are not proficient in English will not fall behind their English-speaking peers if they are able to continue learning subject matter in their native languages" (ODE, 2010b, Bilingual Education section, para. 2). By definition this category involves LIEPs that provide instruction in two languages, though the level of instruction in a child's first language (L1) can vary considerably depending on the model used. Some programs are designed to develop full literacy skills in both L1 and English, others may start with L1 instruction and gradually transition to English-only instruction over the early grades, and some may only use the L1 initially with the goal of quickly transitioning to English-only instruction in the regular classroom (OELA, 2008). All five of the two language LIEPs that are identified by NCELA/OELA would fall under this ODE grouping.

Clearly this approach is most appropriate when school districts have large numbers of LEP students with the same language background. ODE states that several of the larger urban districts in Ohio do use this approach, but in many cases it is simply not practical due to the diversity of the student population (ODE, 2010b).

The immersion approach. In immersion classrooms, all of the students are LEP students, but they can be from different linguistic and cultural backgrounds. The students are taught in English, and the subject matter is introduced in a way that can be understood by the LEP students. The teacher adapts the language of instruction to the students'

proficiency level, and makes frequent use of visual aids, concrete experiences and manipulative materials (ODE, 2010b; OELA, 2008). This category would include several of the LIEPs that NCELA/OELA identify as focusing on the development of literacy in only English, including Structured English Immersion, Sheltered English, and Sheltered Instruction Observational Protocol. ODE identifies Immersion as an alternative for those districts with large number of LEP students enrolled, but not enough of one or more language groups to make the establishment of bilingual education classrooms practical (ODE, 2010b).

Pull-out English as a Second Language (ESL) classes. ESL programming focuses on fluency in English, and supports LEP students by having them spend part of their day in a separate classroom learning English language skills. In line with current definitions and LEP assessment practices in Ohio, reading and writing skills are a part of the ESL curriculum in addition to oral language (ODE, 2010b). ESL teachers may try to link their work with the assignments the students are presented with in the mainstream classroom, but academic content is not the primary responsibility of this LIEP (OELA, 2008). Instruction is only done in English, and while some L1 support may be provided if available, it is not required for this methodology. According to ODE, in Ohio ESL programs are used either as the principal component of LEP programming or as a complement to bilingual education (ODE, 2010b).

In-class or inclusion instruction. For Inclusion Instruction (or ESL Push-In according to NCELA/OELA), LEP students are placed full-time in the regular classroom with native-English speaking peers. An ESL teacher or bilingual aide provides support in that classroom using ESL strategies and L1 support if needed and available (ODE, 2010b; OELA, 2008). This is essentially the same ESL programming as described above, but in a different setting.

Individual tutoring. ODE identifies individual tutoring as its fifth and final programming option, while NCELA/OELA does not include it as an LIEP. ODE describes this type of support as being provided by either a trained ESL teacher or a volunteer under the supervision of a specially trained teacher, and focusing on basic English communication skills and/or English for academic purposes (ODE, 2010b). Tutoring can be provided individually or in small group sessions. According to ODE, this approach may be appropriate when there are very few LEP students enrolled in a school district.

Ohio English language proficiency assessment

According to ODE guidelines, the instrument used in the state of Ohio as a measurement of English language proficiency is the Ohio Test of English Language Acquisition (OTELA). This instrument measures English proficiency in the four major areas: Listening, Speaking, Reading, and Writing. The information given below about the instrument has been largely derived from a review by the National Center for Research on Evaluation, Standards, and Student Testing (CRESST; Wolf, Kao, Griffin, Herman, Bachman, Chang, & Farnsworth, 2008).

The development of the instrument. Ohio was one of 20 states that initially joined together to form the State Collaborative on Assessment & Student Standards Consortium to develop a standards-based statewide assessment instrument (Wolf, et.al, 2008). The collaborative, along with the Council of Chief State School Officers, Measurement Incorporated, and the American Institutes for Research, developed the English Language Development Assessment (ELDA) to meet this need (Lara, et al. (2007). Pilot testing took place in 2003, and multi-state field testing was conducted in 2004-2005. According to the ODE website, it was decided at that time to use the test item banks and scales from the ELDA to create a more efficient (i.e., fewer items, shorter administration time)

assessment for use across the state (ODE, 2011a). According to ODE, the OTELA is of comparable reliability with the ELDA, but can be administered in roughly half the time. The assessment covers the four main areas of Listening, Speaking, Reading, and Writing, and forms are grouped by grade bands of K-2, 3-5, 6-8, and 9-12. Derived from the ELDA, the four assessment domains are described by Wolf, et al (2008) in the CRESST document as:

> *Listening* – comprehend spoken instructions; determine main idea/purpose; identify important supporting ideas; determine speaker's attitude/perspective; comprehend key vocabulary/phrases; draw inferences, predictions, conclusions
>
> *Speaking* – connect, tell, explain, reason
>
> *Reading* – demonstrate pre-/early reading skills; comprehend key vocabulary/phrases; comprehend written instructions; determine main idea/purpose; identify important supporting ideas; draw inferences, predictions, conclusions; determine writer's attitude/perspective; analyze style/form
>
> *Writing* – planning and organizing; writing a draft text; narrative, descriptive, expository, persuasive; revising; editing; writing conventions (Appendix I-64)

Reliability and Validity. A more detailed description of the reliability and validity of the OTELA can be found in Chapter 3 of this document.

Administration and scoring. The OTELA is administered annually to all students suspected of needing LEP services, as well as all students currently in LEP programming. According to Wolf, et al. (2008), The K-2 assessments are composed of teacher surveys and skills inventories as opposed to multiple-choice or constructed response items. For the higher grade levels item types include multiple-choice, short constructed

response, and extended constructed response. Cut scores vary by grade band and levels of proficiency. Levels of proficiency are defined as Beginner, Lower Intermediate, Upper Intermediate, Advanced, and Full English Proficiency.

Variables for this Study

The purpose of this study, then, was to examine the relationship between educational, social and cultural factors and English language development in elementary-age LEP students. The OTELA is the state-approved assessment instrument that measures English proficiency and was used as the outcome measure for this study. The factors examined in this study were the relationships, if any, between the students' OTELA scores and:

- General demographic factors such as the student's sex and socio-economic status; and,
- acculturative factors such as the primary language in the household and the number of years the student has lived in the United States; and
- educational factors such as school mobility and the number of years the student has received LEP programming.

These factors were selected for the study because they have been identified through the review of related research as factors which might impact a student's educational success (Carlson, 1995; Casey & Howe, 2002; Good, Gruba & Kaminski, 2002; Gorey, 2001; U.S. Department of Education [USDOE], 2000, 2001, 2003; Snow, Burns & Griffin, 1998). Research findings are discussed for each of these groupings, as well as the need for more nuanced multifactorial analysis.

Demographic factors and language development in young children

Multiple studies have examined the relationship between student sex and student outcomes, and nationwide data compiled by the NCES commonly report gender differences for multiple indicators. Academic difficulties are much more common for boys than for girls at earlier grades, and more boys are identified for retention, reading remediation and special education services than girls across the country (USDOE, 2000). Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999 (ECLS-K) indicate that these differences are apparent from the very beginning of formal mandated schooling, with a general finding that incoming kindergarten girls are more likely than boys to be proficient in letter recognition and in recognizing the beginning and ending sounds of words (Educational Testing Service [ETS], 2002).

A review of the literature indicates that many LEP students live in a low SES environment (Gonzalez, 2001; Ortiz & Flanagan, 2002). According to the NCES, children from poor family backgrounds have lower assessment scores in reading upon entering school in kindergarten, and this gap widens by the end of first grade. In the fourth, eighth, and twelfth grades, the average mathematics scores of students decline as the percentage of students who receive free or reduced-price lunch in the school increases (USDOE, 2003). Findings from the ECLS-K also support the importance of this background factor, with SES showing a relationship to proficiency across all reading and mathematics tasks assessed (ETS, 2002). Specific to the LEP population, Terwilliger and Magnuson (2005) found that differences in SES and race/ethnicity were related to English-language performance on the NAEP.

Research also suggests that the more a child or parent's language or culture differs from that which is dominant where they live, the greater the chances that learning will be adversely affected (August &

Shanahan, 2006; Cummins, 1984). Further, some research has reported differences in test scores among students with different non-English language backgrounds (Liu, et al, 2000), including the finding that students whose native language is more similar to English tend to acquire English more easily than those whose native language is less similar (Gitomer, Andal & Davison, 2005). This is further supported by findings from the ECLS-K, where Asian and White children were more likely than children from other racial/ethnic groups to be proficient across all reading tasks and most mathematics tasks.

Cultural factors and language development in young children

As stated earlier, the LEP population in the United States is by no means uniform. A child may have spent their entire life in this country and never spoken English prior to the start of formal schooling, or they could have moved here only days before and have learned English from birth. So that no assumptions are made about a child's degree of exposure to the English language as well as to American culture, it is important to consider the home language environment, their country of birth, and the number of years the child has lived within the United States. A review of data from the NCES indicates that 43% of 5- to 9-year olds who spoke Spanish at home, 29% of those who spoke any Asian language, 35% of those who spoke all other European languages, and 32% of those who spoke any other language spoke English with difficulty (USDOE, 2003). Native-born children who spoke a language other than English at home were more likely than their foreign-born peers to speak English "very well" according to NCES data (78% versus 49 %), and the more recently the child had moved to the United States the more likely that child was to report having difficulty speaking English (74% of those who came within the previous 0-4 years versus 49% of those who came within the previous 5-9 years). This is an important distinction as NCES data

indicate that language minority students who spoke English were still three times as likely to fail to complete high school as language majority students, while those who spoke English with difficulty were five times as likely to fail to complete high school (USDOE, 2003).

As previously noted, current thinking on second language acquisition does outline a progression of skills that occurs over time. The development of academic language proficiency, however, can be impacted by many other factors. Estimates across studies suggest that the more demanding academic language skills can take from four to ten years to fully develop, depending on the researcher and the other variables involved (Collier, 1987; Cummins, 1984; Gitomer, Andal, & Davison, 2005). Time spent in the U.S. is one of the few variables acknowledged by current law, and it is clearly important, but equally clear is that a range of 4-10 years lacks the specificity needed in the context of K-12 education. Consideration of those other variables that can possibly help to narrow the range of our expectations must be included in our problem solving discussions.

Educational experience and language development in young children

A Minnesota study of LEP students and large scale assessments identified a significant negative correlation between the number of school changes and performance on a state academic skills assessment (Liu, et al., 2000). This study also identified a strong correlation between years in U.S. schools and assessment performance, and suggested that years in ESL/bilingual services related to passing this same assessment.

A review of the literature indicates that many families of LEP students may be transient with frequent moves from school to school and district to district due to their financial status or for migratory work. A volume published by the Citizens Commission on Civil Rights in 2002

included a chapter titled "High Classroom Turnover: How Children Get Left Behind", which analyzed the wide range of research studies that have examined school changing and its effect on student achievement. Their general conclusion was that high student mobility had a negative impact on, not only students, but also on the teachers and schools involved. Over the long-term, students with high mobility experienced lower achievement levels, slower academic pacing, and were less likely to complete high school (Hartman, 2002). A student who is already struggling with the academic or adaptive expectations of school will tend to be at risk for similar or greater problems after a move (Medway, 2002). Educational disruptions from student mobility can potentially be an issue for any student, particularly for those children who experience extended absences while in transit from one location to another, different curricular expectations, and different levels and types of supports for students from an LEP background (Garcia, 2000; Medway, 2002).

In the state of Ohio, for example, the Ohio Department of Education has a direct link for information regarding the Ohio Migrant Education Center (OMEC). The OMEC coordinates Title I grant funds that are designated to assist with programming to "help migratory children overcome educational disruption, cultural and language barriers, social isolation, various health-related problems and other factors that inhibit the ability of such children to do well in school." (ODE, 2011, "Migrant Education", Bullet 5)

How long students stay in ELL programs, the type of programming that they receive, and the process for transitioning out of ELL programs can also impact student outcomes (Gitomer, Andal, & Davison, 2005; Thomas & Collier, 1997, 2002). As previously noted for the state of Ohio, ELL programming can take many forms. Even within the same state there can be

considerable variance between districts in terms of staff training, native language support, the mechanism for providing student support (e.g., Bilingual services, ESL classroom, etc.) and even the criteria for entering and exiting programming (Garcia, 2000; Ochoa, 2005). The debate over how best to serve the diverse population of today's schools has been heated and in some cases politicized, but is also largely outside of the scope of this study. What should be noted is that numerous studies have documented differences in the rate of language acquisition and long-term academic performance achieved by the different methodologies currently in use across Ohio (Gitomer, Andal, & Davison, 2005; Thomas & Collier, 1997, 2002). Additionally, in some studies districts were found where no true services of any kind were available for LEP students, leaving the possibility that, at some point, any student may have been enrolled in a school environment where they received no support at all (Liu, et al, 2000; Ochoa, 2005; Thomas & Collier, 1997). For purposes of this study the sample population was drawn from one district with consistent programming options available to all LEP students, though previous exposure to other types of programming could not be ruled out. The programming offered at the elementary level in the participating district for this study consisted of ESL pullout services for a specified period each day.

Interaction of multiple variables and language development in young children

While a single instrument may be used to identify LEP students for services, and a single law may govern their treatment, it remains a fact that LEP students themselves do not represent a single homogenous population. While all of the same variables that can impact the academic trajectory of a typical Midwestern, English-only speaking student are relevant for a student from our LEP population, there are also specific

variables related to second language acquisition itself that come into play. For example, researchers who are examining the relationships between first and second language development and how one may facilitate the other have suggested that student age at the time of first exposure to their second language can have a significant impact on the ease with which they acquire it (August & Hakuta, 1997; Thomas & Collier, 2002). Children who are very young when they are first exposed to English may not have developed their primary language vocabulary that would be used for academically challenging tasks, and so would then have the need to learn these more advanced concepts using their second language. Additionally, the overall development of the first language is likely to be disrupted at this time, potentially limiting the future benefit of transferring knowledge from first language to second.

Adolescent students who are having their first exposure to English, on the other hand, would be expected to have a good deal of first language proficiency developed, but may no longer continue the academic progress that had begun in their first language while they are acquiring the second language skills sufficient for the task. In both cases the development of the more challenging academic language proficiency in English can be negatively impacted versus that of a child who is 8-12 years of age upon immigrating to the United States and has had at least two years of first language schooling in their home country (Berman, 1997; Collier, 1987; Cummins, 1984; Gitomer, Andal, & Davison, 2005). For the latter case, the student has a foundation of language proficiency and concepts that can be transferred to the framework for a second language, thus facilitating the learning process (Cummins, 1984; August & Hakuta, 1997; Thomas & Collier, 2002). These examples serve to illustrate how the interaction of different background variables (e.g., age of immigration and previous schooling) can potentially alter the rate of

second language acquisition for a particular student, as well as the need for multivariate analyses to explore these interactions further. For purposes of this study the sample group was selected to fall at or near that 8 – 12 year age band to help minimize any impact from this particular factor.

Summary

Questions related to culturally and linguistically diverse students and our professional practices are here to stay. Answers we thought we knew about curriculum, learning and development for language majority students may not be correct for all members of this population, which in turn impacts our policies and the legislation that drives them. Current legal frameworks, both in the state where this study will be conducted and at the national level, acknowledge the unique challenges faced by students from non-majority cultures and language backgrounds, while simultaneously setting remarkably high expectations for these students and the schools that serve them. Current theories of second language acquisition describe a much more complex process than the legislation currently in effect would appear to account for, with timeframes for academic equivalency between an ELL student and a language majority peer stretching to ten years in some cases. Substantial research has been performed over the past 30 years that provides support for the potential impact of multiple cultural, social, economic, and educational factors on the development of second language proficiency. Recommended practice consistently supports the need to consider the whole child as a context for educational decision making, but actual practice is often left without specific guidance on how this is to be done.

This chapter gives an overview of the evolution of legal thought pertaining to culturally and linguistically diverse students, current practice with this population in the state of Ohio, currently influential

theories of second language acquisition, and research findings related to each of the identified variables to be examined through this study. Research referenced within this chapter clearly supports the contention that cultural, social, economic, and educational factors can and do have a significant relationship to student outcomes. Further research examining the impact of these sociocultural variables, both alone and in combination, is a necessary step towards aligning actual practice with best practice by actually using all of the information available to us to help improve student outcomes.

CHAPTER 3

METHODOLOGY

The purpose of this study was to examine the relationship between cultural, social, and educational factors and English language development in Limited English Proficient (LEP) elementary school students. The study sample was selected from the primary elementary-age LEP population of a large urban school district in Ohio. The Ohio Test of English Language Acquisition (OTELA) is the state-approved assessment instrument that measures English proficiency in the four major areas: listening, speaking, reading, and writing, as well as an overall composite score. It is administered state-wide annually to all identified or suspected LEP students, and was used as the outcome measure for this study.

Design

This research study is a correlational design that conducted an examination of specific predictive factors for student performance on the OTELA. In particular, the following predictor variables were chosen for this study: race/ethnicity, home language, sex, SES (Free/Reduced student lunch), country of birth, time in the USA, time in the participating district, and student mobility (number of school changes). As the dependent variable, the database included individual student performance on the OTELA as a measure of language acquisition. Demographic and background information was obtained from school records in the target district for each LEP student that met the inclusion criteria. Figure 1 depicts the design of the study.

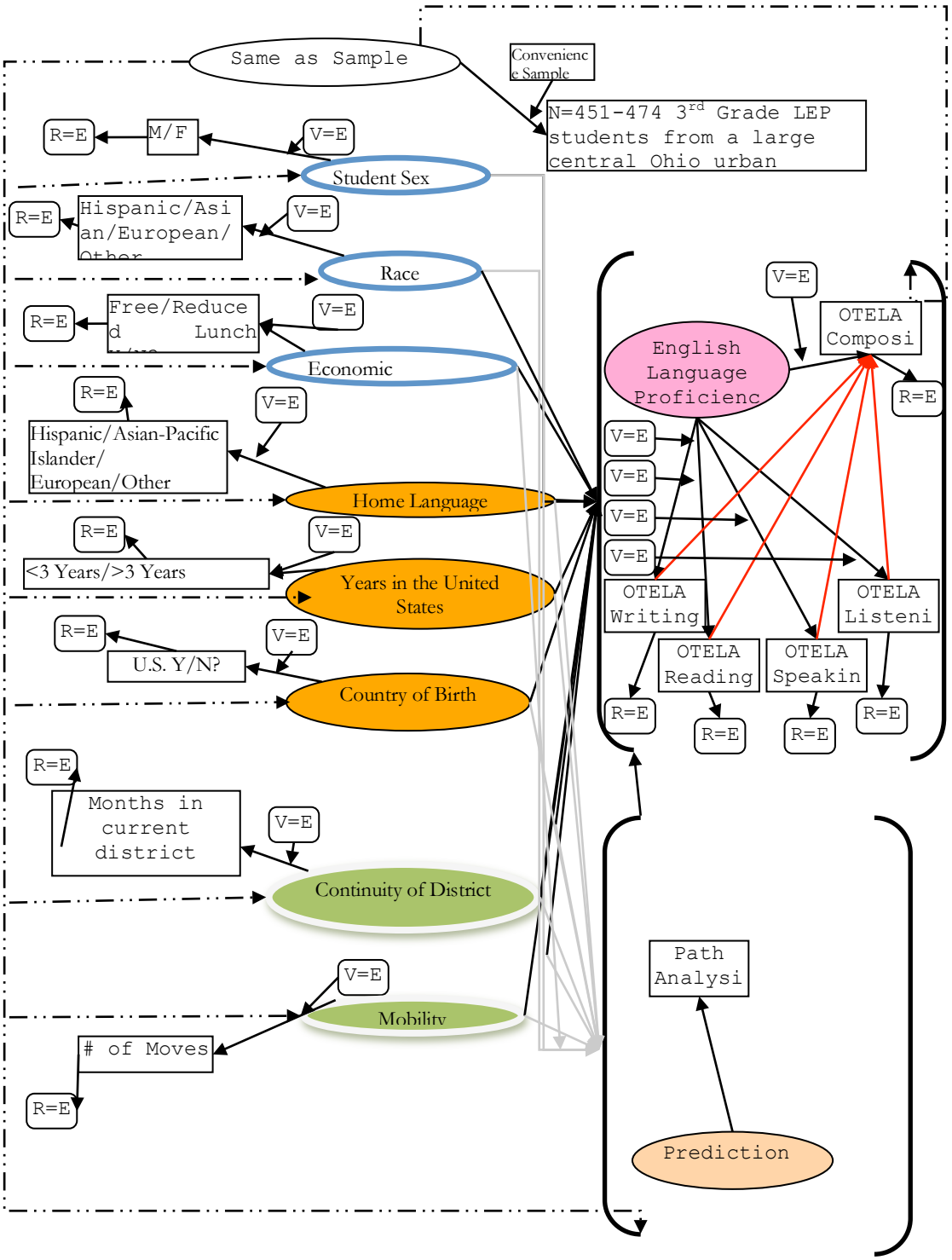

Figure 1. Research path diagram.

The Population

The cooperating school district for this study is located in Ohio, primarily in an urban setting, with approximately 50,000 students enrolled during the 2006 & 2007 school years. Over 11% of the student population spoke English as a second language, with over 80 different home languages represented, and approximately 6% qualifying for direct ESL services. More than 75% of the total school population met the income criteria for free or reduced lunch, and the student mobility rate for the district was close to 20%.

Selection of the Sample

All identified LEP students who attended elementary school during the 2005-2006 and/or 2006-2007 academic year and were still enrolled at the time of the collection of the data were considered for this study. Based on current educational policy and the literature review, LEP students who have their first educational experience in the United States are likely to first achieve basic conversational fluency with English (Basic Interpersonal Communication Skill, or BICS), as well as fall within the Adequate Yearly Progress (AYP) assessment guidelines for NCLB, in the 2nd or 3rd grade of elementary school. Review of the OTELA indicates that the 3rd grade is the first time that the results are based on a direct student assessment rather than subjective teacher ratings. Proposed criteria for inclusion in this study, then, were students who were enrolled in the cooperating district at the time that these data were collected, were in the 3rd grade for either of the academic years that OTELA results are provided for, and for whom data were available for all of the remaining variables of interest. This is a convenience sample.

Assignment

No assignment is required for this study. Archival test data and background information was obtained for the entire LEP population of the

cooperating district who attended elementary school during the 2005-2006 and/or 2006/2007 academic years and were still enrolled at the time of the collection of the data. Final participants in this study were students for whom data were available for all study variables and either the 2006 or 2007 administrations of the OTELA.

Background Variables

The study was designed to answer research questions that relate to group differences among the dependent variables which are the individual subscale and composite language proficiency scores in English of 3rd grade LEP students with regard to the predictor variables: race/ethnicity, home language, sex, SES (Free/Reduced student lunch), country of birth, time in the USA, time in the participating district, and student mobility (number of school changes).

With regard to student race/ethnicity, students were assigned into one of seven broad groups by a parent or guardian during district enrollment: 1) White, non-Hispanic; 2) Black, non-Hispanic; 3) Hispanic; 4) Asian; 5) Pacific Islander; 6) American Indian/Alaska Native; and 7) More than one race. This grouping was modeled from the U.S. Department of Education's National Center for Education Statistics (NCES) report, The Condition of Education 2008. It should be noted that the category of Race/Ethnicity identified for each student was not assigned by this researcher, but was instead based on parent understanding and self-identification as they completed registration forms during school enrollment

With regard to the primary language in the household, students were classified into four broad groups: 1) Spanish; 2) Other Indo-European other than Spanish (e.g., French, German, Portuguese, etc.); 3) Asian/Pacific Islander (Any native language spoken by Asians or Pacific Islanders, which linguists classify variously as Sino-Tibetan,

Austroasiatic, or Austronesian languages.); and 4) all other. This grouping was modeled from the U.S. Department of Education's NCES report, The Condition of Education 2008.

Students were classified by sex (i.e., males and females).

With regard to family income level, students were classified into two groups: 1) students who did qualify for free or reduced lunch, and 2) students who did not qualify for free or reduced lunch.

With regard to country of birth, students were classified into two groups: 1) students who were born in the United States of America, and 2) students who were born outside of the USA.

With regard to the date of entry to the USA, students were classified into two groups: 1) students who entered the USA less than three years prior to participating in the 3rd grade administration of the OTELA, and 2) students who entered the USA more than three years prior to participating in the 3rd grade administration of the OTELA. Assignment to these groupings was determined by the given date of entry to the USA and the ending date for the academic year in which the student participated in the 3rd grade administration of the OTELA (either June 1st, 2006 or June 1st, 2007). These groupings are based on the language acquisition timelines described in Chapter Two (Cummins, 1984).

With regards to length of time in district, the number of months between the date of district admission and the date at which the student participated in the 3rd grade administration of the OTELA (either June 1st, 2006 or June 1st, 2007) was generated for each student. Values range from 0-81 for this sample.

With regards to student mobility, data were reported for the number of student school changes as of the end of the 2006-2007 school year. Values range from 0-6 for this sample.

Measurement

The researcher chose to conduct statistical analyses of existing data from the students' files, which was compiled by the cooperating district and provided in a Microsoft Excel database with all identifiers removed. The instrument used in this study as a measurement of English language proficiency was the OTELA. This instrument measures English proficiency in the four major areas: listening, speaking, reading, and writing. A composite score is then generated from the child's performance in all four areas.

Reliability

Cronbach's alpha internal consistency estimates ranged from .76 to .95 for grades 3-12, and it is noted that results for the writing sections were generally lower (Wolf, et.al, 2008). According to Vogt (1999), reliability coefficients below 0.7 are generally an indication that a measure is unreliable. The estimates stated above exceed this threshold in all areas, which would suggest that this assessment may be considered reliable.

Validity

Several different validity studies are reported from the development of the ELDA, which was noted as having one of the most robust examinations of validity among the English language proficiency assessments currently in wide spread use (Wolf, et al, 2008). To examine criterion-related validity, teacher ratings were used to group participants into five ability levels, which were then found to be positively correlated with mean item scores (i.e., percent correct increased as teacher ratings increased). Additionally, experts in the field of linguistics classified test items according to "developmental level" ranging from "strong" to "weak", and an analysis of variance was used to estimate the relationships between item difficulties and the

teacher ratings and item developmental levels. Teacher ratings and item developmental level ratings predicted student performance for all grade bands and forms, which was interpreted as strong evidence of criterion-related validity (Wolf, et al, 2008). Construct validity was addressed through comparisons between the ELDA and the Language Assessment Survey (LAS), the New IDEA Proficiency Test (New IPT), and teacher ratings of student proficiency, and item bias/fairness was addressed during the initial item development stage and again with the field test data (Wolf, et al., 2008).

Data Collection Procedures

The data collection procedures for this study were the following: 1) The researcher submitted a request to the administrative offices of a large urban school district describing the nature of the study and the intent to use demographic information and the OTELA scores of Elementary-age LEP students. 2) The cooperating district approved the use of their collected student data, provided that the district would only be identified as "a large urban district", and that the results of this study would be shared with them. 3) A Microsoft Excel database was generated that includes the following predictor variables that were chosen for this study: race, home language, sex, SES (Free/Reduced student lunch), country of birth, entry to USA date, admission to district date, and student mobility (number of school changes). As the dependent variable, the database included individual student performance on the OTELA for either 2006 or 2007 as a measure of language acquisition. District staff did not include any personally identifiable information, and data was presented only in an archival and anonymous format to this researcher. Because of the anonymity of the student data, no parental consent was required, but this project was reviewed, and approved in November of 2011 under the methods and procedures applied to

human subjects by the Indiana University of Pennsylvania's Institutional Review Board. 4) The data were then converted to SPSS statistical software for data analyses. Table 1 shows the timeline from preparation to conclusion of the study.

Table 1

Timeline for Research Study

May 2006	LEP students in cooperating district participated in OTELA
May 2007	LEP students in cooperating district participated in OTELA
June 2008	Permission obtained from Director of Evaluation Services to conduct study
November 2011	IRB approved by the Indiana University of Pennsylvania's Institutional Review Board
January 2012	Staff at cooperating district provide a *Microsoft Excel* database with all LEP students demographic information and test scores from school years 2005/2006 & 2006/2007
February 2012	Dissertation Committee approval
February 2012	All demographic information and test scores exported from *Microsoft Excel* and analyzed with the Statistical Package for the Social Sciences (SPSS) statistical program.
August 2012	Defense of study

Data Analysis Procedures

All research questions for this study were designed to investigate the difference in 3rd grade LEP students' English language proficiency scores with regard to specific educational, social, and cultural factors. In particular, the research questions sought to examine the prediction of elementary-age ESL students' English language proficiency scores with regard to student race/ethnicity, home language, sex, SES (Free/Reduced student lunch), country of birth, time in the USA, time in the participating district, and student mobility (number of school changes). As the dependent variable, the database included individual student performance on the OTELA for either 2006 or 2007 as a measure of language acquisition.

The study was designed to conduct statistical analyses of existing data, students' demographic information and their OTELA test scores. Multiple Regression analysis was the primary statistical technique used since the primary analysis investigated the extent to which the values of multiple variables can predict the value of another (Salkind, 2010).

Sample Size

The number of predictors, power, and effect size are considered when determining an adequate sample size. The power of a study is the liklihood of detecting differences or relationships that actually exist between variables (VanVoorhis & Morgan, 2007). Eighty percent is a conventional figure for the minimum power when conducting a study (Cohen, 1988). The effect size refers to the degree to which the dependent variable is related to the predictor variable. Cohen's recommendation is that an effect size of 0.20 be considered small, 0.50 be considered medium, and 0.80 be considered large.

As summarized by VanVoorhis & Morgan (2007), different statistical methods have different 'rules of thumb' in regards to

effect size and recommended sample size to maintain at least 80% power in a study, with more advanced regression models requiring relatively larger samples. VanVoorhis & Morgan examined several different sources for recommendations, such as Green (n => 50 + 8 * # of predictors or P; or n => 104 + P for partial correlations) and Harris, and stated that, "regression equations using six or more predictors, an absolute minimum of 10 participants per predictor variable is appropriate. However, if the circumstances allow, a researcher would have better power to detect a small effect size with approximately 30 participants per variable." (p. 48) The expected sample size of over 400 subjects used in this study was, therefore, more than adequate to provide sufficient statistical power for purposes of statistical analysis.

Research Questions and Hypotheses

The overall research question of this study was whether one or more of the predictor variables from this study had a significant impact on the rate of English language development as measured by the dependent variables. With regard to the problem studied and according to the purpose of the study, the following research questions were examined by analyzing demographic data and the students' scores on the OTELA assessment.

Research Question #1

What is the significance of differences between levels of each individual predictor variables and student performance on the OTELA as measured by the four subscales and the composite score?

It was hypothesized that a significant difference exists between each of the identified predictor variables and student performance on the OTELA. To answer Research Question #1, the eight predictor variables were partitioned into sub-questions 1.1-1.8.

1.1 Is there a difference in student performance between American Indian or Alaska Native, Asian or Other Pacific Islander, Black, Hispanic, and White students on the OTELA?

It was hypothesized that English language proficiency at a given point in time would vary significantly relative to student race, but no directional hypothesis can be made at this time.

1.2 Is there a difference in student performance between students who are low SES or not low SES (as measure by participation in the free/reduced lunch program) on the OTELA?

It was hypothesized that English language proficiency at a given point in time would be negatively impacted by lower student SES.

1.3 Is there a difference in student performance between males and females on the OTELA?

It was hypothesized that male students would display lower levels of English language proficiency at a given point in time then comparable female students.

1.4 Is there a difference in student performance on the OTELA among four categories of home language backgrounds (Spanish, Other Indo-European, Asian/Pacific Islander, All others)?

It was hypothesized that students whose home language is Spanish would display lower levels of English language proficiency at a given point in time than students from other home language backgrounds.

1.5 Is there a difference in student performance on the OTELA between foreign-born and native-born students?

It was hypothesized that foreign-born status would have a negative relationship with English language proficiency at a given point in time.

1.6 Is there a difference in student performance on the OTELA between students who have resided within the United States for greater than three years, one to three years, or less than one year?

It was hypothesized that years of US residency would show a positive relationship with English language proficiency at a given point in time.

1.7 Is there a difference in student performance between students who have attended the cooperating district for 0-80 months on the OTELA?

It was hypothesized that English language proficiency would increase over time for all students, but with greater increases noted for students who were consistently attending the district for this study.

1.8 Is there a difference in student performance between students who have changed districts from 0-6 times on the OTELA?

It was hypothesized that English language proficiency would be negatively impacted as the number of student moves increased.

Research Question #2

From among the predictor variables identified, what is/are the best predictor(s) of student performance on the OTELA?

Review of the literature in this area supports that second language acquisition is impacted by many inter-related factors (Garcia, 2000). Research supports a general timeline for the progression of English language skills that includes 1-3 years for basic interpersonal communicative skills (BICS) and 4-7 years for cognitive academic language proficiency (CALP) (Cummins, 1984). It was hypothesized that the rate of English language development for an individual would reflect the typical language acquisition process as impacted by combinations of the variables identified for this study. No directional hypothesis could be made prior to analysis.

Statistical Analyses

In this study, the predictor variables were: student race/ethnicity, home language, sex, SES (Free/Reduced student lunch), country of birth, time in the USA, time in the participating district, and student mobility (number of school changes). As the dependent variable, the database

included individual student performance on the OTELA for either 2006 or 2007 as a measure of language acquisition.

To answer Research Question #1, the eight predictor variables were partitioned into sub-questions 1.1-1.8 in the following order: Race/Ethnicity, SES, Sex, Home Language, Birth Country, Time in the USA, Time in District, and School Mobility. Variables 1.1-1.6 as categorical variables were analyzed using: a) a one way ANOVA statistic to describe the significance of the difference between each individual predictor variable and the OTELA composite score; b)a MANOVA statistic to determine the significance of the difference between the levels of the individual predictor variable and all four subscales and c) a one way ANOVA statistic to determine the significance of the difference between each of the levels of the individual predictor variables and the individual OTELA subscales. Predictor variables #7 and #8 as continuous variables were analyzed using: a) a linear regression to describe the significance of the impact each of the predictor variables had on the OTELA composite score; and, b) a linear regression to describe the significance of the impact the individual predictor variables had on each of the individual OTELA subscales. The Path Analyses that were conducted for research question #2 addressed the analysis of the impact of variables 1.7 and 1.8 on all four subscales together.

To answer Research Question #2, the predictor variables were placed into two separate Path Analyses; one with the OTELA composite score as the outcome variable, and one with the four OTELA subscales as the outcome variables. Path Analysis can be thought of as a series of regressions (Byrne, 2010) that, in this case, allow us to examine structural models relating to variables impacting English language acquisition as measured by the OTELA. Each model can then be "tested statistically in a simultaneous analysis of the entire system of

variables to determine the extent to which it is consistent with the data. If goodness-of-fit is adequate, the model argues for the plausibility of postulated relations among variables" (Byrne, 2010, pp.3).

Summary

The purpose of this study was to examine the relationship between educational, social, and cultural factors and English language development in LEP elementary school students. The study sample was selected from a single large urban school district located in Ohio. Demographic and background information were obtained from school records for each student. In this study, the predictor variables were: student race/ethnicity, home language, sex, SES (Free/Reduced student lunch), country of birth, time in the USA, time in the participating district, and student mobility (number of school changes). As the dependent variable, the database included individual student performance on the OTELA for either 2006 or 2007 as a measure of language acquisition. For Research Question #1, ANOVA, MANOVA, and Linear Regression were the primary statistical techniques used to identify the significance of the differences between the values of each of the individual predictor variables and scores on the OTELA. For Research Question #2, path analysis was the primary statistical technique used since the primary analysis investigates the relationships among a system of variables as a whole (Byrne, 2010).

Table 2

Research Questions, Hypotheses, Variables, Statistical Analyses, and Statistical Assumptions

Research Questions	Hypotheses	Variables	Statistical Analyses	Statistical Assumptions
1.1 Is there a difference in student performance between Asian or Other Pacific Islander, Black, Hispanic, and White students on the OTELA?	1.1A difference exists in student performance on the OTELA based on Race/Ethnicity	Race/Ethnicity and OTELA scores	ANOVA MANOVA	Interval/Scale Data, Normality Equal Variances
1.2 Is there a difference in student performance between students who are low SES or not low SES on the OTELA?	1.2 A difference exists in student performance on the OTELA based on SES.	SES and OTELA scores	ANOVA MANOVA	Interval/Scale Data, Normality Equal Variances
1.3 Is there a difference in student performance between males and females on the OTELA?	1.3 A difference in student performance exists between males and females on the OTELA.	Student Sex and OTELA scores	ANOVA MANOVA	Interval/Scale Data, Normality Equal Variances
1.4 Is there a difference in student performance on the OTELA among four categories of home language backgrounds (Spanish, Other Indo-European, Asian/Pacific Islander, All others)?	1.4 A difference existed in student performance on the OTELA relative to home language	Home Language and OTELA scores	ANOVA MANOVA	Interval/Scale Data, Normality Equal Variances
1.5 Is there a difference in student performance on the OTELA between foreign-born and native-born students?	1.5 A difference exists in student performance on the OTELA relative to country of birth.	Country of Birth and OTELA scores	ANOVA MANOVA	Interval/Scale Data, Normality Equal Variances
1.6 Is there a difference in student performance on the OTELA between students who have resided within the United States for greater than three years, one to three years, or less than one year?	1.6 A difference exists in student performance on the OTELA relative to length of residency in the United States.	Time in the United States and OTELA scores	ANOVA MANOVA	Interval/Scale Data, Normality Equal Variances
1.7 Is there a difference in student performance between students who have attended the cooperating district for 0-80 months on the OTELA?	1.7 A difference existed in student performance on the OTELA relative to length of time in the district.	Time in District and OTELA scores	Linear Regression	Interval/Scale Data, Normality Equal Variances
1.8 Is there a difference in student performance between students who have changed districts from 0-6 times on the OTELA?	1.8 A difference exists in student performance on the OTELA relative to student mobility.	Student Mobility and OTELA scores	Linear Regression	Interval/Scale Data, Normality Equal Variances
2. From among the predictor variables identified, what is/are the best predictor(s) of student performance on the OTELA?	2. English language development will reflect the typical language acquisition process as impacted by combinations of the variables identified for this study.	All	Path Analysis	Interval/Ratio Data, Normality Equal Variances Independent data sets

CHAPTER 4

RESULTS

This study conducted an examination of specific predictive factors as they relate to the performance of 3rd grade students for whom English is a second language on the Ohio Test of English Language Acquisition (OTELA). Specifically, the predictor variables chosen for this study were: race/ethnicity, SES (as defined by participation in the Free/Reduced Student Lunch Program), sex, home language, country of birth, time in the USA, time in the participating district, and student mobility (number of school changes). The database examined the OTELA results for 3rd grade children tested in 2006 and 2007. The overall goal of this study is to identify the best predictors of student performance on the OTELA. This chapter includes a description of adjustments made in the database prior to analysis, a description of the demographic characteristics of the sample and the analysis of data corresponding to the research questions.

Complications

An initial review of the database revealed a racial/ethnic distribution of 14.9% Asian/Pacific Islander, 39.6% Black, 41.3% Hispanic, 3.4% White and 0.6% Multi-racial. Given the extremely low percentage of White and Multi-racial subjects in the sample, it was considered that these two categories of the race/ethnicity variable had insufficient variance to be included in the analysis as separate categories or in combination as one category. It was further considered that the three categories of Asian/Pacific Islander, Hispanic and Black each contained sufficient numbers for analysis. It was therefore determined that the subjects in the categories of White and Multi-racial would be dropped from the analyses for Research Question #1 that included the variable race/ethnicity and in the Research Question #2 path

analysis. They were, however, included in the analyses for Research Question #1 that did not include the race/ethnicity variable. In order to complete the analyses, two data sets were created, one with the White and Multi-racial students (Data set 1), and one without the White and Multi-racial students (Data set 2) that would be used for analyses that involved the Race/Ethnicity predictor variable.

Further review of the database revealed a home language distribution of 41.5% Spanish (n=197), 4.4% Other Indo-European (n=21), 13.7% Asian/Pacific Islander (n=65), 36.4% All Other Languages (n=173) and 4% missing or invalid responses (n=19). Given the extremely low percentage of subjects speaking Other Indo-European languages in the home, it was considered that there was insufficient variance to include it in the analysis as a separate category, so those subjects were added in with the All Other Languages grouping. Finally, review of the Time in the USA predictor found that 50.2% of the sample had been born in the USA or arrived here as an infant (n=238), 6.1% had been living in the USA for less than one year (n=29), 27.2% had been living in the USA for one to three years (n=129), and 16.5% had been living in the USA for greater than three years (n=78). Due to the low number of subjects who had been in the USA for less than one year, and some concern about the overlapping definitions for the Greater than 3 Years and Born in the USA categories, it was determined that this predictor would be restructured into two categories; subjects who had been in the USA for three years or less at the time of the 3rd grade OTELA administration, and subjects who had been in the USA for more than three years at the time of the 3rd grade OTELA administration.

The results from the data analyses that were conducted for Research Question #1 revealed three more potential issues that needed to be addressed prior to running the analyses for Research Question #2. The Race/Ethnicity

predictor variable was determined to be highly collinear with the Home Language predictor variable, with fully 99.5% of Hispanic subjects speaking Spanish, 98.4% of Asian/Pacific Islander subjects speaking an Asian/Pacific Islander language, and 98.8% of Black, non-Hispanic subjects falling in the All Other Languages category (which consists almost entirely of African languages and dialects). It was determined that only one of these predictor variables, therefore, should be used for the Path Analysis. Given that the primary focus of this study is language acquisition, the Home Language predictor variable was selected. Similarly, the predictor variables of Birth Country and Time in the USA were also highly collinear, with nearly half of all subjects being born in the USA and consequently falling within the Greater than Three Years categorization, while the clear majority of the Not Born in the USA subjects fell in the Three Years or Less categorization. It was determined that only one of these predictors would be used for the path analysis, and Time in the USA was selected. Additionally, in order to meet the statistic assumptions related to data type, the Home Language predictor variable was recoded into two dummy variables of Spanish and Other Language, with Asian/Pacific Islander set as the reference group for both dummy variables.

Computer Program

Two computer programs were used to analyze the data in this study. SPSS 19.0 was the primary statistical package used. The SPSS AMOS 21.0 add-on, now in beta testing, was used for the path analysis performed to answer Research Question 2.

Demographic Characteristics of the Data Sets

The primary sample, including the subjects in the White and Multi-racial categories, was comprised of 474 3rd grade students from the participating district who had both the scores for the 3rd grade administration of the OTELA

from either 2006 (n=193) or 2007 (n=281) and complete demographic data. The sample had a racial/ethnic distribution of 14.9% Asian/Pacific Islander (n = 71), 39.6% Black (n = 188), 41.3% Hispanic (n = 196), 3.4% White (n = 16) and 0.6% Multi-racial (n = 3). A total of 51.8% of the sample were male (n = 246) and 48.2% were female (n = 228). The majority of the subjects were identified as low social-economic status (SES) with 55.6% (n=263) qualifying for the free lunch program. A total of 43 home languages were identified for this sample group. These were categorized as 41.5 % Spanish (n=197), 4.4% Other Indo-European (n=21), 13.7% Asian/Pacific Islander (n=65), 36.4% All Other languages (n=173) and 4% missing or invalid responses (n=19). The category of All Other languages was almost entirely comprised of languages and dialects from the African continent. The sample was almost equally divided between subjects born outside of the U.S.A. (50.8%) and 49.2% born in the U.S.A. Regarding the length of time each student had been living in the USA, 50.2% of the sample had been born in the USA or arrived here as an infant (n=238), 6.1% had been living in the USA for less than one year (n=29), 27.2% had been living in the USA for one to three years (n=129), and 16.5% had been living in the USA for greater than three years (n=78). The remaining two predictors of Time in District and School Mobility are continuous in nature and are characterized by means and standard deviations. In addition, both of these variables are represented by 470 subjects rather than 474 indicating 4 instances of missing data. The number of months that subjects had been enrolled in the participating district ranged from 0 to 81 months with a mean of 32.1 and a standard deviation of 15.57. The instances of children identified as being in the district for 0 or 1-2 months may represent either children who had just moved into the district or errors in data recording within the school district. Children identified as being in the district for greater than 48 months may represent children who had participated

in district pre-school or early childhood educational programming or, again, error in data recording within the district. The number of school changes varied from zero to six for this sample, with a mean of 0.73 and a standard deviation of 0.95.

The sample created after all necessary adjustments were made as described in the Complications section of this chapter consisted of 451 students. The racial/ethnic breakdown of this sample included 14.6% Asian/Pacific Islander (n = 766), 39.5% Black (n = 178), 42.4% Hispanic (n = 191), and 3.5% missing or omitted values (n = 16). A total of 51.2% of the sample were male (n = 231) and 48.8% were female (n = 220). The majority of the subjects were identified as low social-economic status (SES) with 55.4% (n=250) qualifying for the free lunch program. 42.8 % of this sample spoke Spanish in the home (n=193), 14.2% Asian/Pacific Islander (n=64), and 43.0% All Other Languages (n=194). The sample remained almost equally divided between subjects born outside of the U.S.A. (52.3%) and 47.7% born in the U.S.A. Regarding the length of time each student had been living in the USA, 34.1% of the sample had been in the USA for three years or less (n=154) and 65.9% had been living in the USA for greater than three years (n=297). The number of months that subjects had been enrolled in the participating district ranged from 0 to 81 months with a mean of 31.9 and a standard deviation of 15.47. The number of school changes varied from zero to five for this sample, with a mean of 0.71 and a standard deviation of 0.92.

Thus, both samples for this study are fairly divided between males and females, those identified as low socioeconomic status and not low socioeconomic status, and those born in the USA and those not born in the USA. They were predominantly Black and Hispanic, had Spanish as the most common home language,

had been enrolled in the participating district for 32 months and had changed schools one time.

Analysis of Research Questions

Research Question #1

What is the significance of differences between levels of each individual predictor variables and student performance on the OTELA as measured by the four subscales and the composite score?

It was hypothesized that a significant difference exists between each of the identified predictor variables and student performance on the OTELA subscales and composite score. To answer Research Question #1, the eight predictor variables were partitioned into sub-questions 1.1-1.8 in the following order: Race/Ethnicity, SES, Sex, Home Language, Birth Country, Time in the USA, Time in District, and School Mobility. Variables 1.1-1.6 as categorical variables were analyzed using: a) a one way ANOVA statistic to describe the significance of the difference between each individual predictor variable and the OTELA composite score; b)a MANOVA statistic to determine the significance of the difference between the levels of the individual predictor variable and all four subscales and c) a one way ANOVA statistic to determine the significance of the difference between each of the levels of the individual predictor variables and the individual OTELA subscales. Predictor variables #7 and #8 as continuous variables were analyzed using: a) a linear regression to describe the significance of the impact each of the predictor variables had on the OTELA composite score; and, b) a linear regression to describe the significance of the impact the individual predictor variables had on each of the individual OTELA subscales. The results of these analyses are presented below. The Path Analysis that will be conducted for research question two will

address the analysis of the impact of variables 7 and 8 on all four subscales together.

Results of the one way ANOVA analyses of Predictor Variables 1.1-1.6 and the composite scores of the OTELA. An ANOVA statistic was used for the analysis of each of the predictor variables and the composite score of the OTELA.

1.1 Results of the analysis of differences between the three Race/Ethnicity categories of Asian/Pacific Islanders, Hispanic, and Black Non-Hispanic are presented in Table 3.

Table 3

Composite OTELA Score Results by Race/Ethnicity Group

Race/Ethnicity	N	Mean	SD
Asian or Pacific Islander	71	657.7	99.6
Black non-Hispanic	188	577.6	109.3
Hispanic	192	596.7	108.8
Total	451	598.4	110.8

Table 4

Results of ANOVA on the Effects of Race/Ethnicity on the Composite Score of the OTELA

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	*P*
Race/Ethnicity	2	448	165928.8	11585.8	14.32	.06	<.001

A one-way ANOVA was conducted to test for differences in OTELA composite scores across the three Race/Ethnicity categories with findings presented in Table 4. In testing the statistic assumptions, it was found that predictor and dependent variables were normally distributed as skewness and kurtosis fell within the range of +2 to -2 (Garson, 2012). No violation of homogeneity of

variance was found based on the Levene statistic. Composite scores on the OTELA did differ significantly across the three categories. Bonferroni post-hoc comparisons of the three groups indicate that Asian/Pacific Islanders had significantly higher composite scores on the OTELA than both the Hispanic ($p <$ .001) and Black Non-Hispanic ($p <$ .001) groupings. Comparisons between the Hispanic and Black Non-Hispanic groups were not statistically significant at $p <$ .05. The hypothesis that a significant difference exists on student performance on the OTELA composite score based on racial and/or ethnic groupings was supported by this finding with students in the Asian/Pacific group scoring significantly higher than the other two groups.

1.2 Results of the analysis of differences between the two SES categories of students eligible for a free/reduced price lunch or students not participating in the free/reduced lunch program are presented in Table 5.

Table 5

Composite OTELA Score Results by SES

SES	N	Mean	SD
Full Price	208	568.9	118.2
Free Lunch	261	626.1	98.3
Total	469	600.7	111.1

Table 6

Results of ANOVA on the Effects of SES on the Composite Score of the OTELA

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	*p*
SES *	1	401	378706.0	11562.7	31.43	.07	<.001

* Homogeneity of Variances violated, Welch F statistic used

A one-way ANOVA was conducted to test for differences in OTELA composite scores across the two SES categories with findings presented in Table 6. In testing the statistic assumptions, it was found that predictor and dependent variables were normally distributed as skewness and kurtosis fell within the range of +2 to -2 (Garson, 2012). Homogeneity of Variances was violated based on the Levene statistic, so the Welch F statistic was used to adjust. Composite scores on the OTELA differed significantly between the two categories. The hypothesis that a significant difference exists on student performance on the OTELA based on SES was supported by this finding with students in the higher SES group scoring significantly higher than those in the lower SES group.

1.3 Results of the analysis of differences between the two Sex categories of Male and Female are presented in Table 7.

Table 7

Composite OTELA Score Results by Sex

Sex	N	Mean	SD
Male	244	601.2	105.2
Female	226	600.8	117.5
Total	470	601.0	111.2

Table 8

Results of ANOVA on the Effects of Sex on the Composite Score of the OTELA

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	*p*
Sex	1	468	13.2	12382.8	0.00	.00	0.974

A one-way ANOVA was conducted to test for differences in OTELA composite scores across the two Sex categories with findings presented in Table 8. In testing the statistic assumptions, it was found that predictor and dependent

variables were normally distributed as skewness and kurtosis fell within the range of +2 to -2 (Garson, 2012). No violation of homogeneity of variance was found based on the Levene statistic. Composite scores on the OTELA did not differ significantly across the two categories. The hypothesis that a significant difference exists on student performance on the OTELA based on Sex was not supported by this finding.

1.4 Results of the analysis of differences between the three Home Language categories of Asian/Pacific Islander, Spanish, and Other are presented in Table 9.

Table 9

Composite OTELA Score by Home Language

Home Language	N	Mean	SD
Spanish	193	597.8	108.6
Asian/Pacific Islander	64	650.1	95.2
Other	194	581.4	111.9
Total	451	598.2	110.3

A one-way ANOVA was conducted to test for differences in OTELA composite scores across the three Home Language categories with findings presented in Table 10.

Table 10

Results of ANOVA on the Effects of Home Language on the Composite Score of the OTELA

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	*p*
Home Language	2	448	113544.2	11723.6	9.69	.04	<.001

In testing the statistic assumptions, it was found that predictor and dependent variables were normally distributed as skewness and kurtosis fell

within the range of +2 to -2 (Garson, 2012). No violation of homogeneity of variance was found based on the Levene statistic. Composite scores on the OTELA differed significantly across the categories. Bonferroni post-hoc comparisons of the three groups indicate that students whose home languages fell in the Asian/Pacific Islander category had significantly higher composite scores on the OTELA than those in the Spanish ($p = .003$) and All Other ($p < .001$) groupings. Comparisons between the Spanish and All Other groups were not statistically significant at $p < .05$. The hypothesis that a significant difference exists on student performance on the OTELA based on Home Language was supported by this finding.

1.5 Results of the analysis of differences between the two Birth Country categories of Born in the USA and Born outside of the USA are presented in Table 11.

Table 11

Composite OTELA Score Results by Country of Birth

Country of Birth	N	Mean	SD
Not born in USA	241	566.3	115.2
Born in USA	229	637.5	94.0
Total	470	601.0	111.2

Table 12

Results of ANOVA on the Effects of Birth Country on the Composite Score of the OTELA

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	*p*
Birth Country*	1	458	595419.4	11110.5	54.14	.10	<.001

* Homogeneity of Variances violated, Welch F statistic used

A one-way ANOVA was conducted to test for differences in OTELA composite scores across the two Birth Country categories with findings presented in Table 12. In testing the statistic assumptions, dichotomous variables are not normally distributed by definition, but researchers will use dichotomies for statistical analyses requiring normality as long as each of the categories within the variable is well represented in the distribution of responses, with a rule of thumb being a split of no more than 90:10 (Garson, 2012). The distribution for Birth Country falls well within those parameters. Homogeneity of Variances was violated based on the Levene statistic, so the Welch F statistic was used to adjust. Composite scores on the OTELA differed significantly between the two categories. The hypothesis that a significant difference exists on student performance on the OTELA based on country of birth was supported by this finding with those born in the USA scoring significantly higher than those not born in the USA.

1.6 Results of the analysis of differences between the two Time in the USA categories of Zero to Three Years and Greater than Three Years are presented in Table 13. A one-way ANOVA was conducted to test for differences in OTELA composite scores across the two Time in the USA categories with findings presented in Table 14.

Table 13

Composite OTELA Score Results by Time in the USA

Time in the USA	N	Mean	SD
Less Than 3 years	154	531.6	114.4
Greater Than 3 Years	297	632.7	90.8
Total	451	598.2	110.3

Table 14

Results of ANOVA on the Effects of Time in the USA *on the Composite Score of the OTELA*

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	*p*
Time in the USA*	1	255	1036458.0	9894.8	90.64	.19	<.001

* Homogeneity of Variances violated, Welch F statistic used

In testing the statistic assumptions, it was found that predictor and dependent variables were normally distributed as skewness and kurtosis fell within the range of +2 to -2 (Garson, 2012). Homogeneity of Variances was violated based on the Levene statistic, so the Welch F statistic was used to adjust. Composite scores on the OTELA differed significantly across the four categories. The hypothesis that a significant difference exists on student performance on the OTELA based on the length of time they had resided in the USA was supported by this finding with those living in the USA greater than 3 years scoring higher than those living in the USA less than 3 years.

Results of the Regression analyses of Predictor Variables 1.7 & 1.8 and the composite scores of the OTELA. The descriptive statistics for predictor variables 1.7 and 1.8 and the Composite Score of the OTELA are presented in Table 15:

Table 15

Linear Regressions Descriptive Statistics on Predictor Variables 1.7 and 1.8 and the OTELA Composite Score

OTELA Scale	Predictor Variable	N	Mean	SD	Range
Composite		470	601.0	111.2	179 to 877
	Months in District	475	32.1	15.6	0 to 81
	School Changes	474	0.73	0.94	0 to 6

The results of the regression analyses completed on variables 1.7 and 1.8 and the OTELA composite scores are summarized in Table 16.

Table 16

Results of Linear Regressions on the Effects of Predictor Variables on the OTELA Composite Score

Predictor Variable	R^2	R^2_{Adj}	F	B	SE B	*b*	*t*	*p*
Months in District	0.18	0.18	100.16	3.0	0.30	0.42	10.01	<.001
School Changes	0.00	-0.00	0.15	-2.1	5.43	-0.02	-0.39	0.695

For predictor variable 1.7 a regression analysis was conducted, in which the OTELA Composite scores were regressed against the number of months each student had been enrolled in the participating district. The results were statistically significant (R^2_{Adj} = .18, F[1,468] = 100.16, p <.001), indicating that Months In District significantly predicted the Composite scale score (Unstandardized beta =2.998, SE=.300 Standardized Beta =.42, p < .001). In testing statistical assumptions, it was found that predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1 (Cohen, 2001). No violation of homogeneity of variance was found based on the scatter plot. Based on the scatterplot the relationship between Months in District and Composite Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student performance on the OTELA based on the length of time that student had been enrolled in the cooperating district was supported by this finding.

For predictor variable 1.8 a regression analysis was conducted, in which scores on the Composite scale of the OTELA were regressed against the number of school changes reported for each student. The results were not statistically significant (R^2_{Adj} = -.00, F[1,468] = .154, p =.695), indicating that the number

of school changes did not significantly predict the Composite scale score (Unstandardized beta =2.128, SE=5.43 Standardized Beta =.02, p = .695). In testing the statistic assumptions, it was found that predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1. No violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between school changes and Composite Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student performance on the OTELA based on school mobility was not supported by this finding.

Results of the MANOVA and post-hoc ANOVA analyses of Predictor Variables 1.1-1.6 and the four Subscales of the OTELA. A MANOVA statistic was used for the analysis of each of the predictor variables and the four Subscales of the OTELA. For the MANOVA, Field (2009) recommends using the Roy's Largest Root statistic as being the most robust if all assumptions for MANOVA are met, so for this section the Roy's Largest Root statistic is reported for each of the analyses.

1.1 The MANOVA statistic was used to examine differences in student performance on the four OTELA subscales and the predictor variable race/ethnicity. The mean and standard deviation are presented for each subscale in Table 17.

Table 17

MANOVA Analysis Descriptive Statistics on Race/Ethnicity and the OTELA Subscales of Listening, Reading, Speaking, and Writing

OTELA Subscales	Race/Ethnicity	N	Mean	SD
Listening Scale Score	Asian or Pacific Islander	71	664.6	118.8
	Black non-Hispanic	188	578.2	120.9
	Hispanic	192	604.4	126.5
	Total	451	603.0	126.2
Reading Scale Score	Asian or Pacific Islander	71	599.8	144.0
	Black non-Hispanic	188	501.8	125.0
	Hispanic	192	519.9	133.5
	Total	451	524.9	135.6
Speaking Scale Score	Asian or Pacific Islander	71	780.8	125.8
	Black non-Hispanic	188	717.6	166.0
	Hispanic	192	728.1	182.6
	Total	451	732.1	168.9
Writing Scale Score	Asian or Pacific Islander	71	585.2	117.0
	Black non-Hispanic	188	512.2	123.3
	Hispanic	192	534.0	107.0
	Total	451	533.0	118.0

In this analysis Roy's largest root was F (4,446) = 9.243 P<.001. There was no violation of the assumption of homogeneity of error variances. MANOVA results for each individual subscale were consistently significant as well, as represented in Table 18.

Table 18

Results of MANOVA on the Effects of Race/Ethnicity on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	F	P Value	Partial Eta^2	Power
Roy's Largest Root	4	446	9.24	<.001	.077	1.00
Listening	2	448	12.72	<.001	.054	1.00
Reading	2	448	14.49	<.001	.061	1.00
Speaking	2	448	3.74	0.020	.016	0.683
Writing	2	448	10.27	<.001	.044	1.00

Table 19

Results of Individual ANOVA's on the Effects of Race/Ethnicity on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	P Value
Listening	2	450	192364.7	15066.7	12.77	.05	<.001
Reading	2	452	250524.7	17247.3	14.53	.06	<.001
Speaking	2	448	105469.9	28190.5	3.74	.02	0.024
Writing	2	450	137262.7	13306.50	10.32	.04	<.001

* Homogeneity of Variances violated, Welch F statistic used

The hypothesis that a significant difference exists on student performance on the OTELA subscales based on racial and/or ethnic groupings was supported by this finding. Post-hoc ANOVA analyses were then run for the predictor variable of Race/Ethnicity and each of the separate OTELA subscales, with findings represented in Table 19.

Listening Scale scores on the OTELA differed significantly across the three categories, ($F(2,450) = 12.77$ $p < .001$). Bonferroni post-hoc comparisons of the three groups indicate that Asian/Pacific Islanders had significantly

higher Listening Scale scores on the OTELA than both the Hispanic (p = .001) and Black Non-Hispanic (p < .001) groupings. Comparisons between the Hispanic and Black Non-Hispanic groups were not statistically significant at p < .05. The hypothesis that a significant difference exists on student performance on the OTELA Listening subscale based on racial and/or ethnic groupings was supported by this finding.

Reading Subscale scores on the OTELA differed significantly across the three categories, $F(2,452)=14.53$ p < .001. Bonferroni post-hoc comparisons of the three groups indicate that Asian/Pacific Islanders had significantly higher Reading Scale scores on the OTELA than both the Hispanic (p < .001) and Black Non-Hispanic (p < .001) groupings. Comparisons between the Hispanic and Black Non-Hispanic groups were not statistically significant at p < .05. The hypothesis that a significant difference exists on student performance on the OTELA Reading subscale based on racial and/or ethnic groupings was supported by this finding.

Speaking Scale scores on the OTELA differed significantly across the three categories, $F(2,448) = 3.74$ p = .024. Bonferroni post-hoc comparisons of the three groups indicate that Asian/Pacific Islanders had significantly higher Speaking Scale scores on the OTELA than the Black Non-Hispanic (p < .021) grouping, but no other group comparisons were statistically significant at p < .05. The hypothesis that a significant difference exists on student performance on the OTELA Speaking subscale based on racial and/or ethnic groupings was supported by this finding.

Writing Scale scores on the OTELA differed significantly across the three categories, $F(2,450) = 10.315$ p < .001. Bonferroni post-hoc comparisons of the three groups indicate that Asian/Pacific Islanders had significantly higher Writing Scale scores on the OTELA than both the Hispanic (p = .005) and Black

Non-Hispanic ($p < .001$) groupings. Comparisons between the Hispanic and Black Non-Hispanic groups were not statistically significant at $p < .05$. The hypothesis that a significant difference exists on student performance on the OTELA Writing subscale based on racial and/or ethnic groupings was supported by this finding.

1.2 The MANOVA statistic was used to examine differences in student performance on the four OTELA subscales and the predictor variable SES. The mean and standard deviation are presented for each of the subscales in Table 20.

Table 20

MANOVA Analysis Descriptive Statistics on SES and the OTELA Subscales of Listening, Reading, Speaking, and Writing

OTELA Subscales	SES	N	Mean	SD
Listening Scale Score	Full Price	208	579.0	130.6
	Free Lunch	261	625.3	119.2
	Total	469	604.8	126.4
Reading Scale Score	Full Price	208	503.2	132.6
	Free Lunch	261	547.3	136.4
	Total	469	527.8	136.4
Speaking Scale Score	Full Price	208	684.1	188.4
	Free Lunch	261	774.8	138.2
	Total	469	734.6	168.3
Writing Scale Score	Full Price	208	508.9	124.8
	Free Lunch	261	556.5	108.6
	Total	469	535.4	118.4

The two categories of SES are significantly different across all four subscales (Roy's largest root F (4,464) = 9.646 P<.001) as well as by the individual subscales, as shown in Table 21.

Table 21

Results of MANOVA on the Effects of SES on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	F	P Value	Partial Eta^2	Power
Roy's Largest Root	4	464	9.65	<.001	.077	1.000
Listening	1	467	16.01	<.001	.033	.979
Reading	1	467	12.41	<.001	.026	.940
Speaking	1	467	36.17	<.001	.072	1.000
Writing	1	467	19.40	<.001	.040	.993

Table 22

Results of Individual ANOVA's on the Effects of SES on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	P Value
Listening	1	469	246929.7	15412.2	16.02	.03	<.001
Reading	1	471	221210.8	18047.1	12.26	.03	0.001
Speaking *	1	369	953343.3	26539.5	33.78	.07	<.001
Writing	1	469	258841.4	13429.05	19.28	.04	<.001

* Homogeneity of Variances violated, Welch F statistic used

The hypothesis that a significant difference exists on student performance on the OTELA subscales based on SES was supported by this finding. Post-hoc ANOVA analyses were then run for the predictor variable of SES and each of the separate OTELA subscales, with findings represented in Tables 22.

Listening Scale scores on the OTELA differed significantly between the two categories, $F(1,469) = 16.02$ $p < .001$. The hypothesis that a significant

difference exists on student performance on the OTELA Listening subscale based on SES was supported by this finding.

Reading Scale scores on the OTELA differed significantly between the two categories, F (1,471) = 12.28 p = .001. The hypothesis that a significant difference exists on student performance on the OTELA Reading subscale based on SES was supported by this finding.

Speaking Scale scores on the OTELA differed significantly between the two categories, Welch F (1,368.56) = 33.78 p < .001. Homogeneity of Variances was violated based on the Levene statistic, so the Welch F statistic was used to adjust. The hypothesis that a significant difference exists on student performance on the OTELA Speaking subscale based on SES was supported by this finding.

Writing Scale scores on the OTELA differed significantly between the two categories, F (1,469) = 19.28 p < .001. The hypothesis that a significant difference exists on student performance on the OTELA Writing subscale based on SES was supported by this finding.

1.3 The MANOVA statistic was used to examine differences in student performance on the four OTELA subscales and the predictor variable Sex. The mean and standard deviation are presented for each subscale in Table 23. The two categories of Sex are not significantly different across all four subscales in combination (Roy's largest root F (4,465) = 1.032 P = .39) or by the individual subscales, as shown in Table 24. The hypothesis that a significant difference exists on student performance on the OTELA subscales based on Sex was not supported by this finding. Post-hoc ANOVA analyses were then run for the predictor variable of Sex and each of the separate OTELA subscales, with findings represented in Table 25.

Table 23

MANOVA Analysis Descriptive Statistics on Sex and the OTELA Subscales of Listening, Reading, Speaking, and Writing

OTELA Subscales	Sex	N	Mean	SD
Listening Scale Score	Male	244	609.8	118.1
	Female	226	599.8	134.7
	Total	470	605.0	126.3
Reading Scale Score	Male	244	522.2	135.8
	Female	226	535.0	137.8
	Total	470	528.3	136.8
Speaking Scale Score	Male	244	737.2	157.2
	Female	226	731.7	179.6
	Total	470	734.6	168.2
Writing Scale Score	Male	244	535.1	108.5
	Female	226	536.5	128.7
	Total	470	535.7	118.5

Table 24

Results of MANOVA on the Effects of Sex on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	F	P Value	Partial Eta^2	Power
Roy's Largest Root	4	465	1.03	0.390	.009	1.000
Listening	1	468	0.74	0.391	.002	.137
Reading	1	468	1.03	0.311	.002	.173
Speaking	1	468	0.13	0.721	.000	.065
Writing	1	468	0.017	0.898	.000	.052

Table 25

Results of Individual ANOVA's on the Effects of Sex on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	P Value
Listening	1	470	11623.2	15895.2	0.73	.00	0.390
Reading	1	472	18812.8	18589.3	1.01	.00	0.320
Speaking	1	468	3623.0	28332.6	0.13	.00	0.72
Writing *	1	441	200.9	14013.28	0.01	.00	0.91

* Homogeneity of Variances violated, Welch F statistic used

Listening Scale scores on the OTELA did not differ significantly across the two categories of sex, F (1,470) = .73, p = .393. The hypothesis that a significant difference exists on student performance on the OTELA Listening subscale based on Sex was not supported by this finding.

Reading Scale scores on the OTELA did not differ significantly across the two categories, F (1,472) = 1.01, p = .315. The hypothesis that a significant difference exists on student performance on the OTELA Reading subscale based on Sex was not supported by this finding

Speaking Subscale scores on the OTELA did not differ significantly across the two categories, F (1,468) = .13, p = .721. The hypothesis that a significant difference exists on student performance on the OTELA Speaking subscale based on Sex was not supported by this finding.

Writing Scale scores on the OTELA did not differ significantly across the two categories, Welch F (1,440.99) = .014, p = .905. Homogeneity of Variances was violated based on the Levene statistic, so the Welch F statistic was used to adjust. The hypothesis that a significant difference exists in student performance on the OTELA Writing subscale based on Sex was not supported by this finding.

1.4 The MANOVA statistic was used to examine differences in student performance on the four OTELA subscales and the predictor variable Home Language. The mean and standard deviation are presented for each subscale in Table 26.

Table 26

MANOVA Analysis Descriptive Statistics on Home Language and the OTELA Subscales of Listening, Reading, Speaking, and Writing

OTELA Subscales	Home Language	N	Mean	SD
Listening Scale Score	Spanish	193	606.1	125.4
	Asian/Pacific Islander	64	654.2	116.0
	Other	194	582.5	125.3
	Total	451	602.8	126.0
Reading Scale Score	Spanish	193	521.6	134.1
	Asian/Pacific Islander	64	586.1	134.2
	Other	194	508.6	128.3
	Total	451	525.2	133.8
Speaking Scale Score	Spanish	193	727.1	181.8
	Asian/Pacific Islander	64	777.6	125.7
	Other	194	720.4	166.9
	Total	451	731.4	169.2
Writing Scale Score	Spanish	193	536.1	105.1
	Asian/Pacific Islander	64	582.0	119.7
	Other	194	513.8	125.1
	Total	451	533.0	118.0

The three categories of Home Language are significantly different across all four subscales (Roys largest root F (4,446) = 5.98 P<.001) as well as by three of the four individual subscales, as shown in Table 27. The hypothesis that a significant difference exists on student performance on the OTELA subscales based on Home Language was supported by this finding. Post-hoc ANOVA

analyses were then run for the predictor variable of Home Language and each of the separate OTELA subscales, with findings represented in Table 28.

Table 27

Results of MANOVA on the Effects of Home Language on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

Predictor Variables	Df Between	Df Within	F	P Value	Partial Eta^2	Power
Roy's Largest Root	4	446	5.98	<.001	.110	1.000
Listening	2	448	8.16	<.001	.054	.999
Reading	2	448	8.46	<.001	.051	.999
Speaking	2	448	2.88	0.057	.083	1.000
Writing	2	448	8.43	<.001	.082	1.000

Table 28

Results of Individual ANOVA's on the Effects of Home Language on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	P Value
Listening	2	448	125650.5	15396.0	8.16	.04	<.001
Reading	2	448	146589.3	17334.3	8.46	.04	<.001
Speaking	2	448	81867.9	28384.0	2.88	.01	0.06
Writing	2	448	113746.0	13485.96	8.43	.04	<.001

* Homogeneity of Variances violated, Welch F statistic used

Listening Scale scores on the OTELA differed significantly across the three categories, $F(2,448) = 8.16$ $p < .001$. Bonferroni post-hoc comparisons of the three groups indicate that students whose home languages fell in the Asian/Pacific Islander category had significantly higher Listening Scale scores

on the OTELA than those in the Spanish ($p = .022$) and All Other ($p < .001$) groupings. Comparisons between the Spanish and All Other groups were not statistically significant at $p < .05$. The hypothesis that a significant difference exists on student performance on the OTELA Listening subscale based on Home Language was supported by this finding.

Reading Scale scores on the OTELA differed significantly across the three categories, $F(2,448) = 8.46$ $p < .001$. Bonferroni post-hoc comparisons of the data indicate that students whose home languages fell in the Asian/Pacific Islander category had significantly higher Reading Scale scores on the OTELA than those in the Spanish ($p = .002$) and All Other ($p < .001$) groupings. Comparisons between the Spanish and All Other groups were not statistically significant at $p < .05$. The hypothesis that a significant difference exists on student performance on the OTELA Reading subscale based on Home Language was supported by this finding.

Speaking Scale scores on the OTELA did not differ significantly across the three categories, $F(2, 448) = 2.88$ $p = .06$. The hypothesis that a significant difference exists on student performance on the OTELA Speaking subscale based on Home Language was not supported by this finding.

Writing Scale scores on the OTELA differed significantly across the three categories, $F(2,448) = 8.43$ $p < .001$. Bonferroni post-hoc comparisons groups indicated that students whose home languages fell in the Asian/Pacific Islander category had significantly higher Writing Scale scores on the OTELA than those in the Spanish ($p = .019$) and All Other ($p < .001$) groupings. Comparisons between the Spanish and All Other groups were not statistically significant at $p < .05$. The hypothesis that a significant difference exists on student performance on the OTELA Writing subscale based on Home Language was supported by this finding.

1.5 The MANOVA statistic was used to examine differences in student performance on the four OTELA subscales and the predictor variable Country of Birth. The mean and standard deviation are presented for each subscale in Table 29. The two categories of Birth Country are significantly different across all four subscales (Roys largest root F (4,465) = 14.305 P<.001) as well as by the individual subscales, as shown in Table 30.

Table 29

MANOVA Analysis Descriptive Statistics on Country of Birth and the OTELA Subscales of Listening, Reading, Speaking, and Writing

OTELA Subscales	Country of Birth	N	Mean	SD
Listening Scale Score	Not USA	241	576.4	133.7
	USA	229	635.1	110.5
	Total	470	605.0	126.3
Reading Scale Score	Not USA	241	498.4	128.9
	USA	229	559.9	138.1
	Total	470	528.3	136.8
Speaking Scale Score	Not USA	241	687.4	184.1
	USA	229	784.2	132.9
	Total	470	734.6	168.2
Writing Scale Score	Not USA	241	502.7	116.8
	USA	229	570.5	110.3
	Total	470	535.7	118.5

The hypothesis that a significant difference exists on student performance on the OTELA subscales based on Birth Country was supported by this finding. Post-hoc ANOVA analyses were then run for the predictor variable of Birth

Country and each of the separate OTELA subscales, with findings represented in Table 31.

Table 30

Results of MANOVA on the Effects of Birth Country on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

Predictor Variables	Df Between	Df Within	F	P Value	Partial Eta^2	Power
Roy's Largest Root	4	465	14.31	<.001	.110	1.000
Listening	1	468	26.79	<.001	.054	.999
Reading	1	468	24.954	<.001	.051	.999
Speaking	1	468	42.391	<.001	.083	1.000
Writing	1	468	41.784	<.001	.082	1.000

Table 31

Results of Individual ANOVA's on the Effects of Birth Country on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	P Value
Listening *	1	460	402628.4	15063.2	26.95	.05	<.001
Reading	1	472	451979.1	17671.6	25.58	.06	<.001
Speaking *	1	437	1101594.4	25986.5	43.08	.13	<.001
Writing	1	470	539084.3	12866.72	41.90	.08	<.001

* Homogeneity of Variances violated, Welch F statistic used

Listening Scale scores on the OTELA differed significantly between the two categories, Welch F (1,459.68) = 29.95 $p < .001$. The assumption of Homogeneity of Variances was violated based on the Levene statistic, so the Welch F statistic was used to adjust. The hypothesis that a significant difference

exists on student performance on the OTELA Listening subscale based on Birth Country was supported by this finding.

Reading Scale scores on the OTELA differed significantly between the two categories, $F(1,472) = 25.58$ $p < .001$. The hypothesis that a significant difference exists on student performance on the OTELA Reading subscale based on Birth Country was supported by this finding.

Speaking Scale scores on the OTELA differed significantly between the two categories, Welch $F(1,436.95) = 43.08$ $p < .001$. The assumption of Homogeneity of Variances was violated based on the Levene statistic, therefore the Welch F statistic was used to adjust. The hypothesis that a significant difference exists on student performance on the OTELA Speaking subscale based on Birth Country was supported by this finding.

Writing Scale scores on the OTELA differed significantly between the two categories, $F(1,470) = 41.898$ $p < .001$. The hypothesis that a significant difference exists on student performance on the OTELA Writing subscale based on Birth Country was supported by this finding.

1.6 The MANOVA statistic was used to examine differences in student performance on the four OTELA subscales and the predictor variable Time in the USA. The mean and standard deviation are presented for each subscale in Table 32.

Table 32

MANOVA Analysis Descriptive Statistics on Time in USA and the OTELA Subscales of Listening, Reading, Speaking, and Writing

OTELA Subscales	Time in USA	N	Mean	SD
Listening Scale Score	<3 yrs	154	542.3	128.1
	>3yrs	297	634.1	113.0
	Total	451	602.8	126.0
Reading Scale Score	<3 yrs	154	474.0	117.8
	>3yrs	297	551.7	134.1
	Total	451	525.2	133.8
Speaking Scale Score	<3 yrs	154	629.8	185.6
	>3yrs	297	784.1	132.5
	Total	451	731.4	169.2
Writing Scale Score	<3 yrs	154	479.9	119.8
	>3yrs	297	560.6	107.4
	Total	451	533.0	118.0

The two categories of Time in the USA are significantly different across all four subscales (Roys largest root F (4,446) = 29.32 P<.001) as well as by the individual subscales, as shown in Table 33. The hypothesis that a significant difference exists on student performance on the OTELA subscales based on Time in the USA was supported by this finding. Post-hoc ANOVA analyses were then run for the predictor variable of Time in the USA and each of the separate OTELA subscales, with findings represented in Table 34.

Table 33

Results of MANOVA on the Effects of Time in USA on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

Predictor Variables	Df Between	Df Within	F	P Value	Partial Eta^2	Power
Roy's Largest Root	4	446	29.32	<.001	.208	1.000
Listening	1	449	61.02	<.001	.120	1.000
Reading	1	449	36.89	<.001	.076	1.000
Speaking	1	449	103.56	<.001	.187	1.000
Writing	1	449	52.8	<.001	.105	1.000

Table 34

Results of Individual ANOVA's on the Effects of Time in USA on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

	Df Between	Df Within	Mean Squares Between	Mean Squares Within	F	Eta^2	P Value
Listening	1	449	855315.5	14016.5	61.02	.12	<.001
Reading *	1	347	611903.5	16585.9	40.06	.08	<.001
Speaking *	1	236	2413871.5	23309.3	84.19	.19	<.001
Writing	1	449	659640.9	12493.45	52.80	.11	<.001

* Homogeneity of Variances violated, Welch F statistic used

Listening Scale scores on the OTELA differed significantly across the two categories, $F(1,449) = 61.022$, $p < .001$. The hypothesis that a significant difference exists on student performance on the OTELA Listening subscale based on length of residency in the USA was supported by this finding.

Reading Scale scores on the OTELA differed significantly across the two categories, Welch $F(3,346.91) = 40.06$ $p < .001$. The assumption of Homogeneity

of Variances was violated based on the Levene statistic, so the Welch F statistic was used to adjust. The hypothesis that a significant difference exists on student performance on the OTELA Reading subscale based on length of residency in the USA was supported by this finding.

Speaking Scale scores on the OTELA differed significantly across the two categories, Welch F (1, 236.06) = 84.19 $p < .001$. The assumption of Homogeneity of Variances was violated based on the Levene statistic, so the Welch F statistic was used to adjust. The hypothesis that a significant difference exists on student performance on the OTELA Speaking subscale based on length of residency in the USA was supported by this finding.

Writing Scale scores on the OTELA differed significantly across the two categories, F (1,449) = 52.8 $p < .001$. The hypothesis that a significant difference exists on student performance on the OTELA Writing subscale based on length of residency in the USA was supported by this finding.

Results of the Linear Regression analyses of Predictor Variables 1.7 & 1.8 and the individual Subscales of the OTELA. The descriptive statistics for predictor variables 1.7 and 1.8 and the individual subscales of the OTELA are presented in Table 35, while the results of the linear regression analyses for predictor variables 1.7 and 1.8 and student performance on the subscales of the OTELA are summarized in Table 36:

Table 35

Linear Regressions Descriptive Statistics on Predictor Variables 1.7 and 1.8 and the OTELA Subscales of Listening, Reading, Speaking, and Writing

OTELA Subscales	Predictor Variable	N	Mean	SD	Range
Listening		472	604.9	126.0	162 to 914
	Months in District	472	32.1	15.6	0 to 81
	School Mobility	472	0.73	1.0	0 to 6
Reading		474	528.7	136.3	150 to 904
	Months in District	474	32.2	15.5	0 to 81
	School Mobility	474	0.73	0.9	0 to 6
Speaking		470	734.6	168.2	205 to 934
	Months in District	470	32.1	15.6	0 to 81
	School Mobility	470	0.73	0.9	0 to 6
Writing		472	535.8	118.3	198 to 924
	Months in District	472	32.1	15.6	0 to 81
	School Mobility	474	0.73	0.9	0 to 6

Table 36

Results of Linear Regression's on the Effects of Predictor Variables on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

OTELA Scale	Predictor Variable	R^2	R^2_{Adj}	F	B	SE B	b	p
Listening	Time in District	0.10	0.10	54.05	2.6	0.35	0.32	<.001
	School Changes	0.01	0.00	2.5	-9.7	6.13	-0.07	0.115
Reading	Time in District	0.08	0.08	39.26	2.4	0.39	0.28	<.001
	School Changes	0.00	0.00	0.96	-6.5	6.65	-0.05	0.329
Speaking	Time in District	0.16	0.16	88.51	4.3	0.46	0.4	<.001
	School Changes	0.01	0.00	2.87	13.9	8.16	0.08	0.091
Writing	Time in District	0.12	0.12	65.15	2.7	0.33	0.35	<.001
	School Changes	0.00	0.00	1.1	-6.0	5.76	-0.05	0.295

1.7 Is there a difference in student performance between students who have attended the cooperating district for 0-80 months on the OTELA?

The results of the linear regression analyses for predictor variable #1.7 and student performance on the subscales of the OTELA are presented below, and are summarized in Table 36:

1) A regression analysis was conducted, where scores on the Listening scale of the OTELA were regressed against the number of months each student had been enrolled in the participating district. The results were statistically significant (R^2_{Adj} = .10, F[1,470] = 54.05, p <.001), indicating that Months In District significantly predicted the Listening scale score (Unstandardized beta =2.602, SE=.354 Standardized Beta =.32, p < .001). In testing our assumptions, our predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1 (Cohen, 2001) and no violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between Months in District and Listening Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student performance on the OTELA Listening subscale based on length of district enrollment was supported by this finding.

2) A regression analysis was conducted, where scores on the Reading scale of the OTELA were regressed against the number of months each student had been enrolled in the participating district. The results were statistically significant (R^2_{Adj} = .08, F[1,472] = 39.26, p <.001), indicating that Months In District significantly predicted the Reading scale score (Unstandardized beta =2.431, SE=.388 Standardized Beta =.28, p < .001). In testing our assumptions, our predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1. No violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between Months in District and Reading Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student

performance on the OTELA Reading subscale based on length of district enrollment was supported by this finding.

3) A regression analysis was conducted, where scores on the Speaking scale of the OTELA were regressed against the number of months each student had been enrolled in the participating district. The results were statistically significant (R^2_{Adj} = .16, F[1,468] = 88.51, p <.001), indicating that Months In District significantly predicted the Speaking scale score (Unstandardized beta =4.307, SE=.458 Standardized Beta =.4, p < .001). In testing our assumptions, our predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1. No violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between Months in District and Speaking Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student performance on the OTELA Speaking subscale based on length of district enrollment was supported by this finding.

4) A regression analysis was conducted, where scores on the Writing scale of the OTELA were regressed against the number of months each student had been enrolled in the participating district. The results were statistically significant (R^2_{Adj} = .12, F[1,470] = 65.15, p <.001), indicating that Months In District significantly predicted the Writing scale score (Unstandardized beta =2.653, SE=.329 Standardized Beta =.35, p < .001). In testing our assumptions, our predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1. No violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between Months in District and Writing Score was linear in nature. Residuals (error variance) are normally

distributed. The hypothesis that a significant difference exists on student performance on the OTELA Writing subscale based on length of district enrollment was supported by this finding.

1.8 Is there a difference in student performance between students who have changed districts from 0-6 times on the OTELA?

The results of the linear regression analyses for predictor variable 1.8 and student performance on the subscales of the OTELA are presented below, and are summarized in Table 36:

1) A regression analysis was conducted, in which scores on the Listening scale of the OTELA were regressed against the number of school changes reported for each student. The results were not statistically significant (R^2_{Adj} = .00, F[1,470] = 2.5, p <.115), indicating that the number of school changes did not significantly predict the Listening scale score (Unstandardized beta =9.696, SE=6.134 Standardized Beta =.07, p = .115). In testing our assumptions, our predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1. No violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between school changes and Listening Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student performance on the OTELA Listening subscale based on Student Mobility was not supported by this finding.

2) A regression analysis was conducted, in which scores on the Reading scale of the OTELA were regressed against the number of school changes reported for each student. The results were not statistically significant (R^2_{Adj} = .00, F[1,472] = .96, p =.33), indicating that the number of school changes did not significantly predict the Reading scale score (Unstandardized beta =6.499,

SE=6.646 Standardized Beta =.05, p = .329). In testing our assumptions, our predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1. No violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between school changes and Reading Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student performance on the OTELA Reading subscale based on Student Mobility was not supported by this finding.

3) A regression analysis was conducted, where scores on the Speaking scale of the OTELA were regressed on the number of school changes reported for each student. The results were not statistically significant (R^2_{Adj} = .00, F[1,468] = 2.87, p =.09), indicating that the number of school changes did not significantly predict the Speaking scale score (Unstandardized beta =13.865, SE=8.163 Standardized Beta =.08, p = .091). In testing our assumptions, our predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1. No violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between school changes and Speaking Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student performance on the OTELA Speaking subscale based on Student Mobility was not supported by this finding.

4) A regression analysis was conducted, in which the scores on the Writing scale of the OTELA were regressed against the number of school changes reported for each student. The results were not statistically significant (R^2_{Adj} = .00, F[1,470] = 1.1, p <.295), indicating that the number of school changes did not

significantly predict the Writing scale score (Unstandardized beta =6.037, SE=5.764 Standardized Beta =.05, p = .295). In testing our assumptions, our predictor and dependent variables had sufficient variance. In testing for the violation of influential cases, it was found that there are no influential cases as Cooks D <1. No violation of homogeneity of variance based on scatter plot. Based on the scatterplot the relationship between school changes and Writing Score was linear in nature. Residuals (error variance) are normally distributed. The hypothesis that a significant difference exists on student performance on the OTELA Writing subscale based on Student Mobility was not supported by this finding.

Research Question #2

From among the predictor variables identified, what is/are the best predictor(s) of student performance on the OTELA subscales and Composite score? Research Question #2 was addressed through the use of two separate Exploratory Path Analyses; one with the OTELA composite score as the outcome variable, and one with the four OTELA subscales as the outcome variables. As stated in Chapter 3, Path Analysis can be thought of as a series of regressions that, in this case, allow for an examination of structural models relating to variables impacting English language acquisition as measured by the OTELA. Each model can then be "tested statistically in a simultaneous analysis of the entire system of variables to determine the extent to which it is consistent with the data. If goodness-of-fit is adequate, the model argues for the plausibility of postulated relations among variables." (Byrne, 2010, p.3)

As with any type of statistical procedure, it is imperative that it is first established that the relevant assumptions for the valid and appropriate use of that procedure are met. Following that, the process by which a researcher actually arrives at the final model for an individual study can

vary, though there appears to be general agreement that best practice requires "(a) a thorough knowledge of the substantive theory, (b) an adequate assessment of statistical criteria based on information pooled from various indices of fit, and (c) a watchful eye on parsimony" (Byrne, 2010, p.193).

The statistical assumptions for Path Analysis include data normality and equality of variances, which had been largely addressed for the analyses conducted for Question #1 earlier in this chapter. The two new dummy variables that were created from the Home Language variable, as described in the Complications section of this chapter, were not a part of the Question #1 analyses so they must be addressed separately. In testing the statistic assumptions, dichotomous variables are not normally distributed by definition, but researchers will use dichotomies for statistical analyses requiring normality as long as each of the categories within the variable is well represented in the distribution of responses, with a rule of thumb being a split of no more than 90:10 (Garson, 2012). The distribution for both the Spanish and Other Language dummy variables fell well within those parameters. Individual ANOVA analyses were run for each of the dummy variables and each of the OTELA scores (i.e., Listening, Reading, Speaking, Writing, and Composite), with no violations of homogeneity of variance indicated based on the Levene statistic.

To meet the remaining statistical assumptions of data type and independence required several changes to be made to the dataset prior to running the Path Analyses, as described in the Complications section in this chapter. In order to meet the statistic assumptions related to data type, the Home Language predictor variable was recoded into two dummy variables of Spanish and Other Language, with Asian/Pacific Islander set as the reference group for both dummy variables. The Race/Ethnicity predictor variable was

determined to be highly collinear with the Home Language predictor variable, with fully 99.5% of Hispanic subjects speaking Spanish, 98.4% of Asian/Pacific Islander subjects speaking an Asian/Pacific Islander language, and 98.8% of Black, non-Hispanic subjects falling in the All Other Languages category (which consists almost entirely of African languages and dialects). It was determined that only one of these predictor variables, therefore, should be used for the Path Analysis. Given that the primary focus of this study is language acquisition, the Home Language predictor variable was selected. Similarly, the predictor variables of Birth Country and Time in the USA were also highly collinear, with nearly half of all subjects being born in the USA and consequently falling within the Greater than Three Years categorization, while the clear majority of the Not Born in the USA subjects fell in the Three Years or Less categorization. It was determined that only one of these predictors would be used for the path analysis, and Time in the USA was selected.

As stated earlier, path models must be built from a thorough understanding of relevant theory, and all results from subsequent analyses must be considered in the context of theory (Kline, 2011; Lomax, 2010). The predictor variables for the Path Analyses conducted for this study were now defined as Time in the USA, Sex, Spanish language as compared to Asian/Pacific Islander, Other Language as compared to Asian/Pacific Islander, SES, Time in District, and School Mobility. The rationale for the inclusion of these variables in this study was based on a review of the relevant literature and theory in the field and was reported in detail in Chapter 2 of this document. While theory was not supported for some variables for the earlier analyses conducted for Question #1, all were included for Question #2 in accordance with the original literature review.

For these analyses, the predictor variables were arranged in temporal sequence, with the core personal attributes that are present at birth placed on the left side of the diagram, the school based predictors of Time in District and School Mobility in the center as they are next temporally, and finally the endogenous variable(s) on the right. All model adjustments were explicitly documented, and every variable was addressed in the Results and Discussion chapters of this document whether or not it remained in the final model of an analysis. For example, the predictor variable of SES is strongly supported by the literature as relating to numerous educational outcomes (ETS, 2002; Gonzalez, 2001; Ortiz & Flanagan, 2002; Terwilliger & Magnuson, (2005); USDOE, 2003). As will be seen, however, theory was not supported in the case of SES and the analyses conducted for this study. This finding will be discussed in Chapter 5 in relation to relevant theory and previous research, a closer examination of the raw data used for this study, and results from the earlier analyses conducted for Question #1.

A cross-section of fit indices was generated for each path model reported, including the Chi Square statistic, the Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA). Accepted guidelines for the CFI and TLI indicators typically indicate that 0.90 or greater is acceptable, greater than 0.95 is excellent, while accepted guidelines for the RMSEA typically indicate that 0.08 or less is acceptable, and less than 0.05 is excellent (Byrne, 2010). Fit indices were generated and reported at every step of the analysis.

It is generally agreed by writers in the field that a more parsimonious model is desirable as long as attention to theory is maintained and model trimming is systematic and conservative in approach (Arbuckle, 2010; Kline, 2011; Lomax, 2010). The initial Path Analysis model (Figure 2) was the "Just-

Identified" or saturated model, meaning that all possible connections are made and the model therefore had zero degrees of freedom. The initial calculations were run and are represented in Table 37, though no Goodness of Fit indices can be generated for the initial saturated model. Estimates of regression paths and covariances were available.

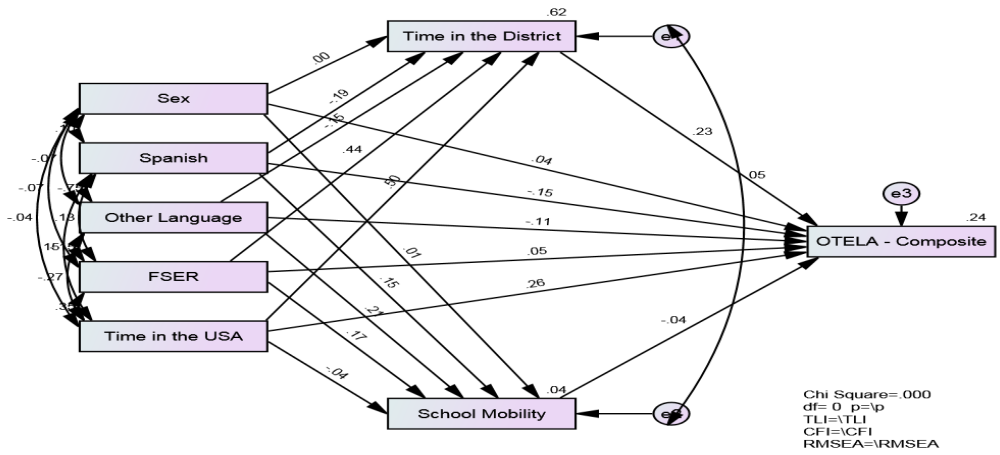

Figure 2. Initial model (standardized results) – Composite OTELA score.

As stated in Byrne (2010), "another side to the question of fit, particularly as it pertains to a full model, is the extent to which certain initially hypothesized paths may be irrelevant to the model as evidenced from their statistical nonsignificance" (p.183-185). In the interest of parsimony, then, nonsignificant regression paths or covariances were removed from the model, one at a time, until only significant values remained. Due to the restructuring of the Home Language predictor, neither the Spanish nor the Other Language regression paths or covariances could be removed from the model unless both were non-significant, at which point they could both be removed simultaneously. This was the only instance where more than a single path could be removed from the model. It should be noted that path inclusion or exclusion

is discussed in more detail in Chapter 5, with consideration of raw data, theory, and results of previous analyses as appropriate.

The regression path from Sex to Time in District was the first to be removed, with the resulting model generating the first Goodness of Fit indicators. This early model did generate excellent values for a cross-section of statistical fit indices,as can be seen from Table 25, generating a TLI of 1.027, CFI of 1.000, and a RMSEA of 0.000. As stated in Byrne (2010), "the SEM researcher must walk a fine line between incorporating a sufficient number of parameters to yield a model that adequately represents the data, and falling prey to the temptation of incorporating too many parameters in a zealous attempt to attain the best-fitting model statistically. Two major problems with the latter tack are that (a) the model can comprise parameters that actually contribute only trivially to its structure, and (b) the more parameters there are in a model the more difficult it is to replicate its structure should future validation research be conducted" (p.192-193). To that end, the goal of this researcher was to generate the most parsimonious final models that maintained excellent fit indices values, made sense logically, and supported the theory that was used to construct the model (Arbuckle, 2010; Kline, 2011; Lomax, 2010). Additional changes to the model were made, as documented in Table 37, and the entire model was reanalyzed at each step. The final model (figure 3) had all non-significant regression paths and covariances removed, representing a more parsimonious model, and continued to generate excellent fit indicators as represented by a TLI of 1.007, CFI of 1.000, and a RMSEA of 0.000.

Table 37

Results of Structural Equation Modeling (Path Analysis) on the Impact of Predictor Variables on the Composite scale of the OTELA

Model	Chi Square	Df	P Value	TLI	CFI	RMSEA
Initial Model	0.000	0	\p	\TLI	\CFI	\RMSEA
Remove Sex -> Time in District	0.007	1	.933	1.027	1.000	0.000
Remove Sex -> School Mobility	0.106	2	.949	1.026	1.000	0.000
Remove Time in the USA -> School Mobility	0.623	3	.891	1.021	1.000	0.000
Remove Sex <--> Time in USA	1.215	4	.876	1.019	1.000	0.000
Remove School Mobility -> OTELA Composite	2.072	5	.839	1.016	1.000	0.000
Remove SES -> OTELA Composite	2.924	6	.818	1.014	1.000	0.000
Remove School Mobility <-> Time in District	3.841	7	.798	1.012	1.000	0.000
Remove Sex -> OTELA Composite	4.870	8	.771	1.011	1.000	0.000
Remove Sex <--> SES	6.616	9	.677	1.007	1.000	0.000

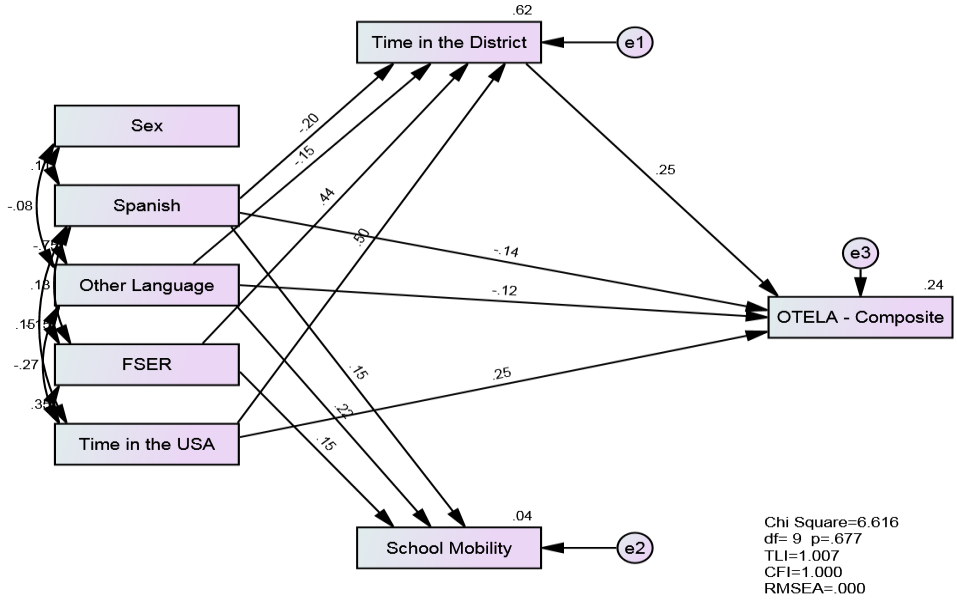

Figure 3. - Final model (standardized results) – Composite OTELA score.

For the final model, as illustrated in Table 38, the OTELA composite score was significantly predicted by the predictor variables of Time in District, Time in the USA, Spanish language as compared to Asian/Pacific Islander and Other Language as compared to Asian/Pacific Islander. The OTELA Composite score was not significantly predicted by the variables of Sex, SES, or School Mobility. The school related variable of Time in District was significantly predicted by Time in the USA, SES, Spanish language as compared to Asian/Pacific Islander and Other Language as compared to Asian/Pacific Islander, but not by the variable of Sex. The school related variable of School Mobility was significantly predicted by SES, Spanish language as compared to Asian/Pacific Islander and Other Language as compared to Asian/Pacific Islander, but not by the variables of Sex or Time in the USA. It should also be noted that the OTELA composite score was indirectly predicted by the predictor variables of Spanish language as compared to Asian/Pacific

Islander, Other Language as compared to Asian/Pacific Islander, SES, and Time in the USA through their connection to Time in the District.

Table 38

Regression Paths for Predictors and Composite score of the OTELA – Final Model

			Unstandardized Beta	S.E.	Standardized Beta	P Value
OTELA Composite Score	<---	Spanish	-31.511	14.072	-.142	.025
OTELA Composite Score	<---	Other Language	-26.335	14.420	-.118	.068
OTELA Composite Score	<---	Time in USA	59.126	13.064	.254	***
OTELA Composite Score	<---	Months in district	1.815	.398	.254	***
School Mobility	<---	SES	.282	.086	.153	.001
School Mobility	<---	Spanish	.284	.130	.153	.029
School Mobility	<---	Other Language	.402	.130	.217	.002
Time in District	<---	Spanish	-6.094	1.380	-.195	***
Time in District	<---	Other Language	-4.547	1.414	-.146	.001
Time in District	<---	SES	13.552	.967	.436	***
Time in District	<---	Time in USA	16.401	1.044	.503	***

	R^2
Time in District	0.621
OTELA Composite	0.239
School Mobility	0.40

As represented in Table 39, Spanish language as compared to Asian/Pacific Islander demonstrated significant correlations with the variables Sex, SES, Time in USA, and Other Language as compared to Asian/Pacific Islander. Other Language as compared to Asian/Pacific Islander also demonstrated significant

correlations with the variables Sex and Time in USA, and SES demonstrated significant correlations with Other Language as compared to Asian/Pacific Islander and Time in USA.

Table 39

Covariance for Predictors and Composite score of the OTELA – Final Model

		Unstandardized Covariance	S.E.	Standardized Correlation	P
Spanish	<--> Sex	.027	.012	.108	.021
Spanish	<--> Time in USA	.036	.011	.154	.001
Spanish	<--> SES	.033	.012	.134	.005
Spanish	<--> Other Language	-.185	.014	-.752	***
Other Language	<--> Sex	-.020	.011	-.082	.070
Other Language	<--> Time in USA	-.064	.011	-.274	***
SES	<--> Other Language	-.038	.012	-.155	.001
SES	<--> Time in USA	.083	.012	.352	***

For the second analysis, the four OTELA subscales replaced the composite OTELA score as the outcome variables. The final model of the first analysis was used as the starting point for the initial model (e.g., the model for predictors of Time in the District and School Mobility), with new connections made to all four subscales (figure 4). This initial model, then, is not saturated and generated fit indices of a TLI of 1.012, CFI of 1.000, and a RMSEA of 0.000 (Table 40).

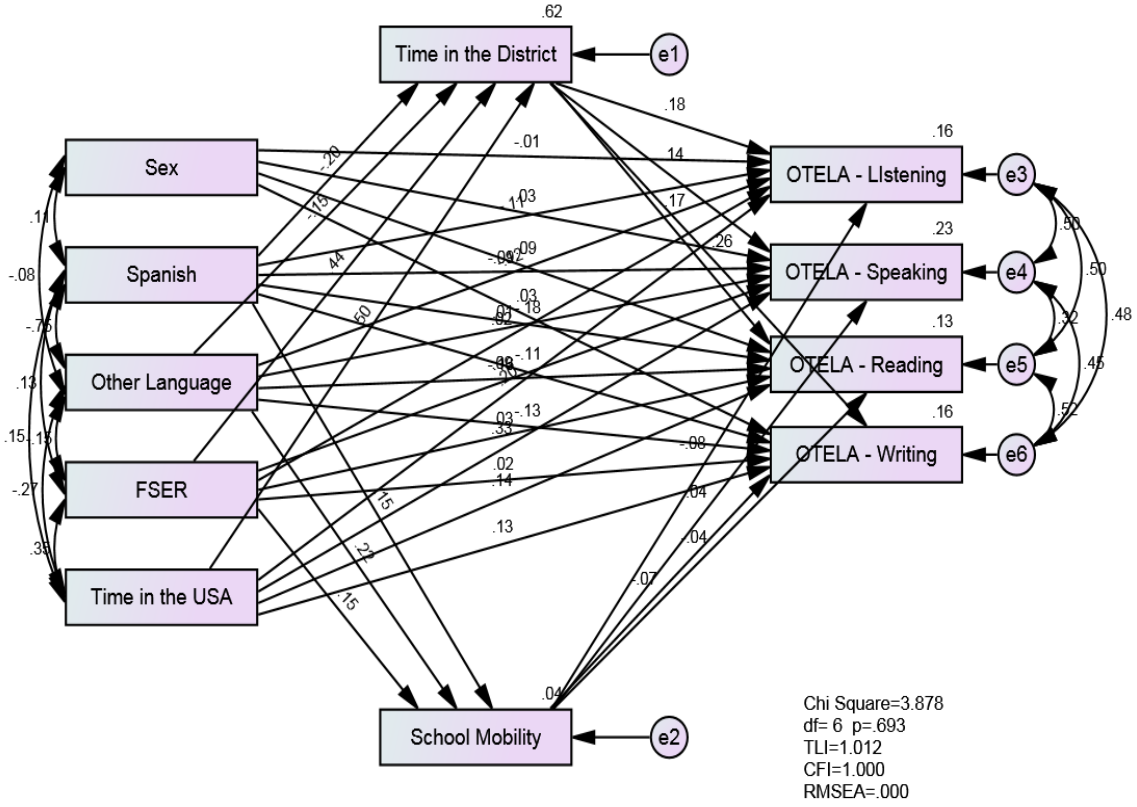

Figure 4. - Initial model (standardized results)– OTELA subscale scores.

As with the first analysis, non-significant regression paths or covariances were removed from the model, one at a time, until only significant values remained (with the possible exception of the Home Language predictor variables). As can be seen from Table 40, the values for the final model of the second analysis (figure 5) include a TLI of 1.004, CFI of 1.000, and a RMSEA of 0.000.

Table 40

Results of Structural Equation Modeling (Path Analysis) on the Impact of Predictor Variables on the Four OTELA Subscale Scores of Listening, Reading, Speaking, and Writing

Model	Chi Square	Df	P Value	TLI	CFI	RMSEA
Initial Model	3.878	6	0.693	1.012	1.000	0.000
Remove Spanish & Other Language -> OTELA Speaking	8.441	8	0.392	0.998	1.000	0.011
Remove SES -> OTELA Writing	8.465	9	.488	1.002	1.000	0.000
Remove SES -> OTELA Listening	8.509	10	.579	1.005	1.000	0.000
Remove Sex <--> OTELA Listening	8.610	11	.658	1.007	1.000	0.000
Remove SES -> OTELA Reading	8.749	12	.724	1.009	1.000	0.000
Remove Sex -> OTELA Speaking	9.282	13	.751	1.009	1.000	0.000
Remove Sex -> OTELA Writing	9.854	14	.773	1.010	1.000	0.000
Remove School Mobility -> OTELA Reading	10.728	15	.772	1.009	1.000	0.000
Remove School Mobility -> OTELA Writing	12.143	16	.734	1.008	1.000	0.000
Remove School Mobility -> OTELA Listening	13.853	17	.677	1.006	1.000	0.000
Remove SES -> OTELA Speaking	15.748	18	.610	1.004	1.000	0.000

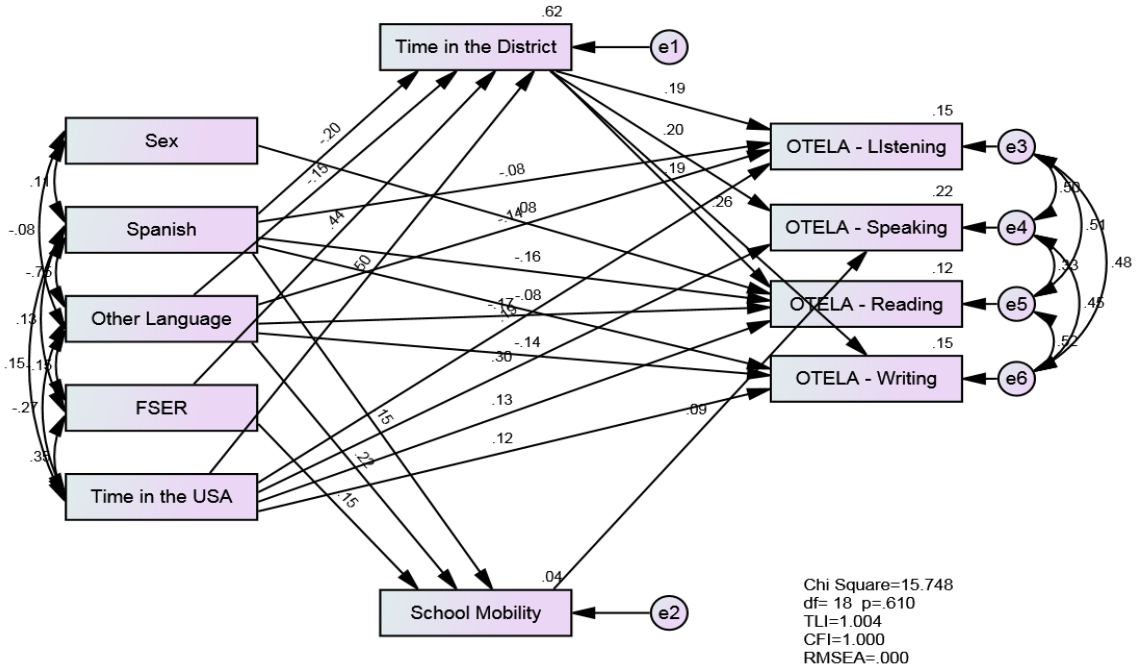

Figure 5. - Final model (standardized results) – OTELA subscale scores.

As can be seen in Table 41, performance on the OTELA Listening scale was significantly predicted by the variables of Time in District, Time in the USA, Spanish language as compared to Asian/Pacific Islander, and Other Language as compared to Asian/Pacific Islander, but not by Sex, SES, or School Mobility. For the OTELA Speaking scale, performance was significantly predicted by the variables of Time in District, Time in the USA, and School Mobility, but not by Sex, SES, Spanish language as compared to Asian/Pacific Islander, or Other Language as compared to Asian/Pacific Islander. For the OTELA Reading scale, performance was significantly predicted by the variables of Time in District, Time in the USA, Sex, Spanish language as compared to Asian/Pacific Islander, and Other Language as compared to Asian/Pacific Islander, but not by SES or

School Mobility. For the OTELA Writing scale, performance was significantly predicted by the variables of Time in District, Time in the USA, Spanish language as compared to Asian/Pacific Islander, and Other Language as compared to Asian/Pacific Islander, but not by Sex, SES, or School Mobility. It should also be noted that all four OTELA subscales were indirectly predicted by the predictor variables of Spanish language as compared to Asian/Pacific Islander, Other Language as compared to Asian/Pacific Islander, SES, and Time in the USA through their connection to Time in the District. The OTELA Speaking subscale was also indirectly predicted by Spanish language as compared to Asian/Pacific Islander, Other Language as compared to Asian/Pacific Islander, and SES through their connection to School Mobility.

Table 41

Regression Paths for Predictors and Four OTELA Subscale scores of Listening, Reading, Speaking, and Writing – Final Model

			Unstandardized Beta	S.E.	Standardized Beta	P Value
OTELA Listening Score	<---	Spanish	-20.057	14.764	-.079	.174
OTELA Listening Score	<---	Other Language	-35.220	15.142	-.139	.020
OTELA Listening Score	<---	Time in USA	51.431	15.712	.194	.001
OTELA Listening Score	<---	Months in district	1.545	.479	.189	.001
OTELA Speaking Score	<---	Time in USA	107.812	20.005	.301	***
OTELA Speaking Score	<---	School Mobility	17.543	6.442	.095	.006
OTELA Speaking Score	<---	Months in district	2.158	.615	.196	***
OTELA Reading Score	<---	Sex	20.586	9.555	.077	.031

			Unstandardized Beta	S.E.	Standardized Beta	P Value
OTELA Reading Score	<---	Spanish	-42.684	17.375	-.158	.014
OTELA Reading Score	<---	Other Language	-45.303	17.781	-.168	.011
OTELA Reading Score	<---	Time in USA	37.024	17.006	.131	.029
OTELA Reading Score	<---	Months in district	1.624	.518	.188	.002
OTELA Writing Score	<---	Spanish	-18.497	14.164	-.078	.192
OTELA Writing Score	<---	Other Language	-33.708	14.524	-.142	.020
OTELA Writing Score	<---	Time in USA	30.986	14.687	.124	.035
OTELA Writing Score	<---	Months in district	1.979	.448	.259	***
School Mobility	<---	SES	.282	.086	.153	.001
School Mobility	<---	Spanish	.284	.130	.153	.029
School Mobility	<---	Other Language	.402	.130	.217	.002
Months in district	<---	Spanish	-6.094	1.380	-.195	***
Months in district	<---	Other Language	-4.547	1.414	-.146	.001
Months in district	<---	SES	13.552	.967	.436	***
Months in district	<---	Time in USA	16.401	1.044	.503	***

	R^2
Time in District	0.621
School Mobility	0.40
OTELA Listening	0.150
OTELA Speaking	0.220
OTELA Reading	0.119
OTELA Writing	0.155

As represented in Table 42, Spanish language as compared to Asian/Pacific Islander demonstrated significant correlations with the variables Sex, Other Language as compared to Asian/Pacific Islander, SES, and Time in USA. SES demonstrated significant correlations with Other Language as compared to Asian/Pacific Islander and Time in USA, while Other Language as compared to Asian/Pacific Islander demonstrated significant correlations with the variables Sex and Time in USA. All of the error terms associated with the OTELA subscale scores demonstrated significant correlations with each other without exception.

Table 42

Covariance for Predictors and Four OTELA Subscale scores of Listening, Reading, Speaking, and Writing – Final Model

		Unstandardized Covariance	S.E.	Standardized Correlation	P
Spanish	<--> Sex	.027	.012	.108	.021
Spanish	<--> Other Language	-.185	.014	-.752	***
Spanish	<--> Time in USA	.036	.011	.154	.001
Spanish	<--> SES	.033	.012	.134	.005
SES	<--> Other Language	-.038	.012	-.155	.001
SES	<--> Time in USA	.083	.012	.352	***
Other Language	<--> Time in USA	-.064	.011	-.274	***
Other Language	<--> Sex	-.020	.011	-.082	.070
e3	<--> e4	8680.986	917.569	.498	***
e3	<--> e5	7365.164	769.542	.506	***
e3	<--> e6	6063.161	659.354	.481	***
e4	<--> e5	6175.792	933.185	.328	***
e4	<--> e6	7393.609	842.555	.454	***
e5	<--> e6	7074.768	722.983	.520	***

Summary

This study conducted an examination of specific predictive factors as they relate to the performance of 3rd grade students for whom English is a second language on the Ohio Test of English Language Acquisition (OTELA). Specifically, the predictor variables chosen for this study were: race/ethnicity, SES (as defined by participation in the Free/Reduced student lunch program), sex, home language, country of birth, time in the USA, time in the participating district, and student mobility (number of school changes).

The first six predictor variables are categorical in nature, and were initially analyzed using ANOVA and MANOVA procedures to determine the significance of differences between levels of each individual predictor variables and student performance on the OTELA as measured by the four subscales and the composite score. The two remaining variables, being continuous in nature, were analyzed through Linear Regression procedures to make the same determination. The initial set of ANOVA analyses revealed that the predictor variables of Race/Ethnicity, Socioeconomic Status (SES), Home Language, Birth Country, and Time in the USA all demonstrated significant differences on the OTELA Composite score between the categories comprising each variable, while the predictor variable of Sex did not. Regression analyses with the OTELA Composite score regressed against the two remaining predictor variables revealed that Months in District significantly predicted the Composite Scale score, while Student Mobility did not.

MANOVA analyses generated similar findings with the initial ANOVA's, revealing that the predictor variables of Race/Ethnicity, Socioeconomic Status (SES), Home Language, Birth Country, and Time in the USA all demonstrated significant differences on the combination of the four OTELA Subscale score between the categories comprising each variable, while the predictor variable

of Sex did not. Post-hoc ANOVA analyses between these same six predictor variables and each of the four OTELA Subscales individually revealed the same pattern of results, with the predictor variables of Race/Ethnicity, Socioeconomic Status (SES), Home Language, Birth Country, and Time in the USA all demonstrating significant differences for each of the four OTELA Subscale score between the categories comprising each variable, while the predictor variable of Sex was not significant for any measure. Regression analyses with each of the OTELA Subscale score regressed against the two remaining predictor variables revealed that Months in District significantly predicted all four Subscale scores, while Student Mobility was not significant for any measure.

The second level of analysis attempted to determine what is/are the best predictor(s) of student performance on the OTELA subscales and Composite score among the predictor variables identified for this study. To address this question, two Path Analyses were conducted with the OTELA Composite score as the outcome variable for the first, and the four OTELA subscales as the outcome variables for the second. Before conducting the Path Analyses, however, several adjustments needed to be made to the dataset. The predictor variables of Race/Ethnicity and Birth Country were not included in these analyses due to their high collinearity with the Home Language and Time in USA predictors respectively. Additionally, to meet the data requirements of path analysis, the Home Language predictor was divided into the two dummy variables of Spanish and Other Language, with Asian/Pacific Islander set as the reference group for both dummy variables. For the final model of the first analysis, the OTELA composite score was significantly predicted by the predictor variables of Time in District, Time in the USA, Spanish language as compared to Asian/Pacific Islander and Other Language as compared to Asian/Pacific Islander. The OTELA Composite score was not significantly predicted by the variables of Sex, SES,

or School Mobility. The school related variable of Time in District was significantly predicted by Time in the USA, SES, Spanish language as compared to Asian/Pacific Islander and Other Language as compared to Asian/Pacific Islander, but not by the variable of Sex. The school related variable of School Mobility was significantly predicted by SES, Spanish language as compared to Asian/Pacific Islander and Other Language as compared to Asian/Pacific Islander, but not by the variables of Sex or Time in the USA. It should also be noted that the OTELA composite score was indirectly predicted by the predictor variables of Spanish language as compared to Asian/Pacific Islander, Other Language as compared to Asian/Pacific Islander, SES, and Time in the USA through their connection to Time in the District.

For the final model of the second analysis (OTELA Subscale scores), performance on the OTELA Listening scale was significantly predicted by the variables of Time in District, Time in the USA, Spanish language as compared to Asian/Pacific Islander, and Other Language as compared to Asian/Pacific Islander, but not by Sex, SES, or School Mobility. For the OTELA Speaking scale, performance was significantly predicted by the variables of Time in District, Time in the USA, and School Mobility, but not by Sex, SES, Spanish language as compared to Asian/Pacific Islander, or Other Language as compared to Asian/Pacific Islander. For the OTELA Reading scale, performance was significantly predicted by the variables of Time in District, Time in the USA, Sex, Spanish language as compared to Asian/Pacific Islander, and Other Language as compared to Asian/Pacific Islander, but not by SES or School Mobility. For the OTELA Writing scale, performance was significantly predicted by the variables of Time in District, Time in the USA, Spanish language as compared to Asian/Pacific Islander, and Other Language as compared to Asian/Pacific Islander, but not by Sex, SES, or School Mobility. It should also be noted

that all four OTELA subscales were indirectly predicted by the predictor variables of Spanish language as compared to Asian/Pacific Islander, Other Language as compared to Asian/Pacific Islander, SES, and Time in the USA through their connection to Time in the District. The OTELA Speaking subscale was also indirectly predicted by Spanish language as compared to Asian/Pacific Islander, Other Language as compared to Asian/Pacific Islander, and SES through their connection to School Mobility.

Chapter 5

DISCUSSION

This study examined specific factors as they predict the performance of 3rd grade students for whom English is a second language on the Ohio Test of English Language Acquisition (OTELA). Specifically, the following predictor variables were chosen for this study: race/ethnicity, home language, sex, SES (Free/Reduced student lunch), country of birth, time in the USA, time in the participating district, and student mobility (number of school changes). The dependent variable was individual student performance on the OTELA as a measure of language acquisition. The study sample was selected from the 3rd grade Limited English Proficient (LEP) population of a large urban school district in Ohio and consisted of 474 students. The effect of the variables of race/ethnicity, SES, Sex, home language, birth country and time in the USA on OTELA was examined using ANOVA and MANOVA statistics. The effects of the continuous variables of time in the district and school mobility were examined by linear regression. Finally, Path Analyses were conducted with a subset of the predictor variables and first the Composite OTELA score, then the four OTELA Subscale scores. This chapter presents the major findings of the study, discussion of the study findings as they compare to the literature, study limitations, implications for practice and public policy and recommendations for future research.

Major Findings

The initial analyses revealed that of the six categorical predictor variables five (Race/Ethnicity, Socioeconomic Status (SES), Home Language, Birth Country, and Time in the USA) demonstrated significant impact on the OTELA Composite score while the predictor variable of Sex did not. The regression analysis of the two continuous predictor variables revealed that

Months in District significantly predicted the Composite Scale score, while Student Mobility did not. MANOVA analyses testing the impact of the six categorical predictor variables on the four OTELA subscales supported the finding that all of the categorical variables except sex significantly affected performance on the OTELA. Post-hoc ANOVA analyses between these same six predictor variables and each of the four OTELA Subscales individually revealed the same pattern of results, with the predictor variables of Race/Ethnicity, SES, Home Language, Birth Country, and Time in the USA all demonstrating significant impact on each of the four OTELA Subscale scores, while the predictor variable of Sex was not significant for any measure. Regression analyses with each of the OTELA Subscale score regressed against the two remaining predictor variables revealed that Months in District significantly predicted all four Subscale scores, while Student Mobility was not significant for any measure.

The more complex Path Analyses conducted in response to research question #2 involved only the predictor variables of Sex, SES, Time in the USA, Time in the District, Student Mobility, and two dummy variables to represent Home Language (i.e., Spanish language as compared to Asian/Pacific Islander and Other Language as compared to Asian/Pacific Islander). The final models for both analyses indicated that OTELA scores (Composite and Subscale) generally improved as length of time in the USA and length of time in the district increased, and that subjects with home languages that were categorized as Asian or Pacific Islander had consistently higher OTELA scores than subjects who spoke Spanish or any other language in the home (with the exception of the OTELA Speaking Subscale). Subject SES was not shown to have any direct bearing on any OTELA scores, but it was found that the higher the SES of the subject was, the longer they would stay in the district and so the higher their OTELA

scores would tend to be. Similarly, the longer that subjects had resided in the USA, the longer they tended to stay in the district, and subjects with home languages that were categorized as Asian or Pacific Islander stayed longer in district than subjects who spoke Spanish or any other language in the home. OTELA scores did not tend to differ one way or the other in relation to subject sex or number of school changes, with the exception of slightly stronger OTELA Reading scores for female subjects and slightly stronger OTELA Speaking scores as the number of school changes increased.

Comparison to the Literature

Socioeconomic Status

While SES was significant for the initial ANOVA and MANOVA analyses, there were no significant direct effects identified by the Path Analysis for any of the OTELA scores, Composite or Subscale for this variable. In fact, it is the only variable of those identified for this study that had no significant direct regression paths at all. Given the generally robust findings of SES being a factor in so many school-related outcomes across the literature, this came as somewhat of a surprise (Terwilliger & Magnuson, 2005; USDOE, 2003; ETS, 2002). Upon reconsideration, several hypotheses for this finding can be considered. For one, this variable only has the two responses of whether a student does or does not qualify for the Free Lunch program. The criteria for who does qualify for a free lunch is a constant, based on program income guidelines and recognized poverty levels. The grouping of students who do not qualify for free lunch, however, could have mean household incomes of $35,000 per year or $135,000 per year. Without a broader set of responses there is no way to know how much this category of subject truly differs in household income from the subjects in the Free Lunch category. It is possible that we might find that little significant difference exists between the two groupings identified for

this study. The use of the Free Lunch program as an indication of SES is common in the educational literature, however, which continues to beg the question of why it did so poorly in the Path Analysis for this study.

Review of the original data does indicate an anomaly concerning this variable. At the time that this dataset was compiled, the cooperating district reported the overall percentage of the student population using the Free Lunch program as being just greater than 75%. The data used for this study, however, identified only 55-56% of the students as being eligible for Free Lunch. The population of the sample dataset is overwhelmingly of Hispanic and African origin. In the cooperating district this is typically representative of individuals and families with low resources who have come to the USA for work, or, in the case of the African students, to escape dangerous conditions in their home countries (i.e., war, famine, etc.). This implies that this would be an unlikely grouping to represent a significantly stronger economic base than the district on the whole.

Even so, it is possible that this particular data set does capture a grouping of students who just happen to come from a more economically enriched background than the typical student in the district. It is also possible, of course, that this finding represents some type of error in the dataset, either in subject response or data entry. The third possibility, and the most troubling, is that the LEP population in the cooperating district is actually underrepresented in the Free Lunch program. The parents of LEP students tend to be LEP themselves, and whether these families may be unaware of the existence of such programs, or unable to meet the language demands of the bureaucratic requirements to enroll in this program, they may be at risk for not fully accessing all of the resources available to them. It may also be possible that families that are unable to prove legal residency may not have

access to all of the same resources as the families of other students in the district. Whatever the reason for this finding, it does bear some follow-up with the cooperating district as this study ends.

School Mobility

Similarly, the predictor variable of Student Mobility had little bearing on OTELA outcomes overall, despite the literature related to the particular needs of the families of migrant workers and the potential for educational disruption (Garcia, 2000; Medway, 2002). The one finding from the Path Analyses that could be reported actually moved in the opposite direction of what would have been anticipated, with slightly stronger OTELA Speaking scores as the number of school changes increased. A review of the dataset revealed that fully half of the sample population had experienced no school changes as of the time of data collection, and another third had experienced only a single school move. The relatively small percentage of the sample population that experienced multiple school changes by the end of their 3rd grade year, then, suggests that the population of truly migratory families and students that was intended to be captured by this variable may not be well represented in the sample available for analysis.

Home Language

The analyses for this study initially involved a single variable associated with Home Language, which grouped student language backgrounds into three categories; Asian/Pacific Islander, Spanish, and All Other (which was predominantly African languages and dialects). Significant differences were found for this variable overall across all of the OTELA scores used for this study. A closer look at the data through post-hoc analysis does indicate that the bulk of this difference was as a result of the performance of the Asian/Pacific Islander grouping. When broken down by category, the

Asian/Pacific Islander group consistently generated stronger OTELA scores in all areas than either the Spanish or Other home language categories. The Spanish and Other categories themselves were consistently not significantly different from one another in regards to OTELA performance. This finding is consistent with the literature and the initial research hypothesis in this area (Liu, Albus, Thurlow, Bielinski, & Spiccuza, 2000; NCES, 2003).

For the Path Analyses this variable was represented by the two dummy variables of Spanish language as compared to Asian/Pacific Islander and Other Language as compared to Asian/Pacific Islander. Both of these predictor variables were associated with stronger OTELA scores in the final models for three of the four OTELA Subscales (the exception for both being the Speaking Subscale) and the OTELA Composite score. Indirectly they impacted every area of English language proficiency assessed by the OTELA. The reason for the consistent lack of a direct regression path for either dummy variable on the OTELA – Speaking Subscale is unclear, and may bear further study.

Time

The one universally agreed upon factor in the acquisition of language is the importance of time. The major theories of language acquisition propose timelines to reach different levels of language complexity, and this is the only variable that is codified into law at both the state and federal level for this student population. The expectations for student achievement do change based on the passage of time. How much time we should allow, however, is not a settled point. The original assessment requirements for the LEP subgrouping under federal law has been up for discussion more often of late, with a significant number of states and districts requesting exemptions and/or flat out challenging the law itself. The reason is that, quite simply, schools are unable to meet the original goal for 100% proficiency on state achievement

tests for this subgroup within given timeframes (Batts, Kim & Sunderman, 2005). As the expectations rise, more schools and districts fail.

The analyses for this study involved two variables associated with time - Time in District and Time in the USA. For the Time in the USA variable we were forced to move to a dichotomous measure rather than a more flexible approach due to the composition of the sample population. Even so, significant differences were found between students who had been in the USA for 0-3 years (which would include all legal timelines currently in place or proposed), and students who had been in the USA for greater than three years across all of the OTELA scores used for this study. This finding is consistent with the general timelines proposed by major theorists and researchers in this area (Cummins, 1984; Collier, 1989; Thomas & Collier, 1997, 2002). The number of months subjects had been enrolled in the cooperating district (Time in the District) was also significant for all of the OTELA scores used for this study. Additionally, for the Path Analyses, Time in the USA and Time in the District were the only predictor variables addressed in this study that had significant direct regression paths in the final models for all four OTELA Subscales and the OTELA Composite score. The implication is clear. English language proficiency continues to change in significant ways well past the current legal expectations for full native level proficiency. These findings are consistent with the research literature (Gitomer, Andal, & Davison, 2005; NCES, 2003).

Multiple Variables

In addition to a better understanding of general language acquisition timelines, however, the incorporation of other variables of interest into our decision making for the LEP student population bears further attention. A wide range of authors and resources do note that LEP students are not a homogeneous population, and that the consideration of background variables related to

student culture, language, and situation is of particular importance when attempting to understand the educational functioning of a particular child (August & Hakuta, 1997; Garcia, 2000; Gitomer, Andal, & Davison, 2005; Rhodes, Ochoa, & Ortiz, 2005; Thomas & Collier, 2002). The results of this study identify that there are significant differences between the performance of subjects from different language groupings on nearly every measure of English language proficiency assessed by the OTELA. When indirect pathways are considered, nearly every predictor variable addressed through this study has a regression path that impacts OTELA performance across the board (the exception being the variables of Sex and Student Mobility). While the magnitude of their impact can be debated, what cannot be denied is that, even from this small sampling of variables, it is clear that the process of learning another language is a more complex undertaking than can be reasonably associated with a single linear relationship.

Limitations of the Study

The generalizability of the findings of this study is limited due to the following factors:

1) The study population is limited to LEP students enrolled at elementary schools in a single Ohio school district.
2) The sample is derived from a school system that provides only ESL services (no other service options).
3) The study population is limited to the students who attended elementary school during the 2005-2007 academic years. It is possible that school practices or student population differed in that time period from current practices or student population.
4) The English language skill of the study population is measured only by using the OTELA instrument.

5) While many factors might be related to English language development in LEP elementary age students, this study only focuses on the relationship between specific social, cultural, and educational factors.
6) Finally, this was a retrospective study and therefore limited to those variables included in the students records.

Implications for Practice and Policy

The stakes are high for schools, districts, and states when it comes to student achievement. Accountability for educational outcomes is here to stay, with potentially dire consequences for those school districts that fail to meet expectations according to the law as it now stands. That is why the process by which those expectations are established must be rigorous. Time is clearly important as a factor in second language acquisition, but current legal timelines as they relate to expectations for LEP students as a group are not supported by the findings of this study or by any of the literature reviewed by this author. Incorporating the concept of language developing over time into our expectations for LEP student achievement is the right idea, but the nature of those timelines needs to be informed by the real world performance of these students rather than an ideal.

It is my hope that research such as that represented here will help to spur legislative action to align the law with practices that are informed by what we know about the process of second language acquisition, or at least are supported by theory and research as it currently stands. For example, as the expectation of current law would appear to be native level language proficiency, given that LEP students are expected to perform to a level comparable to the general population on formal assessments, then using the timelines for the achievement of the more complex Cognitive Academic Language

Proficiency (CALP) would be advised. The lower value for achievement of CALP is typically around 4 years (Cummins, 1984), which is also consistent with the findings from this study. While there may certainly be students who achieve full English proficiency at an earlier point, legal timelines should be based on expectations for the LEP population as a whole rather than a best case scenario.

Additionally, this study does support the recommended best practice literature that suggests investigating multiple factors associated with student language development (Garcia, 2000; Gitomer, Andal, & Davison, 2005; Rhodes et al, 2005). To establish real world expectations for this population of students we need to know more than just the length of time an individual has been exposed to a language. This is reflected in numerous informal instruments and suggested processes, such as by the use of the Home Language Survey here in Ohio (Ohio Department of Education, 2008). In actual practice, however, school-based problem solving teams are asked to gather extensive information and make complex decisions about LEP students with little in the way of concrete guidance as to how these actions connect. One of the goals of this study is to begin that conversation about what factors are important to add to the discussion (e.g., Time in District), which are not (e.g., Sex), and which will require more in depth study (e.g., SES, Home Language). At the very least, this study does support the finding that school teams should allow for longer timeframes for second language acquisition than are currently embedded in state and federal law.

Finally, an unexpected finding from this study suggests that access to institutional supports and services (e.g., Free Lunch programming) for LEP families and students may need to be increased. If these resources are truly not being fully accessed by these families, whether due to legal or language

barriers, then the intent that drove the creation of these types of programs is not being realized for an entire population of at-risk children.

Implications for Future Research

The effect of high student mobility does not appear to have been adequately captured by the sample population used for this study, suggesting that this predictor variable remains open for exploration. The variable of student socioeconomic status was problematic with this sample, and may benefit from a more sensitive operational definition and an investigation of LEP student populations and representation in federal programming for at-risk families (i.e., Free Lunch programming).

Significantly different performances on the OTELA were identified among the Race/Ethnicity and Home Language groupings used for this study, which is consistent with the literature, but calls for the examination of more complex path models that include a broader range of variables than could be represented here. For example, future research in this area would benefit from exploring the impact of home variables that the literature has suggested are significant with student outcomes overall, such as parental education level, home literacy environment, and, for LEP families, level of acculturation (Abedi, Leon, & Mirocha, 2003). This study also did not include 'within-student' variables, such as cognitive ability, motivation and attitude, and so on. Variables such as these have been found to be some of the most powerful predictors of student academic outcomes (Snow, et al, 1998) and would be of great interest when creating a more comprehensive path model.

Finally, once the variables of interest have been refined and the data collected, a more extensive analysis should be conducted to answer these questions: What timelines for English language proficiency are supported by research and theory? Can we identify enough of the variance through a single

model to give school-based problem solving teams concrete guidance on what range of student progress would be within typical expectations given all known factors for an LEP student who is initially referred, and when additional attention needs to be paid (e.g., Intervention Assistance Team involvement, structured Response to Intervention progress monitoring, etc.)? The process of acquiring a second language is clearly complex, and it remains to be seen if it is even possible to create a single model that captures enough of the causal structure underlying it to allow for reliable and valid recommendations for educational decision making. The reality is, however, that personnel in schools across the country are being asked to make those decisions right now. The LEP student population continues to grow and the stakes for the educational community at all levels continue to rise. The questions raised in this paragraph need to be addressed to give the educators in the field the tools they need to ensure the rigorous and fair treatment of the LEP student population in our educational system.

Summary

Historically, students from culturally and linguistically diverse backgrounds have often demonstrated higher school dropout rates and achievement gaps when compared with typical peers, and been represented disproportionately in special education programming. This study was intended to assist school problem solving teams to better serve this population by identifying key background variables that are highly correlated with LEP student outcomes, either individually or in combinations. Archival data for primary grade second language learners was gathered from the records of a large urban school district in Central Ohio, including specific social, cultural and educational factors and multiple administrations of a measure of English language proficiency.

Analyses conducted indicated that nearly every predictor variable addressed through this study impacted OTELA performance across the board (the exception being the variables of Sex and Student Mobility). Findings from this study support the recommended best practice literature that suggests investigating multiple factors associated with student language development, and ideally will help to spur legislative action to align the law with practices that are informed by what we know about the process of second language acquisition, or at least are supported by theory and research as it currently stands. An unexpected finding from this study suggests that access to institutional supports and services (e.g., Free Lunch programming) for LEP families and students may need to be increased.

The variables of SES and Student Mobility were both problematic for this study, and may benefit from reexamination. Future research should examine more complex path models that include a broader range of variables than could be represented here, such as the impact of home variables (e.g., parental education level, home literacy environment, level of acculturation) and 'within-student' variables (e.g., cognitive ability, motivation and attitude). Ideally this research would lead to the creation of a comprehensive model that captures enough of the causal structure underlying second language acquisition to allow for reliable and valid recommendations for educational decision making.

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Appendix

English Proficiency Levels – Descriptions

	Listening	Speaking	Reading	Writing
Level I Pre-functional	• Has zero to very limited ability in understanding spoken English • Relies on non-verbal cues such as gestures and facial expressions, and requires frequent repetition/rephrasing to understand spoken language • May understand some isolated words, some social conventions, and simple directions, commands and questions	• Has zero to very limited ability in speaking English • May say or repeat common phrases, words and formulaic language • May be able to provide some basic information in response to requests and questions • Can ask one or two-word questions without regard to structure and intonation	• Has zero to very limited ability in reading English • May demonstrate some basic concepts of print (front-to-back, top to-bottom, left-to-right) • May distinguish letters from other symbolic representations • May follow one-step directions depicted graphically	• Has zero to very limited ability in writing English • Can participate in writing activities by drawing pictures • May be able to copy letters or form them from memory • May be able to copy some words • May attempt to apply some writing conventions, but often does so inappropriately
Level II Beginning	• Understands simple, short statements and questions on a well-known topic within a familiar context • Can follow simple multi-step directions • Can identify the main idea and some details of short conversations or simple orally-delivered text on a familiar topic • May still need repetition and rephrasing	• Predominantly uses formulaic patterns and memorized phrases • Uses language that is often marked by the lack of tense, number, and agreement • Uses school-social vocabulary that is limited to key words and has little or no academic vocabulary • Responds to questions usually with one or two-word answers	• Begins to identify the names of both upper and lower case letters of the alphabet • Can identify where words begin and end • Can follow multi-step directions depicted graphically • During read aloud, gets meaning primarily from pictures and the teacher's tone of voice and gestures	• Produces writing that is marked by the lack of tense, number, and agreement • Makes frequent errors in mechanics such as punctuation and capitalization • Writes most effectively when supported by a visual, a shared experience, or scaffolding • Can begin to revise or edit own writing with teacher support
Level III Intermediate	• Shows understanding simple questions and statements on familiar topics • Often requires restatements in graphic terms or at a lower rate • Can follow many simple directions • Shows appropriate responses when read or told a story (example – laughs at humor) • Has difficulty comprehending academic-related	• Can communicate ideas and feelings in English, but with some difficulty • Speaks coherently, but with hesitations and with grammatical and syntactic errors • Can retell a simple story, but detail may be lacking • Can respond appropriately to many questions, but with errors in grammar and vocabulary	• Reads simple printed material within a familiar context • Understands short discourse on familiar topics. • Has a small repertoire of high frequency words • Partially uses details to extract meaning • Partially perceives the feeling and tone in a poem or story • Has some weaknesses in predicting from details	• Composes short paragraphs that are mostly intelligible • Begins to edit for sentence-level structure, spelling and mechanics and revises for content, organization and vocabulary, usually with the support of the teacher • Writes with less dependency on visual supports, shared experiences, and scaffolding
Level IV Advanced	• Understands conversations in most school/social settings • Understands main ideas and significant relevant details of extended discussions or presentations on familiar and relevant academic topics • May ask for clarification on oral information related to academic content • Understands multiple meanings of words and can use context clues to understand messages	• Speaks in coherent, fluent sentences, but with occasional errors in vocabulary and syntax • Has little difficulty communicating personal ideas and feeling in English • Can respond appropriately to many questions in classroom settings, but makes some errors in more complex grammatical structures • Can often use language to connect, tell and expand on a topic; and can begin to use it to reason	• Can read familiar text with little teacher or visual support; still needs those supports when reading to comprehend unfamiliar text • Has oral fluency and uses self-monitoring and self-correction strategies when necessary • Can identify main idea of many reading passages • Able to identify most specific facts within a text • May have some difficulty using details to make predictions	• Writes simple social correspondence with some errors in spelling and punctuation • May have some difficulty in producing complex sentences • Produces writing that generally addresses given topic • Produces writing that is generally intelligible but lacking grade-level quality • Produces writing that generally expresses complete thoughts

Level V Proficient	• Shows understanding of academic topical conversations without difficulty • Can follow complex and multi-level directions without difficulty • Shows understanding of oral information provided via electronic media	• Speaks English fluently in social and grade-level academic settings • Produces speech that include a variety of adverbs and transitional signals • Participates in classroom discussions without difficulty • Demonstrates control of age-appropriate syntax and vocabulary when speaking • Can use language effectively to connect, tell, expand, and reason	• Reads and understands factual information in non-technical prose as well as discussion on concrete topics related to special events • Comprehends standard newspaper items addressed to the general reader, correspondence reports and technical materials • Shows understanding of the main idea • Understands figurative language in a poem	• Writes short papers and clearly expresses statements of position, points of view and arguments • Shows good control of sentence structure, spelling, and vocabulary • Produces writing with wide range of vocabulary • Edits for sentence-level structure, spelling, and mechanics and revise for content, organization and vocabulary

Sources: North Carolina Department of Education, 1999; Iowa Department of Education, 2000; IDEA Reading and Writing Proficiency Tests, Examiner's Manual, 1993, Ballard and Tighe; The State Collaborative on Assessment and Student Standards (SCASS) for Assessing Limited English Proficient Students and American Institutes for Research (AIR), English Language Development Assessment K-2 Test Administration Manual, 2006.

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