THE EFFECT OF RICH INSTRUCTION ON THE VOCABULARY ACQUSITION OF PRESCHOOL DUAL LANGUAGE LEARNERS

by

Melissa Marie Brydon

B.S. Ed. Speech-Language Pathology, Indiana University of Pennsylvania, 2001

M.S. Speech-Language Pathology, Indiana University of Pennsylvania, 2003

Submitted to the Graduate Faculty of

the School of Education in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Pittsburgh

2010

UNIVERSITY OF PITTSBURGH

SCHOOL OF EDUCATION

This dissertation was presented

by

Melissa Marie Brydon

It was defended on

October 27, 2010

and approved by

Richard Donato, Associate Professor, Department of Instruction and Learning

Heather Bachman, Assistant Professor, Department of Psychology in Education

Rebecca Hamilton, Clinical Associate Professor, Department of Instruction and Learning

Cynthia Puranik, Assistant Professor, Department of Communication Sciences and Disorders

Dissertation Advisor: Linda Kucan, Assistant Professor, Department of Instruction and Learning

THE EFFECT OF RICH INSTRUCTION ON THE VOCABULARY ACQUISITION OF PRESCHOOL DUAL LANGUAGE LEARNERS

Melissa M. Brydon, Ph.D.

University of Pittsburgh, 2010

This study was designed to investigate the effectiveness of a rich instructional program on the vocabulary acquisition of three-, four-, and five-year-old Dual Language Learners (DLLs). The lead teacher of a private preschool in western Pennsylvania, five children who were native speakers of English, and 16 DLLs who speak Kirundi, Burmese, Nepali, a combination of Ahiska Turkish and Russian, Karen, and a combination of Karen and Burmese, as well as each child's primary caregiver participated in the study. The children received rich instruction in small groups in three four-day blocks. Five sophisticated vocabulary words from authentic children's literature were targeted during each four-day instructional block. Two control instructional sessions were included in the study to compare the children's word learning based on typical instruction of text-based words in the classroom, to word learning after engaging in rich instructional activities. The children's understanding of each set of five target words was evaluated using two researcher-designed vocabulary measures after the fourth day of instruction. The children's baseline receptive vocabulary skills in English, baseline vocabulary in their home language, the number of months that they lived in the U.S., their home language, and the frequency of book reading in the home were also examined to identify other factors that might explain differences in word learning. Results suggested that the strategies and activities included in the rich instructional program were effective in increasing the children's knowledge of sophisticated English words. Among the 21 participants, the children who demonstrated the most

notable gains in word learning included those in the older age group. Results also suggested that children who had lived in the U.S. longer demonstrated higher scores on the verbal portion of the rich instruction posttests. In addition, children who demonstrated understanding of more English words at the start of the study earned higher scores on the picture portion of each posttest.

TABLE OF CONTENTS

TABLE OF CONTENTS VI

LIST OF TABLES X

PREFACE XIV

1.0 INTRODUCTION 1

1.1 SCHOOL-AGE CHILDREN OF IMMIGRANTS IN THE U.S. 1

1.2 SOCIOECONOMIC STATUS OF SCHOOL-AGE ELLS IN THE U.S. 4

1.3 ACADEMIC ACHIEVEMENT OF ELLS IN THE U.S. 5

2.0 REVIEW OF RESEARCH 8

2.1 ROLE OF VOCABULARY KNOWLEDGE IN READING DEVELOPMENT 9

2.2 VOCABULARY AND PHONOLOGICAL AWARENESS 9

2.3 VOCABULARY AND READING COMPREHENSION 11

2.4 VOCABULARY KNOWLEDGE OF LOW-SES AND ELL CHILDREN .. 13

2.5 THEORETICAL PERSPECTIVES ON VOCABULARY DEVELOPMENT 14

2.5.1 Lexical Quality Hypothesis 14

2.5.2 Sociocultural Theory and Word Learning 16

2.6 EFFECTIVE VOCABULARY INSTRUCTION 17

2.6.1 Rich Instruction 19

2.6.2 Tier 2 Words 22

2.7 VOCABULARY INSTRUCTION FOR ELLS AND DLLS 23

2.7.1 English Language Learners 23

2.7.2 Dual Language Learners 24

3.0 METHODOLOGY 31

3.1 RESEARCH SITE 32

3.2 PARTICIPANTS 33

3.3 MATERIALS 36

3.4 PROCEDURES 37

3.4.1 Pretesting 38

3.4.2 Control Instructional Sessions and Assessments 39

3.4.2.1 Assessments 40

3.4.3 Rich Instructional Sessions and Assessments 40

3.4.3.1 Day 1: Introduction of Target Vocabulary. 42

3.4.3.2 Day 2: Example/Non-Example Verbal Activities with Pictures. 43

3.4.3.3 Day 3: Multimodal Activities. 44

3.4.3.4 Day 4: Review with Pictures and Questions. 45

3.4.3.5 Assessments 46

3.4.3.6 Rich Instructional Review Sessions. 46

3.4.3.7 Posttesting. 47

3.4.4 Measures 47

3.5 DATA ANALYSIS 53

3.6 THEORETICAL PERSPECTIVES FOR HYPOTHESES 54

4.0 RESULTS 59

4.1 RESEARCH QUESTION 1 60

4.1.1 Results for Picture Portion of TVTRI-1, TVTRI-2, and TVTRI-3 60

4.1.2 Results for the picture portion of the Total TVT pre-test and Total TVT posttest 63

4.1.3 Results for the Picture Portion of TVTC-1 Compared to TVTRI-1 66

4.1.4 Results of the Picture Portion of TVTC-2 Compared to TVTRI-3 70

4.1.5 Results of the Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3 73

4.1.6 Results of the Verbal Portion of Total TVT pre-test and Total TVT posttest 75

4.1.7 Results of the Verbal Portion of TVTC-1 Compared to TVTRI-1 77

4.1.8 Results of the Verbal Portion of TVTC-2 Compared to TVTRI-3 79

4.2 RESEARCH QUESTION 2 82

4.2.1 Results of the Peabody Picture Vocabulary Test (PPVT-III) 82

4.2.2 Home Language Picture Vocabulary Test (HLPVT) 84

4.3 RESEARCH QUESTION 3 85

5.0 DISCUSSION 90

5.1 LIMITATIONS 90

5.2 IMPLICATIONS 93

APPENDIX A 101

APPENDIX B 102

APPENDIX C 104

APPENDIX D **107**

APPENDIX E **108**

APPENDIX F **110**

APPENDIX G **112**

APPENDIX H **114**

APPENDIX I **115**

APPENDIX J **117**

APPENDIX K **120**

REFERENCES **121**

LIST OF TABLES

Table 1. *Age Range of Child Participants* 34

Table 2. *Home Language Frequency* 35

Table 3. *Research questions, Data sources, Methods of analysis, and Hypotheses* 58

Table 4. *Research Question 1* 60

Table 5. *All Participants: Scores on Picture Portion of TVTRI-1, TVTRI-2, TVTRI-3* 61

Table 6. *Analysis of Variance for All Participants: Scores on Picture Portion of TVTRI-1, TVTRI-2, TVTRI-3* 61

Table 7. *Group A and Group B: Scores on Picture Portion of TVTRI-1, TVTRI-2, TVTRI-3* 62

Table 8. *Analysis of Variance for Group A and Group B: Scores on Picture Portion of TVTRI-1, TVTRI-2, TVTRI-3* 63

Table 9. *All Participants: Scores on Picture Portion of Total TVT pre-test, Total TVT* 63

Table 10. *Analysis of Variance for All Participants: Scores on Picture Portion of Total TVT pre-test, Total TVT posttest* 64

Table 11. *Group A and Group B: Scores on Picture Portion of Total TVT pre-test, Total TVT posttest* 65

Table 12. *Analysis of Variance for Group A and Group B: Scores on Picture Portion of Total TVT pre-test, Total TVT posttest* 66

Table 13. *All Participants: Scores on Picture Portion of TVTC-1 and TVTRI-1* 67

Table 14. *Analysis of Variance for All Participants: Scores on Picture Portion of TVTCI-1, TVTRI-1*..... 67

Table 15. *Group A and Group B: Scores on Picture Portion of TVTC-1, TVTRI-1*..... 68

Table 16. *Analysis of Variance for Group A and Group B: Scores on Picture Portion of TVTC-1, TVTRI-1*..... 69

Table 17. *Analysis of Variance for Group A: Scores on Picture Portion of TVTCI-1 and TVTRI-1* 70

Table 18. *Analysis of Variance for Group B: Scores on Picture Portion of TVTCI-1 and TVTRI-1* 70

Table 19. *All Participants: Scores on Picture Portion of TVTC-2 and TVTRI-3* 71

Table 20. *Analysis of Variance for All Participants: Scores on Picture Portion of TVTCI-2 and TVTRI-3*..... 71

Table 21. *Group A and Group B: Scores on Picture Portion of TVTC-2, TVTRI-3*..... 72

Table 22. *Analysis of Variance for Group A and Group B: Scores on Picture Portion of TVTC-2, TVTRI-3*..... 72

Table 23. *All Participants: Scores on Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3*..... 73

Table 24. *Analysis of Variance for All Participants: Scores on Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3*..... 74

Table 25. *Group A and Group B: Scores on Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3* 74

Table 26. *Analysis of Variance for Group A and Group B: Scores on Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3*..... 75

Table 27. *All Participants: Scores on Verbal Portion of Total TVT pre-test and Total TVT posttest* 76

Table 28. *Analysis of Variance for All Participants: Verbal Portion of Total TVT pre-test, Total TVT posttest* 76

Table 29. *All Participants: Scores on Verbal Portion of TVTC-1, TVTRI-1* 77

Table 30. *Analysis of Variance for All Participants: Verbal Portion of TVTC-1, TVTRI-1*..... 77

Table 31. *Group A and Group B: Scores on Verbal Portion of TVTC-1, TVTRI-1*..... 78

Table 32. *Analysis of Variance for Group A and Group B: Scores on Verbal Portion of TVTC-1, TVTRI-1*..... 79

Table 33. *All Participants: Scores on Verbal Portion of TVTC-2, TVTRI-3* 79

Table 34. *Analysis of Variance for All Participants: Verbal Portion of TVTC-2, TVTRI-3*..... 80

Table 35. *Group A and Group B: Scores on Verbal Portion of TVTC-2, TVTRI-3*..... 80

Table 36. *Analysis of Variance for Group A and Group B: Scores on Verbal Portion of TVTC-2, TVTRI-3*..... 81

Table 37. *Research Question 2* 82

Table 38. *PPVT-III: Baseline Receptive Vocabulary in English* 83

Table 39. *Research Question 3* 85

Table 40. *Frequency of Book Reading*..... 86

Table 41. *Number of Months in the U.S.*..... 86

Table 42. *Correlation Matrix for Research Question 2 and Research Question 3.* 88

Table 43. *Language Typology*..... 101

Table 44. *Tradebooks and Target Vocabulary* 102

Table 45. *Procedures* 104

Table 46. *Day 1 Script* 107

Table 47. *Day 2 Script* 108

Table 48. *Verbal Portion of Total TVT* 115

PREFACE

There are numerous individuals who not only made this study possible, but whose support and guidance have enabled me to achieve my goal of earning a doctorate in reading education.

First and foremost, my advisor, Linda Kucan. You are a mentor in every sense of the word. The passion and care that you put into your own work has inspired me to become a better writer, researcher and instructor. I have the utmost respect for you and consider myself incredibly fortunate to have had you as my advisor.

My committee members, Heather Bachman, Rick Donato, Becky Hamilton, and Cynthia Puranik, for your willingness to support and guide me throughout this process.

Isabel Beck and Moddy McKeown, for graciously offering your time and expertise to assist in the development of the assessments and procedures for this study.

The preschool teachers and staff that I was fortunate enough to work with: Cindy, Courtney, Jinan, Laurie, Laurie, and Doris. Your willingness to help me in any way possible is just further testament to your remarkable commitment to the children and families that were the focus of this study.

April Mattix, Maritza Lozano, Theresa Andrews, Michelle Moore, and Natalie Heisey, for donating countless hours of your time to assist in administering the assessments for this study.

My sister Kristi and my dear friends Nicky, Sarah, and Cassie, for your interest and encouragement throughout the never ending process that has been graduate school.

Frances Mary and Michelle, I can't imagine how I could have gotten out of this alive without either of you. Thank you for sharing in all of my achievements and disappointments, both personal and academic, over the past four years.

Kalani Palmer and Tessa Wright, for selflessly devoting your time to help me with my analyses. You truly are my lifesavers!

The families of the children who were the focus of this study. Thank you for welcoming me into your homes and your day-to-day lives and allowing me to have the opportunity to work with your amazing children.

The funding that was provided by the School of Education Alumni Doctoral Fellowship and the Rita Bean Fund, without which this study would have never been possible.

And last, but certainly not least, my husband, Cameron. This dissertation is dedicated to you, because I am certain that I would have never had the courage or the confidence to pursue my Ph.D. without your constant love and support.

1.0 INTRODUCTION

Over the past three decades, the population in the United States has progressively become more ethnically, racially, and linguistically diverse. Between 14 and 16 million immigrants entered the U.S. during the 1990's, which was a significant increase from the 10 million noted in the 1980's, and the seven million during the 1970's. This high rate of immigration was sustained from 2000 to 2004, with the foreign-born population increasing by 1 million each year to total 34 million in 2004. Given sustained immigration levels, this population is expected to reach 42 to 43 million, or over 13 percent of the total U.S. population in 2010 (U.S. Bureau of the Census, 2000).

In the sections that follow, statistics and demographics related to (a) school-age children of immigrants in the U.S.; (b) the socio-economic status of school-age English Language Learners (ELLs) in the U.S.; (d) and the academic achievement of ELLs in the U.S. are presented. This information provides a context for considering the motivation for the study proposed in this document.

1.1 SCHOOL-AGE CHILDREN OF IMMIGRANTS IN THE U.S.

High levels of immigration have led to a rapid increase in the number of children with immigrant parents in the United States. By 2000, one in five children under the age of 18 had parents who were immigrants (U.S. Bureau of the Census, 2000). The population of school-age children with

immigrant parents has also experienced rapid growth, increasing from six percent in 1970 to 19 percent in 2000. Although most of these children were born after their parents arrived in the U.S., the number of foreign-born school-age children also increased to 3 million in 2000. In examining the distribution of children of immigrants by grade level, the highest number was in preschool through grade five, with the greatest percentage in kindergarten. Given this information, it is surprising that children of immigrants comprise only 16 percent of preschoolers in the nation. Overall, these figures suggest substantial under enrollment of children of immigrants in early childhood education programs (U.S. Bureau of the Census, 2000).

Not surprisingly, growth in the immigrant child population has also resulted in a steady increase in the number of students who are considered Limited English Proficient (LEP), or have difficulty understanding, speaking, reading, and writing the English language (Kindler, 2002; Ruiz-de-Velasco, Fix, & Clewell, 2000). Among the school-age children with immigrant parents, 3.4 million had Limited English Proficiency (LEP) in the year 2000 (U.S. Bureau of the Census, 2000). More recent estimates suggest that approximately 5.1 million or 11 percent of U.S. students were not proficient in English in 2004 and 2005. By the year 2050, the percentage of children in the United States who arrive at school speaking a language other than English is estimated to reach 40 percent (U.S. Bureau of the Census, 2002).

Reports based on the U.S. Census tend to use the term Limited English Proficient (LEP) versus English Language Learner (ELL) when discussing school-age children. In contrast, ELL is often preferred over LEP in academic research because it highlights accomplishments rather than deficits. The term Dual Language Learner (DLL) can also be found in the research literature to more specifically describe young children who acquire two languages simultaneously, and children who learn a second language while continuing to develop their first language

(Ballantyne, Sanderman, D'Emilio, & McLaughlin, 2008). Therefore, LEP and ELL will be used interchangeably in this introduction to describe school-age children, while the term Dual Language Learner (DLL) will be used to describe preschool-age children, including those that participated in the present study.

The populations of school-age children of immigrants and, more specifically, children who are LEP have historically been concentrated in large or densely populated states such as California, New York, and Florida. However, nontraditional receiving states have experienced dramatic growth in the ELL population in recent years. Between 1994 and 2005, Pennsylvania experienced more than a 100 percent increase in the number of ELL school-age children (U.S. Department of Education's Survey of the States' Limited English Proficient Students, 2005). In 2000, 1.7 million LEP children were in preschool to grade 5, with the largest percentage concentrated in kindergarten. Approximately eight percent of those children lived in linguistically isolated households, in which all household members over 14 were considered less than proficient in English. The majority of children who are still learning the English language also attend linguistically segregated schools, in which they are required to speak, read, and write only in English (U.S. Bureau of the Census, 2000).

Although recent estimates suggest that nearly 80 percent of the nation's school-age ELLs are from Spanish-speaking backgrounds, approximately 450 different languages are represented in this growing population (Kindler, 2002). Just over five percent of young LEP children in the U.S. speak Chinese and Vietnamese, and less than two percent speak Korean, Hmong, French, German, Russian, and Arabic. The number and variance in home languages represented among the school-age ELL population varies more notably from state-to-state, however, with languages

such as Khmer, Russian and Korean represented in Pennsylvania at the time of the last Census report (2000).

1.2 SOCIOECONOMIC STATUS OF SCHOOL-AGE ELLS IN THE U.S.

Recent reports of the demographics of U.S. schools reveal that children of immigrants often fall into both the LEP and low-income subgroups. Low-income is defined as twice the federal poverty level, or less than $37,700 for a family of four in 2004 (U.S. Bureau of the Census, 2000). In 2000, 68 percent of LEP children in preschool through fifth grade were also considered low income, which is nearly twice as high as the rates of children who are proficient in English in the same grade levels. In addition to the negative impact that a low-income status can have on overall development, there are numerous other obstacles that place young ELLs at-risk for delays.

Among the low-income early elementary students who are LEP, almost half are under the age of six, compared to 36 percent of children of native-born parents (U.S. Bureau of the Census, 2000). These young ELLs are less likely than other children living in poverty to attend preschool (Ballantyne et al., 2008), and their parents are more likely to have little formal education (U.S. Bureau of the Census, 2000). In 2000, approximately 23 percent of children of immigrants in preschool through grade five had parents without high school degrees, compared to nine percent of children with American born parents. Fifteen percent of this group of ELLs had parents with less than ninth grade educations. A high percentage of young children of immigrants also do not have access to health care services in the critical earliest years of life (Ballantyne et al., 2008).

In sum, these learners often do not have the early support that is needed to prepare them for learning and success in school.

1.3 ACADEMIC ACHIEVEMENT OF ELLS IN THE U.S.

The statistics regarding ELL students' academic achievement and performance further highlight the challenges that this population of learners face in U.S. schools. In terms of school completion, LEP students are substantially less likely than non-LEP immigrant children to finish high school. In general, dropout rates of ELLs vary based on their national origin group and according to whether they are first-, second-, or third-generation immigrants. Dropout rates for immigrant children decline from the first (foreign-born) generation to the second generation, but then increase again in the third or higher generations. According to the most recent U.S. Census (2000), Asian immigrant children have the lowest dropout rate (approximately four percent), and are most likely to complete high school as compared to any other immigrant or native group. In contrast, Mexican immigrant children have substantially higher dropout rates than any other subgroup, demonstrating at least double the national average.

Given these low achievement rates, it is particularly discouraging that the reading outcomes for ELLs are also not following the same trajectory as their native English speaking peers. A recent survey of LEP students indicated that among the 41 state agencies reporting on participation and success, only about 19 percent of the students scored above the state standard in English reading comprehension (Kindler, 2002). Data from the 2007 National Assessment of Educational Progress (NAEP) reported similar findings. Results from the NAEP reading test showed that 70 percent of fourth-graders and 70 percent of eighth-graders identified as ELLs

scored below basic in reading (National Center for Educational Statistics, 2007). Recent NAEP studies have noted an improvement in the reading scores of ELL students, but continued gaps in achievement are noted.

Overall, the high immigration rates and low achievement rates have raised the interest and concern among researchers and educators about the education of young LEP children. More specifically, these statistics, paired with the current federal and state educational policies that demand success for all students suggest the need to focus on the reading achievement of school-age ELLs. One of the strongest predictors of reading success is vocabulary knowledge. Research has demonstrated strong relationships between vocabulary development and later school success (Dickinson & Tabors, 2001; Snow, Tabors, Nicholson & Kurland, 1994) and causal relationships with reading comprehension (Dickinson, McCabe, Anastasopoulous, Peisner-Feinberg, & Poe, 2003; Storch & Whitehurst, 2002). Longitudinal studies have also demonstrated how difficult it is to alter the trajectory of vocabulary acquisition once it has been established very early in a child's life (Hart & Risley, 1995).

In the study described in this document, vocabulary development is the focus of interest. Specifically, vocabulary acquisition is considered to be a critical point of leverage for addressing the literacy development of Dual Language Learners (DLLs). While two other studies have investigated the vocabulary acquisition of preschool Dual Language Learners, these studies have focused on basic words (Roberts, 2008) such as pond or stick, or rare words that were selected by the researcher such as donned or foliage (Collins, 2010) through a storybook reading instructional context. In addition to focusing on sophisticated words that naturally occur in age-appropriate children's literature, the present study included a rich instructional program that was developed based on findings from recent research (e.g., Beck & McKewon, 2007). Another

distinguishing characteristic of the present study is that the participants include children who speak five different languages in addition to English. Specifically, the children in the present study speak Karen, Nepali, Kirundi, Burmese, a combination of Ahiska Turkish and English, and a combination of Karen and Burmese, while the participants in Roberts (2008) spoke Hmong, and the children who were the focus of Collins' (2010) study spoke Portuguese. The next chapter focuses on the following topics which describe the theoretical perspectives and empirical studies that informed the design of the current investigation: (a) the role of vocabulary development in reading development; (b) vocabulary outcomes for children who come from a low-socio-economic status (SES) and children who are English Language Learners; (c) theoretical perspectives on vocabulary; (d) effective vocabulary instruction; (e) effective vocabulary instruction for English Language Learners and Dual Language Learners.

2.0 REVIEW OF RESEARCH

There is a significant research base that demonstrates the importance of a preliterate child's development of foundational language skills for literacy acquisition and success (Whitehurst & Lonigan, 1998; Storch & Whitehurst, 2002; Adams, 1990; Snow, Burns & Griffin, 1998). Among these important linguistic components of development, semantic skills have been identified as one of the most crucial for reading proficiency and school achievement (National Institute of Child Health and Human Development Early Child Care Research Network, 2005). The term *semantics* encompasses a child's understanding of word meaning as evidenced by the development of the breadth and depth of their receptive and expressive vocabulary knowledge, or lexicon. Separately, *receptive vocabulary* refers to the understanding of isolated words, and *expressive vocabulary* refers to understanding of a word's meaning as demonstrated by use of the word either in speech or in print (Snow, Burns & Griffin, 1998). These terms are represented in the research literature as *word knowledge*, *vocabulary knowledge*, or *lexical size*, and are used interchangeably in this document to indicate the level and depth of knowledge of word meaning.

This review of the literature addresses five specific lines of research related to vocabulary development that are relevant to the proposed study: (a) the role of vocabulary knowledge in reading development; (b) vocabulary outcomes for low-SES and ELL children; (c) theoretical perspectives on vocabulary; (d) effective vocabulary instruction; (e) effective vocabulary instruction for English Language Learners and Dual Language Learners.

2.1 ROLE OF VOCABULARY KNOWLEDGE IN READING DEVELOPMENT

There is strong evidence to suggest that vocabulary knowledge facilitates word recognition in the early stages of reading development, and that a strong vocabulary is needed for comprehension in the later elementary grades and beyond (Scarborough, 2001; Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998). Specifically, recent research has demonstrated that vocabulary knowledge provides the foundation for other important literacy-related skills, including phonological awareness and reading comprehension. In addition, early vocabulary development has also been shown to be a strong predictor of early and later acquisition and achievement in these areas of literacy development. In the sections that follow, studies that demonstrate the supportive and predictive role of early differences in vocabulary development in phonological awareness and comprehension will be discussed.

2.2 VOCABULARY AND PHONOLOGICAL AWARENESS

Phonological awareness, or sensitivity to the sound system of the language, is critical for learning to read any alphabetic writing system (Liberman & Shankweiler, 1989). It has received considerable attention in the past and recent research literature due to its strong relationship with the development of many important early reading skills, including phonemic awareness. Phonemic awareness, the highest level of phonological awareness, is the understanding that words can be segmented into individual sounds, or phonemes (e.g., */s/* as in *"snake"*). Cited as one of the five most important areas of reading development (NRP, 2000), phonemic awareness

facilitates development in word recognition and predicts later reading ability of children in third grade and beyond (Good, Simmons, & Kame`enui, 2001; Torgesen, 2004).

Recent research focusing on young children has demonstrated that vocabulary knowledge has a strong relationship to the acquisition of phonological and phonemic awareness during the "learn to read" stage of development. A number of researchers have provided theories to explain the positive association between vocabulary and phonological awareness in young children. The lexical restructuring theory (Metsala, 1999; Metsala & Walley, 1998) as well as Goswami and colleagues' (e.g., Ziegler & Goswami, 2005) psycholinguistic grain size theory are among the most recent and rigorously tested models that provide a framework for understanding the relationship between vocabulary knowledge and phonological development. According to these theories, vocabulary growth during the preschool period results in a reorganization of how words are stored in memory. Children who know more words have richer and stronger representations of words and their smaller components, which facilitate growth in phonological awareness. Developmentally, words are represented in progressively smaller grain sizes, first as wholes (a large grain size), and eventually as segments of words, including onset/rimes (e.g., onset: *r*; rime: *ain*) and phonemes as the child's lexicon increases.

These theories have been supported by findings that have demonstrated a strong connection between early vocabulary acquisition and acquisition of phonological insight. Senechal and LeFevre's (2002) recent study examined the receptive vocabulary, phonological awareness, alphabet knowledge, and invented spelling of kindergarten and first grade children. After controlling for parent literacy and child cohort level (i.e., kindergarten or grade one), a fixed-order hierarchical regression analysis revealed that receptive vocabulary skills were a statistically significant predictor of phonological awareness. These results extend previous

findings (e.g., Lonigan, Burgess, Anthony, & Barker, 1998; McBride-Chang, Wagner, & Chang, 1997) that also demonstrate that children who know the meaning of more words make greater gains in phonological awareness in one year as compared to children who know fewer words.

Phonological awareness is a foundational insight for children who are developing the necessary precursors to conventional reading. The previously reviewed theories and findings provide compelling evidence to suggest that there is a causal link between word knowledge and development of the sensitivity to the sound system of the language. A number of recent studies have provided strong evidence to demonstrate that children also use vocabulary knowledge during the "read to learn" stage of development to understand written text. In the sections that follow, a theory of reading comprehension is described to provide a framework for the evidence that demonstrates a strong relationship between word knowledge and reading comprehension.

2.3 VOCABULARY AND READING COMPREHENSION

Reading comprehension and its relationship to vocabulary development has received equal attention in current research. Viewed as the ultimate goal of reading, comprehension is a complex process that involves fluent word recognition, making inferences, and using semantic and syntactic information. Textual events, objects, and agents are integrated and connected so that the text is understood as a coherent whole (van den Broek & Lorch, 1993). This view of reading foregrounds the importance of children's vocabulary development on their ability to comprehend a given text (Perfetti, Marron & Folz, 1996). Instruction in vocabulary has been shown to have a positive influence on reading comprehension for texts containing the target words (Stahl & Fairbanks, 1986). In addition, a number of studies have reported a moderate to

high correlation between school-age children's vocabulary development and their later reading comprehension abilities.

Roth, Speece, and Cooper (2002) investigated the relationship between performance on vocabulary tasks in kindergarten and subsequent reading comprehension scores and found moderate correlations in grades one and two. Snow, Tabors, Nicholson and Kruland (1994) reported similar findings, noting a moderate correlation between performance on oral definition tasks in kindergarten and a standardized comprehension assessment in grade one. Senechal and LeFevre's (2002) recent findings also suggest that receptive vocabulary skills measured at the beginning of kindergarten predict children's reading comprehension at the end of grade three. These data as well as evidence from similar studies (e.g., Catts, Fey, Zhang & Tomblin, 1999; Storch & Whitehurst, 2002) demonstrate that receptive and expressive vocabulary skills predict reading comprehension during the first years of instruction, but have an even stronger relationship to comprehension in later grades.

Storch and Whitehurst (2002) examined oral language precursors to reading in preschool and kindergarten children. Among the language skills evaluated, receptive and expressive vocabulary were examined as potential predictors of reading comprehension in grades one and four. Results were consistent with Senechal and LeFevre's (2002) findings, indicating that oral language skills, including vocabulary, account for significant variance in comprehension ability in grades three and beyond. Similarly, Catts and his colleagues (1999) evaluated kindergarteners' receptive and expressive language skills, including vocabulary, and compared those scores to comprehension ability in second grade. Results indicated that more than 70% of children with low comprehension scores in second grade showed delays in vocabulary and other expressive and receptive language skills as kindergarteners.

2.4 VOCABULARY KNOWLEDGE OF LOW-SES AND ELL CHILDREN

Given the pivotal role that early vocabulary acquisition plays in reading development, the disparities in vocabulary knowledge among populations of young learners with different abilities and from different social economic groups is of particular concern. The gap in vocabulary and reading achievement between children from higher socioeconomic groups and children from low-income families has been noted for more than 50 years, beginning with Loban (1964) and Chall's documentation of the "fourth-grade slump" (Roswell & Chall, 1994). Current research has provided similar findings, demonstrating that first-grade children from higher-SES groups come to school knowing about twice as many words as lower SES children (Graves & Slater, 1987). The latest report from the National Assessment of Educational Progress (NAEP, 2007) also mirrors these data, indicating that notable differences in the vocabulary acquisition and achievement of children from low-income families compared to higher-SES groups. Recent data regarding the English vocabulary development of young English Language Learners show a similar trajectory, with considerable differences noted in the reading achievement of this population of students compared to students who come from higher-SES, monolingual English homes (U.S. Bureau of the Census, 2000). Disparities are noted in respect to the number of words that school-age ELLs know as well as their level of understanding of those words as compared to age-matched monolingual speakers of English. These findings are particularly troubling considering the available data that suggests that the vocabulary differences that are established early on in a child's life tend to remain-- particularly for children who are low-income and receive less language exposure and experience early on (Biemiller, 2001; Hart & Risley, 1995).

2.5 THEORETICAL PERSPECTIVES ON VOCABULARY DEVELOPMENT

2.5.1 Lexical Quality Hypothesis

Given the importance of vocabulary development for reading and the disparities noted in achievement levels, there has been an increased interest in recent research in how word knowledge is conceptualized and the most effective method of vocabulary instruction. Theories of word knowledge and its relationship to reading comprehension have informed recent research on vocabulary acquisition and instruction by providing insight into what it means to know a word. Carey (1978) offered one of the earliest and simplest conceptualizations of word knowledge by describing the difference between a learner having a general sense of a word's meaning (*fast mapping*) and having full understanding and use of the word (*extended mapping*). The notion that word knowledge varies quantitatively and qualitatively was extended by other researchers, including Beck, McKeown, and Omanson (1987), who characterized word knowledge as a point on a continuum ranging from no knowledge to rich, decontextualized understanding of a word's meaning. Word knowledge has also been described based on its qualitative dimensions, ranging from a learner's ability to define a word to being able to use a word's meaning for discourse and reasoning (Cronbach, 1942).

Perfetti and Hart's (2001, 2002) Lexical Quality Hypothesis (LQH), an extension of the Verbal Efficiency Theory (Perfetti, 1985), further defined conceptualizations of levels of word knowledge and their relationship to reading comprehension. The Verbal Efficiency Theory is based on consistent findings that students who are less skilled in comprehension also demonstrate delays in word reading ability (Perfetti, 1985). This supports the broader idea that strong vocabulary skills facilitate comprehension. More specifically, the Verbal Efficiency

Theory emphasizes the importance of quick and automatic identification of words and word meaning to allow a reader's mental resources to be devoted to understanding the text.

The Lexical Quality Hypothesis (Perfetti & Hart, 2001, 2002; Perfetti, 2007) extends this idea by suggesting that readers need to automatically access high-quality lexical representations to comprehend a given text. In general, *quality* refers to the level in which the form and meaning components included in the mental representation of a word are precise and flexible (Perfetti, 2007). Precise lexical representations are important for readers to be able to correctly pronounce phonetically similar words (e.g., *fright* versus *fight*) and determine the meaning of homophones (e.g., *hair* versus *hare*). A learner's representation of the features of a word also needs to be flexible to be able to understand a word's meaning in varying contexts.

Perfetti (2007) identified five specific word features that characterize high-quality lexical representations: *orthography*, *phonology*, *syntax*, *semantics*, and *constituent binding*. Information about how a word is spelled (*orthography*) and pronounced (*phonology*) contributes to the reader's ability to identify and develop understanding of a word's meaning. The grammatical form and structure of the word in isolation and in context (*syntax*), and depth and breadth of knowledge of a word's meaning (*semantics*) also influence the speed and accuracy with which a reader is able to determine word meaning to comprehend a text. Repeated exposure to these defining features of high-quality word representations facilitates coherence among the information that they provide (*constituent binding*) to ensure consistent and precise retrieval of meaning. Therefore, variance in the quality of lexical representation of a word, including partial or low quality representation of any of the features of a word's identity, results in inaccurate, imprecise, or unreliable retrieval of meaning.

Skilled readers apply strong decoding, spelling, and grammatical skills as well as numerous high-quality word representations to understand a text. However, skilled readers also have low-quality representations for many words, including novel and low-frequency words that provide them with the foundational resources to get the most out of "impoverished" representations (Perfetti & Hart, 2002). For example, a skilled reader might be able to use general phonological knowledge that they have about the letter sounds in an entirely unfamiliar, domain specific word such as *bioluminescence* to correctly pronounce it. The reader may also be able to apply their understanding of the general orthographic features of the word to determine that it contains the word root *lumen*. Although the exact meaning may be unknown, this low-quality phonological and orthographic information could be applied to provide the reader with the general sense that the word means something about light.

As opposed to struggling readers, highly literate individuals also use partial representations that they have for low-frequency, domain general words to determine meaning. For example, when presented with a low-frequency word such as *immobilize,* a typical skilled reader would most likely know how to correctly pronounce the word, could indicate that it means something like "not able to move," but may be inconsistent in spelling the word. The reader has a high-quality representation of the phonological and semantic aspects of the word, but only partial knowledge of its orthography.

2.5.2 Sociocultural Theory and Word Learning

Given the strong implications that the LQH has for vocabulary instruction, it is important to examine theories that provide a foundation for the context in which word learning occurs, and the ways in which children develop the ability to independently learn new words. Based on

Vygotskian (1981) theory, young children initially require strong linguistic and social supports to gain knowledge about new words. Through interactions with mature language users in social situations, however, they gradually develop the ability to regulate their own word learning, known as self-regulation. Development of self-regulation includes a child's ability to monitor their own degree of attention and motivation, level of instructional outcomes, and independent application of learning strategies. Applied to vocabulary instruction, self-regulation of word learning occurs when children are provided with the opportunities to actively discuss and think about new words in various contexts.

Recent research has provided insight into vocabulary interventions that are most effective in fostering breadth and depth of word knowledge as well as self-regulation of word learning to facilitate comprehension. Specifically, recent studies have shown that the components of rich instruction are effective in developing young children's word knowledge by addressing each of the features that characterize high-quality lexical representations (i.e., phonology, orthography, syntax, semantics, and constituent binding) while also developing children's ability to self-regulate their own learning of new words. In the sections that follow, the modes of word learning among young children will be discussed, including a description of rich instruction and recent findings that demonstrate its effectiveness.

2.6 EFFECTIVE VOCABULARY INSTRUCTION

For decades, effective instruction has been a topic of interest for researchers who have examined vocabulary learning in school-age monolingual English speakers. Findings from recent research have influenced our understanding of the most effective ways that young children learn and

develop knowledge about words, and the type of words that should be focused on in instruction. Oral language use serves as the primary source of word learning for preliterate children. When young children interact verbally with their caregivers, they are exposed to everyday words and receive explanation and clarification of words that are either partially or entirely unfamiliar to them (Beck, McKeown, & Kucan, 2002). However, by the time children enter school, conversations no longer serve as an effective method of vocabulary growth because they rarely contain unknown or unfamiliar words that are found in written contexts (Cunningham & Stanovich, 1998). Stories that young school-age children read are equally ineffective in exposing them to high-level vocabulary because books for beginning readers are designed to support their decoding skills (Beck & McKeown, 2007).

Trade books that are typically read aloud to young school-age children are an excellent source of vocabulary growth because they contain complex text structures and more advanced words (Beck & McKeown, 2007). However, even though it has been the common practice of teachers for decades to simply read these texts aloud to children, recent research has shown that this has little to no impact on their understanding and use of the high level words that are included in the stories (Biemiller & Boote, 2006; Penno, Wilkinson, & Moore, 2002; Senechal, Thomas, & Monker, 1995). Conversely, when "read-alouds" include direct explanation of word meanings and additional activities that provide opportunities for students to use and interact with words in various contexts, they can serve as an effective method of vocabulary learning for young school-age learners (Biemiller, 2003, 2004; Penno, Wilkinson & Moore, 2002; Senechal, 1997; Senechal, Thomas & Monker, 1995). The general consensus that vocabulary learning requires meaningful interaction with words in varied contexts was first proposed by Stahl and

Fairbanks in 1986 and has served as the basis for the rich vocabulary instruction that is recommended today.

2.6.1 Rich Instruction

Beck and her colleagues (1980) were the first to develop an approach to vocabulary teaching they called "rich instruction." Rich instruction was based on the idea that knowledge beyond simple definitions of words was needed for comprehension of a text. In general, rich vocabulary instruction enables children to develop understanding of a word's meaning in various contexts by producing knowledge at a deep level (Stahl & Fairbanks, 1986). More specifically, rich instruction requires students to actively engage in thinking about word meanings, how words are used in different situations, and how words are related to one another (McKeown & Beck, 2003). Viewed through the lens of the LQH, this rich, flexible word knowledge facilitates fluent, efficient access to meaning, which enables the reader to devote their attention and energy to understanding the text (Perfetti, 2007; Perfetti & Hart, 2001; 2002).

The components of rich vocabulary instruction map onto the framework provided by the LQH and the findings that support it. They include: child-friendly definitions to explain word meanings, verbal repetition of target words, visual display of words, multiple examples of word meaning in varying contexts, questions and scenarios that encourage children to think deeply about word meaning, and repeated exposure to target words (Beck & McKeown, 2007). These components actively engage children in developing deep knowledge about words by targeting the word features that characterize quality lexical representations.

Specifically, through verbal and visual models of target words, children are exposed to their phonological and orthographic features. By providing child friendly definitions, presenting

words in various contexts, and using questions and scenarios to encourage deep thinking about meaning, rich instruction also provides young children with important syntactic and semantic information about target words. Repeated exposure to words in various contexts also enables children to develop more consistent, quality representations of the features of words so that they can be accessed as a coherent whole to determine meaning.

Many of the components included in rich vocabulary instruction are also consistent with Vygotsky's theory of learning (1986). In general, the elements included in rich instruction enable children to move beyond simple recognition of definitions to learning how to expand their word knowledge independently. Through opportunities to talk and think deeply about words, children become active participants in the meaning making process and develop consciousness about language and attention processes necessary for word learning. Multiple exposures to target words in various contexts provides the platform for children to mediate and self-regulate their own word learning and apply word learning strategies independently in and outside of the classroom setting. Findings from previous research have provided strong evidence that demonstrates that rich instruction can promote school-age students' understanding and use of vocabulary beyond simply recognizing synonyms for target words (McKeown, Beck, Omanson, & Pople, 1985; Mezynski, 1983; Stahl & Fairbanks, 1986). Past and current studies have also provided compelling evidence to demonstrate the effectiveness of rich vocabulary instruction for word learning among students from low-SES backgrounds.

In McKeown, Beck, Omanson, and Pople's (1985) earlier research, low-SES fourth graders received one of three types of instruction: instruction that focused only on association between words and traditional definitions, rich instruction that provided elaborated meanings and varied contexts, or extended rich instruction which included activities that extended word

learning beyond the classroom. The number of encounters that participants had with each word (i.e., 12 or 4) was also manipulated to determine the influence of frequency on word learning. Outcome measures included tasks of definition knowledge, story comprehension, fluency of access to word meaning, and interpretation of context. Results demonstrated that extended rich as well as rich instruction were most effective in increasing word knowledge of the target population. In addition, high frequency encounters with target words was also shown to be most effective in improving vocabulary scores.

Beck and McKeown (2007) provide a similar but more recent example of the effectiveness of rich instruction on the word learning of school-age children from low-SES backgrounds. Their research included two vocabulary studies, each with kindergarten and first grade students. The first study examined the number of sophisticated words learned by 52 children compared to 46 who received no instruction. The second study examined 76 students' word learning based on two different conditions of quantity: either three days or six days of instruction. In both studies, knowledge of target words was assessed using a picture test designed by the researchers as well as two verbal measures that required the children to demonstrate knowledge of word meaning through yes/no responses. Rich instruction in both studies involved age-appropriate trade books that contained sophisticated words. Each word was first contextualized in the story, the meaning was explained, the children were asked to repeat the word, and examples of the word in different contexts were provided. During instruction, questions were also used to encourage the children to make judgments about word meaning, and children were asked to create their own examples of the word in a new context. Results from the first study revealed that children in the experimental group learned significantly more words than those that did not receive rich instruction on the target words. Results from the second study

supported these findings and provided further evidence to demonstrate the effectiveness of rich instruction by suggesting that the vocabulary gains of children who received more instruction was twice as large.

2.6.2 Tier 2 Words

Recent research has also provided specific recommendations regarding the type of words that should be included in rich instructional activities for young children. Historically, researchers have reached little consensus regarding the question of which words should be focused on in vocabulary instruction. Over the years, interventions have included rare words that were perceived to be unfamiliar to children, or words that simply appeared in a given text (e.g., Penno et al., 2002). Rather than focusing on Tier 3 words, which are low frequency, domain specific words (e.g., *igneous*), or on Tier 1 words, which are basic words that young children are already familiar with (e.g., *run*), Beck and her colleagues (2002; 1980) suggest that rich vocabulary instruction focus on tier 2 words.

Tier 2 words are domain general words that are more refined versions of words and concepts that children are already familiar with and are understood and used by experienced language users. For instance, *enormous* is a more sophisticated version of *big*, and *ecstatic* is a refined version of *happy*. Tier 2 words are often linked to important ideas in the text and are difficult to define and describe using a brief explanation. These sophisticated words are also not likely to be targeted or developed naturally in young children, but have utility in terms of understanding written text and enhancing specificity of spoken and written language. Given the previously reviewed findings that suggest that even young children from low-income families can learn and use sophisticated words (Beck & McKeown, 2007), it is logical to question

whether other at-risk populations could also benefit from rich instruction that includes tier 2 words.

2.7 VOCABULARY INSTRUCTION FOR ELLS AND DLLS

2.7.1 English Language Learners

Most of what is known about vocabulary development and instruction of ELLs is based on findings from studies that focused on school-age children whose first language (L1) is Spanish (e.g., Carlisle, Beeman, Davis, & Spharim, 1999). In general, past and current research studies have provided evidence to suggest that L1 language skills support wording learning in English (Loban, 1964; Cummins, 1991, 2000; Carlo et al., 2004). Specifically, studies have shown that when school-age children have a strong command of Spanish, they are able to apply their knowledge of words in their L1 (e.g., Spanish: *adulto*) to learn new words in English (e.g., English: *adult*). Incorporating the student's L1 when the language shares cognates with English is one strategy that has been shown to be effective in teaching school-age children new words in English (Durgunoglu, Nagy & Hancin-Bhatt, 1993; Hancin-Bhatt & Nagy, 1994).

A growing research base has also provided evidence to suggest that the strategies and activities included in rich instruction are effective in supporting the word learning of school-age children who are native speakers of Spanish. Research has shown that providing young ELLs with repeated exposure to target words and opportunities to develop knowledge of word meaning in various contexts are important aspects of vocabulary instruction for school-age students. Use of visual aides and gestures as well as frequent opportunities to repeat target words have also

been included in successful vocabulary instruction for school-age ELLs (Silverman, 2007; Gersten & Geva, 2003). When these strategies are incorporated into vocabulary instruction that accompanies the texts that young school-age ELLs read, recent research has shown that native speakers of Spanish are able to learn text-based vocabulary at the same rate as their English-only age-matched peers (Carlo, et al., 2004; Silverman, 2007).

Despite these compelling findings, researchers have only just begun to investigate whether these instructional components are appropriate for children whose first language differs from Spanish. In addition, the literature has yet to establish whether these findings and recommendations can be applied to other populations of young children learning English, including preschool-age Dual Language Learners. In the section that follows, the available research on vocabulary instruction for preschool-age dual language learners will be presented. These studies will provide the framework for the present investigation, which aims to fill a significant gap in the available research.

2.7.2 Dual Language Learners

Recent studies conducted by Roberts (2008) and Collins (2010) are the only available to date that have examined the effectiveness of rich instruction on the word learning of preschool DLLs. These studies, both focusing on preliterate children whose home language differs from Spanish (i.e., *Hmong* and *Portuguese*), contribute preliminary data about the vocabulary acquisition of preschool DLLs. Therefore, the procedures, measures, and methods of analyses employed in these studies heavily influenced the design of the present study. In the following sections, Roberts' (2008) and Collins' (2010) work will be summarized to provide a specific context for the current investigation.

In addition to rich vocabulary instruction, Roberts' (2008) study also examined the influence of caregiver English language proficiency and home reading practices, and primary (*Hmong* or *Spanish*) and second language (*English*) home storybook reading on the English vocabulary acquisition of 33 preschoolers. Although data specific to home book reading was not considered in the design of the present research, the instructional protocol, measures, and findings regarding the influence of rich instruction, caregiver language status, and home reading practices on vocabulary acquisition did influence the development of the present study.

Specific to instruction, 12 age-appropriate storybooks and 36 Tier 1 level target words (e.g., *pond, stick, cheese*) were targeted in two six-week, small group instructional sessions. Components of classroom instruction included in Roberts (2008) study were as follows: introduction of the book, introduction of target vocabulary, teacher-lead storybook reading, a follow-up activity focused on the target words, and individual pretend reading. Although storybooks were used as the primary tool for word learning in this study, some specific elements of the classroom sessions exemplify key components of rich instruction, including: display of the target words in isolation, modeling and repetition of the words in isolation, and activities that focus the children's attention on the meaning of target words in varying contexts.

Roberts (2008) used four different measures to examine potential influences on the word learning of preschool ELLs. Two surveys were designed to examine whether factors related to the caregiver's English language proficiency and home reading practices were related to preschool ELLs' vocabulary acquisition. The survey was translated and administered by native speakers of Hmong and Spanish. Although a number of factors regarding caregiver language and home book practices were included in the survey, because of limited variability in responses, only three were included in the correlation analysis: (a) caregivers' English oral proficiency; (b)

caregivers' ability to read and write in English and their first language; and (c) number of first- and English-language children's books in the home. Findings suggested that the caregivers' English oral language skills as well as the number of English children's books in the home were related to the children's English word learning. These findings contribute viable data to the previously discussed need for further research on the influence of home language and reading practices on the word learning of young ELLs.

Three vocabulary measures were also used to examine the significance of language of home storybook reading on vocabulary learning, as well as to compare gains in word knowledge following home reading versus classroom instruction. Although the primary focus of the study was to determine the potential impact of language of home book reading on target word learning, the vocabulary measures were considered in the development of the proposed study because they were also used to determine the effectiveness of rich instruction in Roberts (2008) work. Specifically, the Peabody Picture Vocabulary Test-III [PPVT-III] (Dunn & Dunn, 1997) was administered to each participant prior to and following both of the six-week instructional sessions, and the Spanish Test de Vocabulario en Imagenes Peabody (Dunn, Padilla, Lugo & Dunn, 1986) was administered to the Spanish-speaking participants on the same testing schedule. In addition, a target vocabulary test based on the format of the PPVT-III was created and administered to evaluate the participant's understanding of target words prior to and following the home book reading and instructional sessions.

Based on the results of these three vocabulary assessments, participants demonstrated more significant gains after classroom instruction versus after home storybook reading. Although this study lacked a control group, Roberts (2008) notes that effect sizes for participant performance after receiving classroom instruction (d = .70) match or exceed those reported in

other experiments that included no-instruction controls. In addition to this evidence that demonstrates the effectiveness of rich instruction, the finding that scores on the target vocabulary test (d = 1.40; d = 1.93, respectively) far exceeded performance on the PPVT-III (d = .37; d = .41) provides additional data to suggest that rich instruction is effective in increasing preschool-age ELLs vocabularies.

Collins' (2010) recent research examined the effects of rich instruction, home language (*Portuguese*) and English baseline vocabulary, and home reading practices on the sophisticated word learning of 80 preschool DLLs. The participants in the study were matched based on English receptive vocabulary scores and randomly assigned to the experimental or control group. The experimental group listened to four pairs of texts read in English once per week for three weeks and also received instruction on a total of 56 target words during these book reading sessions. The control group listened to the texts but did not receive instruction. The current study incorporated many specific elements from Collins' research, including the components of instruction, word selection, and corresponding measures of word learning.

Although the instructional procedures included in Collins' (2010) work are limited to teacher modeling and, like Roberts' (2008) work, emphasized book reading, features of the protocol fit the description of rich instruction. During each book reading, the researcher provided verbal and visual models to define the target words in various contexts. Specifically, instruction included: (a) pointing to the illustration of the target word in the text; (b) providing a general definition of the word; (c) providing a synonym for the word; and (d) making a gesture of the word when applicable; (e) using the word in a context different from that of the text. Vocabulary words targeted in this instructional sequence were selected by the researcher and inserted into the storybooks to control the level of sophistication of the words, and to ensure that there were an

equal number of words in each text and that each word corresponded to the story illustration. Unlike Roberts' (2008) work, Collins' (2010) study included some specific criteria for word selection that are consistent with the recommendations of vocabulary for rich instruction: (a) applicability to the story; and (b) rare or sophisticated versions of words that were familiar to the children.

Collins (2010) used four different measures to investigate the following potential influences on preschool ELLs sophisticated word learning: (a) first- and English-language receptive vocabulary knowledge; (b) home reading practices; and (c) rich instruction. As opposed to Roberts' (2008) work, Collins established a baseline of the children's receptive vocabulary knowledge in their first language (*Portuguese*) as well as English to determine their potential influence on the children's ability to learn target words. To do this, native speakers of each language administered Form A of the PPVT-III (Dunn & Dunn, 1997) as well as a direct translation of Form B in Portuguese to the participants. The potential influence of home reading practices on preschool ELLs' word learning was also examined in this study. A caregiver questionnaire was created and administered to gather data regarding the frequency of book reading, types of materials read by adults and to children, topics of discussion, and language of reading that occurred in the home of each participant. The corresponding analysis focused on frequency of reading and language of home reading to determine their contribution to second language vocabulary acquisition. Finally, a target picture vocabulary test based on the PPVT-III was constructed and administered to measure word learning of target words from each pair of texts.

Hierarchical regression analyses were conducted to determine if target vocabulary scores could be predicted from instruction, baseline first- and second-language vocabulary knowledge,

or home reading practices. Among these possible main effects, findings suggested that rich vocabulary instruction made the largest contribution to second language word learning. Results also suggested that home reading frequency and English receptive vocabulary knowledge made significant contributions to target word learning. The relationship between home reading frequency and target word learning was further analyzed through a series of regression equations. Findings suggested that the influence of home reading frequency on children's word learning was partially mediated by their baseline English vocabulary knowledge. In other words, the more children read and are read to, the more their second language will develop, and the more sophisticated words they will be able to acquire through rich instruction. These results provide further support for Roberts' (2008) earlier findings by demonstrating the effectiveness of a vocabulary intervention that includes components that are consistent with what is considered rich instruction. In addition, the finding that home reading practices as well as English vocabulary knowledge influence young DLLs' ability to acquire new words highlights the importance of including these factors in future research.

The work of Roberts (2008) and Collins (2010) provided a salient context for the development of the current study, which aimed to investigate preschool DLLs' ability to learn sophisticated vocabulary through rich instructional interactions and other potential influences on their word learning. Specifically, findings from this study will contribute much needed data to fill the considerable gaps in the research regarding what we know about effective methods of vocabulary instruction for young children learning to speak English and, even more specifically, preschool-age DLLs. In addition, this research will provide evidence to contribute to the understanding of how preschool-age children's home language and English vocabulary

knowledge as well as language and reading practices in the home influence preschool DLLs' word acquisition.

3.0 METHODOLOGY

The purpose of this study was to investigate the effectiveness of rich vocabulary instruction on the vocabulary acquisition of preschool Dual Language Learners. In addition, the study analyzed four potential influences on word learning: (a) children's baseline receptive vocabulary in their home language, (b) children's baseline receptive vocabulary in English, (c) language use in the home, (d) number of months in the United States, and (e) frequency of home book reading. Specifically, this study addressed the following research questions:

1. Is rich vocabulary instruction of sophisticated English words effective in increasing preschool Dual Language Learners' ability to learn those words?
2. Does baseline receptive vocabulary in the child's home language and in English have a significant relationship to target word learning?
3. Do the following factors have a significant relationship to preschool Dual Language Learner's vocabulary development: home language, number of months in the U.S. and frequency of home book reading?

In the sections that follow, the research site, participants, materials, procedures, measures, and data analysis are discussed.

3.1 RESEARCH SITE

The study was conducted in a private preschool that is located in a suburban school district in western Pennsylvania. The district where the preschool is located has experienced a significant increase in refugees from Africa, Asia, Eastern Europe and the Middle East since 1999 due in part to its proximity to a Catholic charity organization. In addition to providing funding for the preschool, this organization also sponsors numerous refugee families by assisting them in gaining access to employment and other community resources throughout the resettlement process. The organization also provides government subsidized housing in a small neighborhood where the preschool is located. The large majority of refugee children and their families move to this area of western Pennsylvania after fleeing violent conflict or government persecution and living in refugee camps for many years in their home or neighboring country. Due to the complex needs of this population, the school district struggles to provide appropriate resources and education for these students, who speak approximately 35 different languages and dialects.

The researcher selected this preschool as the research site to fill three areas of need: (a) research that focuses on the vocabulary development and instruction of preschool children learning two languages simultaneously; (b) information regarding the children's language skills in their home language and in English; and (c) effective methods of vocabulary assessment and instruction for a mixed language preschool classroom. Through meetings and email correspondence, the lead teacher, site director and social workers reported the need to gain a better understanding of this diverse group of children's English language development, skills in their home language, and effective methods of vocabulary instruction. Very little is known about vocabulary development and instruction of young children who are learning English, and less

research is available that focuses on preschool-age children who are DLLS. This research site provided a unique opportunity to contribute much needed data to this line of research.

3.2 PARTICIPANTS

The participants for this study were 21 preschool-age children, the primary caregiver of each child, and the lead classroom teacher. A total of 28 children attended the preschool. Inclusion criteria for participation in the study included consistent attendance as reported by the lead teacher, observed ability to maintain adequate attention and time on task to participate in instructional activities and assessments, and normal bilateral hearing and vision as demonstrated by screenings that were completed before pre-testing began. Based on these criteria, two of the 28 children were excluded due to behavioral and attention concerns identified by the lead teacher, three children were excluded due to inconsistent attendance, and two children moved and changed schools one week into the study. Among the 21 children who were invited to participate in the study, four were five years old, 13 were four years old, and four were three years old at the start of the study. Twelve of the 21 participants were male and 9 were female. The older group of children (i.e., four five-year-olds and six four-year-olds) attended preschool on Mondays, Wednesdays and Fridays, and the younger group (i.e., seven four-year-olds and four three-year-olds) attended preschool on Tuesdays and Thursdays. The frequency and percentage of participants based on age are displayed in Table 1.

Table 1. *Age Range of Child Participants*

Age Range (years; months)	Frequency	Percent
3;0 – 3;6	4	19%
4;1 – 4;6	10	47.5%
4;7 – 5;0	3	14.3%
5;1 – 5;6	4	19%

Five of the 21 child participants spoke English only, while 16 were considered Dual Language Learners. For the purpose of this study, the previous definition of *Dual Language Learner* (DLL) is used to describe the majority of the child participants included in this study. Specifically, a DLL is a young child who acquires two languages simultaneously or learns a second language while continuing to develop their first language (Ballantyne, Sanderman, D'Emilio, & McLaughlin, 2008). Among the child participants who were considered to be Dual Language Learners, five spoke Kirundi, five spoke Karen, one spoke Burmese, one spoke a combination of Karen and Burmese, two spoke Nepali, and two spoke a combination of Ahiska Turkish and Russian in the home. Three of the five children who spoke only English were born in the U.S. and four out of five participants in this language group were children of refugees who were consistently exposed to (but not necessarily required to speak or understand) at least one African language or dialect in the home. Appendix A includes a table that describes the typology of each language. Table 2 presents the demographics of the child participants based on the primary language spoken in the home:

Table 2. *Home Language Frequency*

	Kirundi	Karen	Burmese	Nepali	English	Ahiska Turkish/Russian	Karen & Burmese
Frequency	5	5	1	2	5	2	1
Percent	23.8%	23.8%	4.8%	9.5%	23.8%	9.5%	4.8%

One primary caregiver of each child and the lead preschool teacher were also invited to participate in the study. In order to participate, caregivers had to be between the ages of 16 and 75 and be willing to answer questions about literacy and language practices in the child's home during a face-to-face interview. Among the 21 child participants, the biological parent of 18 and the primary caregiver (a grandparent and an adult sibling) of two participated in the study. An interview for one of the five-year-old participants in Group A was not completed due to time constraints. A translator was needed in 11 out of 20 of the interviews that were completed. The caregiver interviews are described in greater detail in the Measures section of this document.

The lead preschool teacher, who is a native speaker of English, was also invited to participate in the study. The lead teacher is a licensed school counselor and also holds a master's degree in education. Prior to her participation in this study, she worked for 13 years providing educational and counseling services to young children and families from linguistically and culturally diverse backgrounds. In addition to providing input regarding the schedule and structure of the instruction and assessments throughout the study, the lead teacher also participated in two control instructional sessions and assisted the researcher on the third day of rich instruction.

3.3 MATERIALS

Five children's tradebooks were selected for control conditions and rich instructional sessions for this study. Specifically, *Edward the Emu* (Knowles, 1988) and *Hi Cat!* (Keats, 1970) were used for each control session, and *Big Al* (Clements, 1988), *Tacky the Penguin* (Lester, 1988), and *It's Mine!* (Lionni, 1985) were used to introduce the target vocabulary on the first day of each of the three rich instructional sessions. All books were appropriate for preschool-age children based on book reviews and examination of complexity of ideas and themes in the text. The illustrations, topics, and characters were also judged to be of interest for this age group. These five books were also selected because they do not contain media-related content or characters and each has a similar number of words per page (average = 36). All of the books were unfamiliar to the children based on the preschool teacher's report, and each of the texts contained cross-cultural topics, settings, and characters.

Along with the above criteria, all books selected for this study also contain five Tier 2 vocabulary words. In addition to being sophisticated words that have high utility, target words were selected for this study because they correspond to the illustrations in the text. Thus, children would be able to establish an initial concrete representation of each word. Given developmental expectations of articulation skills for three, four, and five-year-old children, the number of syllables in each word was carefully considered. Specifically, four of the target words have one syllable, 13 have two syllables, and two contain three syllables. The pronunciation and meaning of the words in each tradebook were also carefully examined in an attempt to ensure that the three sets of five words selected for each of the rich instructional sessions were as phonetically and semantically dissimilar as possible. Appendix B provides a summary of the content of each book as well as the Tier 2 words in each text.

3.4 PROCEDURES

The study was conducted over a period of 12 weeks and included five phases: pretesting, control instructional sessions and assessments, rich instruction and assessments, rich instructional review sessions, and posttesting. Four graduate students in the field of education who had previous experience evaluating and teaching young children from diverse backgrounds administered all of the Target Vocabulary Tests that were included in each phase of the study. The researcher met with each evaluator individually before testing began to explain the purpose of the assessments and to demonstrate how to administer them. The evaluators were provided with the opportunity to practice administering the tests and received feedback from the researcher. Each testing session was videotaped, and the researcher reviewed the videos throughout the study to ensure that test administration, including use of verbal prompts, was consistent across each of the evaluators.

At the lead teacher's request, every attempt was made to maintain ecological validity in regards to the schedule, location, and group size for instruction. Therefore, all children who attended the preschool were included in the control and rich instructional sessions, but only the 21 children who were invited to participate in the study completed the corresponding assessments. Among the 21 child participants, 10 were considered to be in Group A for the purpose of the study because they were in the older preschool class and received instruction on Mondays and Wednesdays. Group B included 11 children who received instruction on Tuesdays and Thursdays.

Enrollment on a typical school day ranged from 10 to 15 children. The lead teacher typically assigned half of the class to one of two learning centers that they rotated through after circle time each day. These same procedures were followed for rich instruction, with half of the

total number of children in each class working with the researcher after circle time and the other half working with the lead and assistant preschool teachers and then rotating. The following sections provide a detailed description of the schedule and components included in each phase of the study, and Appendix C presents an outline of these procedures.

3.4.1 Pretesting

Beginning during Week 1 of the study, pretest measures were administered to evaluate the children's baseline receptive vocabulary in their home language and their baseline receptive vocabulary in English. Specifically, the children's receptive vocabulary development in their home language was measured using a translated version of Form B of the Peabody Picture Vocabulary Test-III (Dunn & Dunn, 1997). This translation is referred to as the Home Language Picture Vocabulary Test (HLPVT). The HLPVT was administered at the convenience of the translator and the families. Therefore, testing occurred at various times throughout the duration of the study. Due to inconsistent attendance and previously scheduled classroom activities, the PPVT-III was administered between Weeks 1 and 2 of the study. The children's knowledge of the 15 vocabulary words included in the rich instructional sessions and their understanding of the 10 words that were targeted in the control sessions was also evaluated during Weeks 1 and 2. Specifically, both the verbal and picture portions of the Total TVT Pretest were administered to the children in Group A. Given the age of the children in Group B, their limited English language status, and the length of the verbal portion of the Total TVT Pretest, only the picture portion was administered to the participants in this group. Each of the three assessments administered as pretest measures (HLPVT, PPVT-III and Total TVT Pretest) are described in detail in the Measures section of this document.

3.4.2 Control Instructional Sessions and Assessments

Two control instructional sessions were included in this study to provide a means of comparing the children's word learning based on the method in which text-based vocabulary is typically taught in the classroom compared to word learning following rich instruction. The procedures for the control sessions were designed based on the lead teacher's report of vocabulary instruction in the classroom in general, and more specifically, how new words from books read during circle time were typically taught in the classroom. Specifically, books read during circle time were chosen based on an instructional theme, such as shapes, colors, and seasons. The children were exposed to new theme-related words during the book reading and the meaning of those words was reinforced during learning station activities. For example, if the book focused on different shapes, the children might complete a craft in one of the learning stations that included circles, squares, and triangles. The lead and assistant teacher would review the name of each shape and provide opportunities for the children to name them as they completed the craft. Target words or concepts were typically reviewed through discussion during snack time, which immediately followed the learning stations.

During Weeks 2 and 3 of the study, before the first rich instructional session, the lead preschool teacher read *Edward the Emu* (Knowles, 1988) to each group of children (Group A and Group B) uninterrupted during circle time. During Weeks 11 and 12 of the study, the teacher read *Hi Cat!* (Keats, 1970) in the same manner. During both of these control sessions, the books were read with the same frequency in which each set of five words was targeted through rich instruction: two times per week for two weeks for each group of children. In addition to the daily book readings on each day of the control sessions, the lead preschool teacher was encouraged to

relate any of the activities or discussion during circle time, learning stations, or snack time to any part of the texts in the same manner and frequency that she typically would.

During the first control session, the lead teacher did not relate the learning station activities to the content or theme of the text. However, both the assistant and lead teachers frequently asked the children questions to engage them in a discussion about the animals presented in the text during free play time. The researcher also observed the teachers frequently praising the children when they recalled information from the text based on previous readings or used the name of one of the characters outside of the context of the book during the first control session. Based on a review of field notes and videos, little to no instruction or reinforcement of vocabulary or text-based themes beyond the repeated readings of the corresponding text occurred during the second control session.

3.4.2.1 Assessments.

A Target Vocabulary Test that included verbal and picture portions was administered to both groups of children to evaluate their understanding of each set of five selected words after each of the two control sessions (TVT C-1 and TVT C-2). Specifically, the TVT for each control session was administered on the fourth and final session of the control instructional sequence.

3.4.3 Rich Instructional Sessions and Assessments

The present study included a four-day rich instructional sequence for each of the three sets of five target vocabulary words. As was the case for the control sessions, four rich instructional sessions for each set of five words were conducted two times per week over the course of two weeks for both groups of children. The format and content of this instruction was based on

findings from research focusing on vocabulary instruction for ELLs (e.g., Gersten & Geva, 2003; Silverman, 2007), previous work by Beck and McKeown (2007; 1997), and the instructional recommendations of Beck and McKeown (personal communication, December, 2009).

A preliminary model of the four-day instructional sequence was piloted with a small number of children from Group A and a small number of children from Group B two weeks before pretesting began. A book similar to the texts that were used for the control and rich instructional sessions that also includes five Tier 2 target words was used for the pilot. Based on observations and field notes regarding the children's spontaneous verbalizations, behavior, attention, and level of participation in the classroom, the original scripts for each day of rich instruction were modified to include additional opportunities for verbal and physical participation as well as more visual aides.

The final version of the rich instructional sessions included the following components: (a) introduction of target words through the context of authentic children's literature; (b) child-friendly definitions and explanations of target words; (c) questions and scenarios to help the children think critically about the target words; (d) various examples of the words in different contexts; (e) opportunities for the children to pronounce the words; (f) repeated exposure to the target words; (g) hands-on activities to encourage generalization of word meaning through active participation and engagement. The length and linguistic complexity of the questions, verbal models, and the use of visual aides and multimodal activities were carefully considered in the design of the instructional activities to ensure that they were interesting and engaging for three-, four-, and five-year-old children. Current research on vocabulary instruction for English Language Learners, observations of the children's English language use during the instructional pilot, and results from the PPVT-III also informed the development of the final rich instructional

scripts. In addition, definitions for target words included simple descriptions of the word's meaning rather than synonyms. The level of familiarity of the words that surrounded the target word in each sentence was controlled as frequently as possible to ensure that descriptions and explanations of the target words were comprehensible to the children. Furthermore, the structure of sentences that included the definition and explanation of each target word was consistent, and verbal models and explanations were all presented in present tense. A detailed description of the instructional activities on each of the four days of rich instruction is presented in the sections that follow.

3.4.3.1 Day 1: Introduction of Target Vocabulary.

Each rich instructional session began with the uninterrupted reading of a tradebook. After this reading, the researcher introduced each target vocabulary word individually by: (a) briefly recapping the section of the book that related to each target word; (b) pointing to the illustration in the book that depicted the word to contextualize it within the story; (c) asking each child to touch the picture in the story that demonstrated the meaning of the target word; (d) providing a child-friendly definition of the word (e.g., "Tremble means to shake all over because you're really scared or really cold"); (e) repeating the definition and asking the children to repeat the word to create a phonological representation ("Let's say the word together that means to shake all over because you're really scared or really cold").

To provide an opportunity for physical participation, the researcher modeled a fist pumping motion as the target word was repeated. The researcher then showed the children a picture that displayed the target word in a context other than the one that it appeared in the story and described the picture using the same child-friendly definition (e.g., "These people are swimming in really cold water. You can tell by their faces that the water is so cold that it makes

them tremble; it makes them shake all over"). Finally, the researcher repeated the definition of the word and asked the children to repeat the word again. These procedures were followed for each of the five words that were targeted in each of the three texts that were used for rich instruction. Appendix D provides an example of the script for day one of rich instruction.

3.4.3.2 Day 2: Example/Non-Example Verbal Activities with Pictures.

On the second day of instruction, the children were presented with picture scenarios related to each target word. The pictures and corresponding dialogue were designed to encourage the children to think deeply about each target word by considering its meaning in different contexts. The researcher first reviewed each of the five target words from Day 1 by (a) pointing to the word on a poster board and pronouncing it for the children; (b) showing the children the picture that was associated with the target word from Day 1; (c) providing the same child-friendly definition of the target word from Day 1 and contextualizing the word within the picture.

The children were then shown four individual pictures for each target word and were asked to consider if each picture matched the correct meaning of the word. When the picture matched the definition of the target word, the children were asked to say the word (e.g., "If you see a picture of something that is really bad or really scary say, "dreadful"). If the picture didn't match the target word, the children were asked to put their fingers to their lips and shake their head no. Finally, the researcher repeated the definition and provided a verbal prompt for the children to say the target word (e.g., "Let's say the word together that means really bad or really scary").

Verbal modeling was provided following incorrect responses throughout the Example/Non-Example activities. For instance, if the children identified a picture of ice cream as being dreadful, the researcher said, "This is a picture of ice cream. It isn't really bad or really

scary. It's not dreadful". The researcher then modeled the correct response by putting her fingers to her lips and shaking her head no. All of the above procedures were followed for each picture that corresponded to each target word. Stickers were used to reinforce positive behavior and participation during and immediately following rich instruction on Day 2 and Day 4. Specifically, the children were provided with the opportunity to place stickers next to each target word on the poster board during the instructional activities, and they were permitted to choose a sticker at the end of the instructional session if they demonstrated good attention and time on task. Appendix E provides a sample script for Day 2 of rich instruction.

3.4.3.3 Day 3: Multimodal Activities.

On the third day of rich instruction, the children engaged in a variety of multimodal activities that focused their attention on the meaning of each target word in a new context. The researcher first showed the children the picture that was associated with the target word from Day 1 and provided the same child-friendly definition of the word. The multimodal activity was then explained by using the target word in a new context (e.g., "We're going to do something that's odd; we're going to walk around the room with gloves on our feet and socks on our hands"). The multimodal activities involved the children creating visual and gestural representations of the meaning of each target word through drawing, sorting objects, acting out the target words, and participating in age-appropriate games. During the activities, the researcher provided verbal models to ensure that the children connected the task with the word's meaning. For example, while the children were walking around with socks on their hands and gloves on their feet, the researcher said, "That's odd! You have socks on your hands and gloves on your feet. That's not something we usually see or do".

Given the length of time that each multimodal activity required and the time available for instruction, the assistant and lead preschool teachers were asked to assist the researcher on Day 3 of rich instruction. Specifically, the researcher reviewed the instructional script for two of the five target words and demonstrated each multimodal activity for the classroom teachers, including introduction of each word and use of verbal models during the activity. The lead and assistant teacher then used the instructional script and related props to lead the two multimodal activities together with half of the children from each group in the second learning center. Appendix F provides a sample script for Day 3 activities for rich instruction.

3.4.3.4 Day 4: Review with Pictures and Questions.

On the fourth and final day of rich instruction, the researcher reviewed the target words with the children using new pictures and questions. First, the researcher reviewed each of the five target words from Day 1 by pointing to the word on a poster board and pronouncing it for the children. Two photographs were presented horizontally on the same 8 ½ X 11 inch page to the children- one picture that represented the definition of the target word and one picture that represented the opposite of the target word. The researcher asked the children a question that included the target word (e.g., “Which fish looks odd?”) and provided verbal reinforcement following correct responses by praising the child and describing the picture using the target word (e.g., “Good! This fish is riding a bicycle. That’s not something we usually see. That’s odd!”). Following incorrect responses, the researcher both described the picture and explained why it did not represent the target word (e.g., “This is a picture of a yellow fish swimming. Fish are not odd; we see them swimming in the water all the time”), or described the picture using the target word in a sentence. The researcher then asked the children a question that provided them with an opportunity to verbalize their understanding of the target word in a new context (e.g., “What

could you do that would be odd?"). As previously noted, stickers were used as positive reinforcement throughout the instructional activities on Day 4. Appendix G provides a sample script for Day 4 of rich instruction.

3.4.3.5 Assessments.

A Target Vocabulary Test that included a picture and a verbal portion was administered after the instructional sessions for each set of target words (TVT RI-1, TVT RI-2, TVT RI-3). Specifically, to evaluate their understanding of each set of five target vocabulary words, the TVT for each book was administered individually to each child immediately following instruction on the fourth and final day of rich instruction.

3.4.3.6 Rich Instructional Review Sessions.

Given the age of the children and based on recommendations by Beck and McKeown (personal communication, December, 2009), each of the 15 words from the three books used for rich instruction were reviewed during Week 10 of the study. A color photograph of an object or group of objects used for the multimodal activities on Day 3 of rich instruction, or a picture of the children participating in the activity was used to represent each of the 15 target words for the review sessions. The researcher used the pictures to engage each child individually in a discussion about each target word by describing the picture and providing the child-friendly definition of the word. For example, for the target word *odd,* the researcher displayed a color photograph of one of the children wearing socks on her hands and said, "Remember when we put socks on our hands? We put socks on our hands and gloves on our feet and walked around the room. That's not something we usually see or do, so we said that it was…" The researcher used a rising intonation pattern and expectant delay to signal to the child to finish the sentence using the

target word. If the child did not respond or used the incorrect word to label the picture, the researcher modeled the correct response and provided a verbal prompt for the child to repeat the target word (e.g., “Odd! Let’s say the word together that means something that we don’t usually see or do”).

3.4.3.7 Posttesting.

The Total TVT, which was used as a pretest, was re-administered as a posttest to evaluate each participant’s understanding of words targeted during the control and rich instructional sessions. The Total TVT posttest was originally scheduled during Week 13 of the study. However, due to a shortened school calendar the Total TVT posttest was administered during Week 11, one week before the second control session. Therefore, the Total TVT posttest included the same words and corresponding pictures as the Total TVT pre-test with the exception of the five target words for the second control session. As previously noted, the picture and verbal portions of the Total TVT were administered to the children in Group A while only the picture portion was administered to the children in Group B.

3.4.4 Measures

Measures were developed to provide data to answer each research question.

The first research question is: *Is rich vocabulary instruction of sophisticated English words effective in increasing preschool Dual Language Learners’ ability to learn those words?*

To answer the first research question, the researcher created Target Vocabulary Tests (TVTs) to evaluate the effectiveness of the study’s vocabulary instructional program. The study included six different Target Vocabulary Tests: three separate TVTs that assessed the children’s

understanding of each set of five target vocabulary words after receiving rich instruction on those words (TVT RI-1, TVT RI-2, TVT RI-3), two TVTs that measured word learning after the control instructional sessions (TVT C-1, TVT C-2), and one TVT that included all 25 target vocabulary words that was used as a pretest and posttest measure (Total TVT). Each TVT was administered by outside evaluators immediately following instruction on the fourth day of each of the control and rich instructional sessions. When participants were absent from school, it was not possible to make up missed testing sessions. This resulted in missing data, which decreased the number of children that were included in some of the analyses.

Based on findings from recent studies that suggest the importance of multiple methods to assess depth of vocabulary knowledge (Beck & McKeown, 2007), each TVT included two parts: a visual part that made use of pictures, and a verbal part that made use of verbal prompts. The picture portion of the Target Vocabulary Tests is a receptive vocabulary measure that was designed based on the format of the Peabody Picture Vocabulary Test-III [PPVT-III] (Dunn & Dunn, 1997). In the picture portion of each TVT, the target vocabulary was depicted in drawings that differ from the illustration that corresponds to the words in the tradebook. The target pictures in the Total TVT also differed from the pictures included in the individual TVTs. All pictures included in each TVT were original black-and-white line drawings created by a professional graphic artist. Many of the drawings were used in the recent research of Beck and McKeown (2007), and the same artist drew the additional pictures that were needed for the current study in the same style. Appendix H includes a sample page from the picture portion of the Total TVT.

The new pictures that were drawn for this study were piloted with a group of three- and four-year-olds that are monolingual speakers of English to verify the validity of the test items before including them in the study. Participants for the pilot were recruited through a Mothers of

Preschoolers (MOPS) group at a local church and demonstrated age-appropriate receptive and expressive language skills and normal bilateral hearing and vision as reported by their primary caregiver. The children who participated in the pilot identified pictures that corresponded to common synonyms for each target word. For example, the word big was used in place of the target word tremendous. The drawings of the new target pictures were modified slightly for the final version of each TVT based on the average response of the children included in the pilot. These procedures are consistent with those used by Beck and McKeown to pilot receptive vocabulary assessments in their previous work (M. McKeown, personal communication, December 23, 2009).

To administer the picture part of each TVT, an evaluator provided the verbal prompt, "Show me" or "Point to" followed by the target word (e.g., "Show me odd"). Each TVT included one picture that corresponded to each target word. The Total TVT pre-test included all 25 target words from both control sessions (TVTC-1, TVTC-2) and each of the three rich instructional sessions (TVTRI-1, TVTRI-2, TVTRI-3) and was therefore worth a total of 25 possible points. The individual TVTs that corresponded to each control and rich instructional session (i.e., TVTC-1, TVTRI-1, TVTRI-2, TVTRI-3, TVTC-2) included one picture for each of the five words targeted during instruction for a total of five possible points per test. The Total TVT Posttest included one picture that represented each of the 15 words targeted during rich instruction as well as one picture that corresponded to each of the 5 words from the first control session and was therefore worth a total of 20 possible points. A sample page from the picture portion of the Total TVT is included in Appendix H.

The verbal portion of each TVT is a second researcher-designed receptive vocabulary measure that included two types of yes/no questions: (a) a definition item (e.g., Does *tremendous*

mean “tiny?”); and (b) two scenario items (e.g., If you found a little piece of paper on the ground, would you say, “That’s tremendous?”). The questions were written using the general format from Beck and McKeown’s (2007) recent work, but the number of words per verbal item was reduced and the linguistic complexity of each sentence was controlled in consideration of the participant’s age and English language status. Informal observations of the children’s language use during the instructional pilot as well as the results from the PPVT-III also informed the development and revisions of the verbal portion of the TVTs. Specifically, every attempt was made to control the level of familiarity of the words that surround the target word in each sentence so that the children’s attention and cognitive resources could be focused on the meaning of the target word. In addition, sentence structure for each question was consistent across each TVT and all verbal prompts were written in present tense.

As previously stated, the verbal portion of the Total TVT pre- and posttest was administered only to the children in Group A, and the verbal portion of each of the individual TVTs (i.e., TVTC-1, TVTRI-1, TVTRI-2, TVTRI-3, TVTC-2) was administered to both groups of children. The verbal portion of each of the TVTs included three yes/no questions for each target word. Scoring procedures for the verbal portion of the TVTs were developed based on a similar method used by Beck and McKeown (2007) in their recent work. Specifically, one point was given when the participant correctly answered two out of three questions for each target word, giving them a total of five possible points on the verbal portion. The verbal portion of the Total TVT included all 25 target words (15 included in rich instruction and 10 included in the control sessions), and therefore included 25 possible points for the picture portion and 25 possible points for the verbal portion. A sample page of the verbal portion of the Total TVT is included in Appendix I.

The second research question is: *Does baseline receptive vocabulary in the child's home language and in English have a significant relationship to target word learning?*

To establish a baseline of the children's receptive vocabulary skills in English, the researcher administered Form A of the Peabody Picture Vocabulary Test-III [PPVT-III] (Dunn & Dunn, 1997) to each child individually during weeks one and two of the study. The PPVT-III is a forced-choice receptive vocabulary measure that consists of individual pages containing four pictures - one that depicts the target word and three pictures that are distractors. On each page, the evaluator used the phrase "Point to" or "Show me" before reading each target word; then the child was required to point to the picture that corresponded to that word. Specified ceiling rules were followed in which testing continued until each participant missed 8 or more errors in a set. Raw scores (i.e., the last test item administered minus the number of recorded errors) were converted to standard scores for each child. Standard scores on this assessment are interpreted based on an average of 100 and a standard deviation of 15. Therefore, children with standard scores between 115 and 85 were considered to have average or age-appropriate receptive vocabulary skills in English. Scores between 84 and 70 corresponded to a mild delay, 69 to 55 indicated a moderate delay, and standard scores below 55 suggested a severe delay in English receptive vocabulary development. Reliability for the English version of the PPVT-III is between .91 and .94.

Due to the lack of standardized receptive vocabulary assessments available in the languages other than English that were represented in the sample, each child's receptive vocabulary development in their home language was measured using a translated version of Form B of the PPVT-III, which is referred to as the HLPVT. A native speaker and/or translators who spoke Kirundi, Nepali, Burmese, Karen, Burmese/Karen, and Ahiska Turkish/Russian

translated and administered Form A of the PPVT-III to each child at various times throughout the study. For the translation of the test, the translators were asked to identify words that had no direct translation in the target language. The identified words were removed from the assessment of each child who spoke the same language. For example, the same 24 words were removed from the HLPVT for each of the 5 children who spoke Karen. Once the content of the test was adjusted for each participant based on their home language, the HLPVT was administered using the same procedures as the PPVT-III. Due to the school year ending two weeks early, the HLPVT was not administered to one of the 21 participants. Scores were obtained by dividing the raw score (i.e., the ceiling item minus the total number of errors) by the total number of items administered to each child. This value rather than standard scores was used in the analysis due to the fact that the PPVT-III has not been standardized in the languages that the test was administered in. Appendix J presents the items included in the HLPVT.

The third research question is: *Do the following factors have a significant relationship to preschool Dual Language Learner's vocabulary development: home language, number of months in the U.S. and frequency of home book reading?*

Characteristics of the home environment have been shown to have a strong influence on monolingual English speaker's vocabulary development (e.g., Scarborough & Dobrich, 1994; Senechal, Thomas & Monker, 1995). Recent research that has examined these variables in studies focusing on ELLs has provided similar evidence, suggesting that factors such as frequency and language of home book reading contributes to second language vocabulary acquisition (Barrera & Bauer, 2003; Reyes & Azuara, 2008). However, additional data are needed to specify which features of a DLL's home environment have a relationship to vocabulary learning.

To answer the third research question, the researcher conducted a face-to-face interview with all but one of the participants' primary caregivers. The interviews were scheduled at the convenience of the translators and families and were conducted during the same meeting that the HLPVT was administered. The researcher developed a preliminary list of interview questions based on the work of other researchers (e.g., Dickinson & DeTemple, 1998; Collins, 2010; Roberts & Neal, 2004) who have also examined the influence of home language and literacy practices on children's emergent language and literacy development. The initial list of questions was modified based on recommendations of an expert in the field of foreign language education (R. Donato, personal communication, February 10, 2010). Each translator also reviewed the final list of questions prior to the interview to confirm that they were culturally unbiased. Three variables were included in this analysis that corresponded to the third research question: home language, number of months in the U.S., and frequency of home book reading. A coding scheme was created for the variable of home language, and the range of responses regarding the frequency with which each of the participants was read to in the home were also coded for the purpose of the analysis. Raw values reported by the caregivers for the number of months that each child lived in the U.S. were also used to analyze potential relationships with the children's word learning. Appendix K includes the complete list of interview questions.

3.5 DATA ANALYSIS

The mean gains in vocabulary acquisition from pretest to posttest were analyzed using a series of one-way repeated measures analyses of variance (ANOVA) that included a within-subjects factor of time. Performance from time point to time point was examined for the picture portion

of each assessment separately from the verbal portion. First, mean scores on the individual posttests administered after rich instruction (TVT RI-1, TVT RI-2, TVT RI-3) were treated as repeated measures and compared across time. The children's performance after the first control session (TVT C-1) was compared to vocabulary learning after the first rich instructional session (TVT RI-1). Similarly, the children's vocabulary learning after the second control session (TVT C-2) was compared to performance on posttest associated with the last rich instructional session (TVT RI-3). Potential differences in pre-to-post gains were also analyzed by comparing mean scores on the Total TVT pretest compared to the children's performance on the Total TVT posttest. A series of 2X3 or 2X2 mixed repeated measures ANOVAs were also conducted to examine potential differences in mean TVT scores of children when the children were separated by age (i.e., Group A compared to Group B).

To answer the second and third research questions, the statistical procedure of Pearson's correlation was used to investigate whether the following variables had a significant relationship to word learning: baseline vocabulary skills in English, baseline vocabulary in the children's home language, home language, frequency of home book reading, and number of months in the U.S. Specifically, the relationship between each of these variables and performance on the picture and verbal portion of each posttest administered after rich instruction (TVT RI-1, TVT RI-2, TVT RI-3, Total TVT posttest) was examined.

3.6 THEORETICAL PERSPECTIVES FOR HYPOTHESES

The review of the current research and theoretical perspectives of word learning and emergent language and literacy acquisition informed the hypotheses that correspond to each research

question for this study. In response to the first research question, the researcher hypothesized that results from the assessments included in this study would demonstrate that (a) rich instruction was effective in increasing the participants' knowledge about the target words; (b) the number of words learned based on each control session would be significantly different from word learning based on rich instruction; (c) children in Group A would demonstrate greater overall gains than children in Group B; and (d) the number of words learned would progressively increase during each subsequent phase of rich instruction.

The components of rich instruction, including word choice and use of verbal and physical models and opportunities for participation, are consistent with developmental and age-level expectations for the speech and language skills of preschool-age children. In addition, the elements included in rich instruction are consistent with findings and recommendations from three lines of current research: best practices in vocabulary instruction (e.g., Beck & McKeown, 2007), general instructional recommendations for teaching English vocabulary to second language learners (e.g., Silverman, 2007), and vocabulary instruction for preschool-age dual language learners (e.g., Roberts, 2008; Collins, 2010). Therefore, it was anticipated that each of the participants would demonstrate gains in their knowledge of target words from Total TVT pre-test to Total TVT posttest, and across individual TVTs following rich instruction. Considering their age and level of English proficiency at the start of the study, it was anticipated that children in Group B would demonstrate less overall gains than children in Group A. Finally, given the qualitative and quantitative differences of instruction provided in both of the control sessions, overall gains following rich instruction were expected to be considerably greater.

The strategies, target words, activities and expectations for verbal and physical participation that were part of the rich instructional program were very different from what this

group of preschool children was accustomed to in the classroom. Therefore, in addition to learning the meaning of 15 new words in English, the children were also introduced to social norms and school behavior needed for kindergarten, including maintaining adequate attention and time on task. It was also anticipated that vocabulary gains would increase progressively during each phase of rich instruction as the children became more familiar with the format as well as expectations for behavior and participation.

The available research focusing on first language (L1) influence on second language (L2) and literacy learning among English Language Learners provides support for the hypotheses that correspond to the second research question. Recent studies focusing on school-age children whose first language is Spanish demonstrate that L1 proficiency can have a positive influence on the acquisition of language and literacy skills in English. However, preliminary research focusing on preschool-age children who speak a language that shares little to no cognates with English (e.g., Collins, 2010) suggests that home language proficiency does not have a direct relationship to word learning. Results from this same line of research have instead provided strong evidence to suggest that baseline English vocabulary skills mediate word learning in young children who are learning two languages simultaneously. Therefore, it is anticipated that, regardless of age, standard scores on the PPVT-III rather than performance on the Home Language Picture Vocabulary Test will help to explain differences in the number of words that the children learn through rich instruction.

Finally, past research demonstrating the influence of language and literacy practices in the home on first and second language development has provided the foundation for the hypotheses that correspond to the third research question. Characteristics of the home environment have been shown to have a strong influence on monolingual English speaker's

vocabulary development (e.g., Scarborough & Dobrich, 1994; Senechal, et al., 1995). Recent research that has examined these variables in studies focusing on ELLs and DLLs has provided similar evidence, suggesting that factors such as frequency and language of home book reading contributes to second language vocabulary acquisition (Barrera & Bauer, 2003; Reyes & Azuara, 2008). Specifically, findings from Collins' (2009) recent research suggest that frequency of home book reading has a strong relationship to word learning.

Consistent with findings from past research, it is hypothesized that variances in home book reading will help to explain differences in performance on posttest vocabulary measures. The number of months that each child has spent in the U.S. and the language predominantly used in the home both relate to the amount of time that each child has been exposed to English. Therefore, it is hypothesized that the longer the child has lived in the U.S. the more new words they will learn. Similarly, it is anticipated that language use in the home (i.e., predominantly English versus home language) will help to explain differences in word learning among participants. The research questions, data sources, methods of data analysis and corresponding hypotheses are organized in Table 3:

Table 3. *Research questions, Data sources, Methods of analysis, and Hypotheses*

Research Question	Data Sources	Methods of Analysis	Hypotheses
Q1: Is rich instruction of sophisticated English words effective in increasing preschool Dual Language Learners' ability to learn those words?	Total TVT pre-test, TVTC-1, TVTRI-1, TVTRI-2, TVTRI-3, TVTC-2, Total TVT posttest	One-way Repeated Measures ANOVA, 2X3 mixed-design Repeated Measures ANOVA	TVTRI-1 < TVTRI-2 < TVTRI-3; Total TVT pre-test < Total TVT posttest; TVTC-1 < TVTRI-1; TVTRI-3 > TVTC-2
Q2: Does baseline receptive vocabulary in the child's home language and in English have a significant relationship to word learning?	HLPVT, PPVT-III, TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest	Pearson's correlation	HLPVT and PPVT-III will have a significant relationship with performance on TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest
Q3: Do the following factors have a significant relationship to preschool Dual Language Learner's vocabulary development: home language, number of months in the U.S., and frequency of home book reading?	Caregiver interview, TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest	Pearson's correlation	Home language, number of months in U.S., frequency of home book reading will have a significant relationship with performance on TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest

4.0 RESULTS

The purpose of this study was twofold. First, this study was designed to investigate the effectiveness of a rich instructional program on the vocabulary acquisition of preschool Dual Language Learners (DLLs). The lead preschool teacher of a private preschool in western Pennsylvania, five children who were native speakers of English, and 16 DLLs who spoke Kirundi, Burmese, Nepali, a combination of Ahiska Turkish and Russian, Karen, and a combination of Karen and Burmese, as well as each child's primary caregiver participated in the study. The children received rich instruction in small groups in three four-day blocks. The meaning of five Tier 2 words was targeted during each four-day instructional block through the use of authentic children's literature, child-friendly definitions, visual aides, discussion and various games and activities that included opportunities for verbal and physical participation. Two control instructional sessions were also included in the study to provide a means of comparing the children's word learning based on typical instruction of text-based words in the classroom, to word learning after engaging in rich instructional activities. The children's knowledge of each set of five target words was evaluated using two researcher-designed receptive vocabulary measures after receiving instruction on the fourth day.

This study was also conducted to investigate other potential influences on the children's word learning, including baseline receptive vocabulary skills in English, baseline vocabulary in each child's home language, the number of months that each child lived in the U.S., the

children's home language, and the frequency of book reading in the home. Data for the analysis of these four variables was gathered through the administration of the PPVT-III, a translated version of the PPVT-III (the HLPVT), and interviews with the children's caregivers.

4.1 RESEARCH QUESTION 1

Table 4. *Research Question 1*

Research Question	Data Source	Hypotheses
Is rich instruction of sophisticated words effective in increasing preschool Dual Language Learners' ability to learn those words?	TVTRI-1, TVTRI-2, TVTRI-3, Total TVT pre-test, Total TVT posttest, TVTC-1, TVTC-2	TVTRI-1 < TVTRI-2 < TVTRI-3; Total TVT pre-test < Total TVT posttest; TVTC-1 < TVTRI-1; TVTRI-3 > TVTC-2

4.1.1 Results for Picture Portion of TVTRI-1, TVTRI-2, and TVTRI-3

Among the 21 participants, 18 completed the picture portion of each of the three TVTs that were administered after rich instruction (TVTRI-1, TVTRI-2, TVTRI-3). Within this group of 18 participants, five who spoke English only completed the TVTRI-1 and TVTRI-2, and 4 completed the TVTRI-3. As a group, the children correctly identified an average of 2.46 out of 5 pictures that represented target vocabulary words from each rich instructional session. Results also suggested that the total group of participants' average scores on each TVT that corresponded to rich instruction increased over time. Specifically, the mean score on the picture portion of the Target Vocabulary Test for rich instruction session 1 (TVTRI-1) was 2.33. Average scores increased to 2.44 for TVTRI-2, and again to 2.61 for TVTRI-3. See Table 5.

Table 5. *All Participants: Scores on Picture Portion of TVTRI-1, TVTRI-2, TVTRI-3*

TVTRI-1		TVTRI-2		TVTRI-3	
M	SD	M	SD	M	SD
2.33	1.49	2.44	1.38	3.70	3.29

A one-way within subjects repeated measures analysis of variance (ANOVA) was conducted to compare scores on the Target Vocabulary Tests that corresponded with rich instruction at time 1 (TVTRI-1), time 2 (TVTRI-3), and time 3 (TVTRI-3). Results indicated that the participants' performance on the picture portion of the TVTs that corresponded to rich instruction was not significantly different from test-to-test at the $p<.05$ level [$F(2, 34) = .264$, $p = 0.769$]. See Table 6.

Table 6. *Analysis of Variance for All Participants: Scores on Picture Portion of TVTRI-1, TVTRI-2, TVTRI-3*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTRI-1, TVTRI-2, TVTRI-3)	2	0.26	.769
error	34	(45.29)	

When grouped by age, results suggested that the older children in Group A demonstrated understanding of more target vocabulary words on the picture portion of the TVTRI-1, TVTRI-2, and TVTRI-3 compared to the younger children in Group B. In addition, average scores for the children in Group A increased over time. Specifically, average scores for the children in Group A increased from 2.90 on TVTRI-1 to 3.00 on TVTRI-2, and again to 3.60 on TVTRI-3. In

comparison, children in Group B demonstrated similar performance on the picture portion of TVTRI-1 and TVTRI-2 (mean = 1.63 and 1.75, respectively) and scores decreased to 1.38 for TVTRI-3. See Table 7.

Table 7. *Group A and Group B: Scores on Picture Portion of TVTRI-1, TVTRI-2, TVTRI-3*

	TVTRI-1		TVTRI-2		TVTRI-3	
Group	M	SD	M	SD	M	SD
Group A	2.90	1.37	3.00	1.33	3.60	1.64
Group B	1.63	1.40	1.75	1.16	1.38	1.30

A 3X2 mixed repeated measures ANOVA with the within subjects factor of time and the between subjects factor of age was conducted to examine differences in the children's performance when they were grouped by age. A significant main effect for age group was noted at the $p<.05$ level [$F(1, 16) = 10.69$, $p = .005$], which indicates that there was a significant difference in performance of children in Group A compared to children in Group B. However, no significant main effect was noted for time at the $p<.05$ level [$F(2, 32) = .169$, $p = .845$], and no interaction between performance on TVTRI-1, TVTRI-2, and TVTRI-3 and age group was noted at the $p<.05$ level [$F(2, 34) = 1.03$, $p = .368$]. See Table 8.

Table 8. *Analysis of Variance for Group A and Group B: Scores on Picture Portion of TVTRI-1, TVTRI-2, TVTRI-3*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTRI-1, TVTRI-2, TVTRI-3)	2	.169	.845
Time X Age Group	2	1.03	.368
error	34	(42.55)	
	Between subjects		
Age Group	1	10.69	.005
error	16	(50.00)	

4.1.2 Results for the picture portion of the Total TVT pre-test and Total TVT posttest

All 21 participants (including 5 speakers of English) completed the picture portion of the Total TVT pre-test and the Total TVT posttest. Out of 25 possible points, the group of 21 children correctly identified an average of 4.67 pictures on the Total TVT pre-test compared to 7.48 on the posttest. See Table 9.

Table 9. *All Participants: Scores on Picture Portion of Total TVT pre-test, Total TVT*

Total TVT pre-test		Total TVT posttest	
M	SD	M	SD
4.67	1.98	7.48	3.81

A one-way within subjects repeated measures ANOVA was conducted to compare scores on the picture portion of the Total TVT pre-test to performance on the Total TVT posttest. Results indicated that the participants' performance on the picture portion of the Total TVT pre-test was significantly different from their performance on the Total TVT posttest at the $p<.05$ level [$F(1, 20) = 10.79$, $p = 0.004$]. See Table 10.

Table 10. *Analysis of Variance for All Participants: Scores on Picture Portion of Total TVT pre-test, Total TVT posttest*

Source	*df*	*F*	*p*
	Within subjects		
Time (Total TVT pre-test, Total TVT posttest)	1	10.79	.004
error	20	(153.619)	

When the children were grouped by age, results suggested that the older children in Group A demonstrated understanding of more target vocabulary words on the picture portion of the Total TVT posttest compared to the younger children in Group B. In addition, children in Group A demonstrated greater gains from pre-test to posttest. Specifically, mean scores for the children in Group A increased from 5.60 on the picture portion of the Total TVT pre-test to 9.60 on the Total TVT posttest. In comparison, average performance of the children in Group B was 3.82 at pre-test and 5.55 at posttest. See Table 11.

Table 11. *Group A and Group B: Scores on Picture Portion of Total TVT pre-test, Total TVT posttest*

	Total TVT pretest		Total TVT posttest	
Group	M	SD	M	SD
Group A	5.60	2.11	9.60	3.89
Group B	3.82	1.47	5.55	2.62

A 2X2 mixed repeated measures ANOVA with the within subjects factor of time and the between subjects factor of age was conducted to examine differences in the children's performance from pre-test to posttest when they were grouped by age. Results indicated that there was a significant main effect for time at the $p<.05$ level [$F(1, 19) = 11.65$, $p = .003$] and a significant main effect for age group at the $p<.05$ level [$F(1, 19) = 13.33$, $p = .002$]. However, no significant interaction was noted between pre- to posttest performance on the Total TVT and age group at the $p<.05$ level [$F(1, 19) = 1.84$, $p = .191$]. Overall, these results suggest that there were significant differences in performance based on group and from pre-test to posttest, but the level of change in scores from pretest to posttest was comparable for children in Group A compared to children in Group B. See Table 12.

Table 12. *Analysis of Variance for Group A and Group B: Scores on Picture Portion of Total TVT pre-test, Total TVT posttest*

Source	*df*	*F*	*p*
	Within subjects		
Time (Total TVT pre-test, Total TVT posttest)	1	11.65	.003
Time X Age Group	1	1.83	.191
error	19	(140.09)	
	Between subjects		
Age Group	1	10.69	.005
error	19	(127.07)	

4.1.3 Results for the Picture Portion of TVTC-1 Compared to TVTRI-1

Among the 21 participants, 20 completed the picture portion of the TVT after the first control session (TVTC-1) as well as the TVT after the first rich instructional session (TVTRI-1). The 20 children included in the analysis of performance across time included five who spoke English only. As expected, average performance on the picture portion of TVTC-1 was lower than scores on the first TVT that corresponded to rich instruction. Specifically, the average performance on the picture portion of the TVTC-1 for the group of participants was 1.80 compared to 2.40 for TVTRI-1. See Table 13.

Table 13. *All Participants: Scores on Picture Portion of TVTC-1 and TVTRI-1*

TVTC-1		TVTRI-1	
M	SD	M	SD
1.80	.89	2.40	1.35

A one-way within subjects repeated measures ANOVA was conducted to compare differences in scores on the picture portion of the TVTC-1 to scores on the picture portion of the TVTRI-1. Results indicated that the participants' performance on the picture portion of the TVTC-1 was not significantly different from performance on the TVTR-1 at the $p<.05$ level [$F(1, 19) = 2.40$, $p = 0.137$]. See Table 14.

Table 14. *Analysis of Variance for All Participants: Scores on Picture Portion of TVTCI-1, TVTRI-1*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-1, TVTRI-1)	1	2.40	.137
error	19	(28.40)	

When the children were separated by age, the same pattern in average overall scores on the picture portion of TVTC-1 compared to TVTRI-1 was noted for the older children in Group A. Specifically, the older children in Group A had lower average scores on the picture portion of TVTC-1 (mean = 1.44) compared to performance on the TVTR-1 (mean = 3.22). However, scores of the younger children in Group B actually decreased from 2.09 on TVTC-1 to 1.73 on TVTR-1. See Table 15.

Table 15. *Group A and Group B: Scores on Picture Portion of TVTC-1, TVTRI-1*

	TVTC-1		TVTRI-1	
Group	M	SD	M	SD
Group A	1.44	.72	3.22	.97
Group B	2.09	.94	1.73	1.27

A 2X2 mixed repeated measures ANOVA was used to examine differences in the children's performance on the picture portion of the TVTC-1 compared to performance on the TVTRI-1 when they were grouped by age. Results indicated that there was not a significant main effect for age group at the $p<.05$ level [$F(1, 18) – 1.78$, $p = .220$]. However, there was a significant main effect for time at the $p<.05$ level [$F(1, 18) = 5.23$, $p = .035$], which indicates that there were significant differences in the two groups of children's performance from the first time point to the second time point. A significant interaction was also noted between time and age group at the $p<.05$ level [$F(1, 18) = 11.98$, $p = .003$]. This finding suggests that there was a significant difference in performance from the first time point (TVTC-1) to the second time point (TVTRI-1) for one of the two groups of children. See Table 16.

Table 16. *Analysis of Variance for Group A and Group B: Scores on Picture Portion of TVTC-1, TVTRI-1*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-1, TVTRI-1)	1	5.22	.035
Time X Age Group	1	11.98	.003
error	18	(17.05)	
	Between subjects		
Age Group	1	1.618	.220
error	18	(19.81)	

Two one-way repeated measures ANOVAs were conducted as a post-hoc analysis to determine whether children in Group A or children in Group B demonstrated a significant difference in performance from the first time point to the second time point. Results indicated a significant main effect for time for children in Group A at the $p<.05$ level [$F(1, 8) = 23.81$, $p = .001$], but no main effect for time was noted for children in Group B at the $p<0.5$ level [$F(1, 10) = .59$, $p = .459$]. Table 17 displays results of the ANOVA that included children in Group A and Table 18 includes results of the ANOVA for children in Group B.

Table 17. *Analysis of Variance for Group A: Scores on Picture Portion of TVTCI-1 and TVTRI-1*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-1, TVTRI-1)	1	23.81	.001
error	8	(4.77)	

Table 18. *Analysis of Variance for Group B: Scores on Picture Portion of TVTCI-1 and TVTRI-1*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-1, TVTRI-1)	1	.59	.459
error	10	(12.27)	

4.1.4 Results of the Picture Portion of TVTC-2 Compared to TVTRI-3

Fifteen of the 21 participants completed the picture portion of the TVT administered after the second control session (TVTC-2) and the TVT administered after the third rich instructional session (TVTRI-3). Five of the 15 children spoke English only. The same trend noted between performance on TVTC-1 and TVTRI-1 was anticipated when the picture portion of the TVTC-2 was compared to performance on TVTRI-3. However, comparison of average scores on both of these measures indicated that the group of children continued to demonstrate gains in their word

learning even after rich instruction ended. Specifically, average performance on the picture portion of TVTRI-3 was 2.67 compared to 2.73 for the picture portion of TVTC-2. See Table 19.

Table 19. *All Participants: Scores on Picture Portion of TVTC-2 and TVTRI-3*

TVTC-2		TVTRI-3	
M	SD	M	SD
2.73	1.22	2.67	1.79

Results of a one-way within subjects repeated measures ANOVA indicated that the participants' performance on the picture portion of the TVTC-2 was not significantly different from performance on the TVTR-3 at the $p<.05$ level [$F(1, 14) = .024$, $p = .879$]. See Table 20.

Table 20. *Analysis of Variance for All Participants: Scores on Picture Portion of TVTCI-2 and TVTRI-3*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-2, TVTRI-3)	1	0.02	.879
error	14		

When the children were grouped by age, average scores of the younger children in Group B on the picture portion increased from 1.50 on TVTRI-3 to 2.50 on TVTC-2. Conversely, older children in Group A received higher average scores on TVTR-3 (mean = 3.44) compared to TVTC-2 (mean = 2.89). See Table 21.

Table 21. *Group A and Group B: Scores on Picture Portion of TVTC-2, TVTRI-3*

	TVTC-2		TVTRI-3	
Group	M	SD	M	SD
Group A	2.89	.92	3.44	1.66
Group B	2.50	1.64	1.50	1.37

A 2X2 mixed repeated measures ANOVA was conducted to examine differences in scores on these assessments between the two groups of children. Results revealed no main effect for time at the $p<.05$ level [$F(1, 13) = .306$, $p = .590$] or age group at the $p<.05$ level [$F(1, 13) = 3.44$, $p = .086$], and no significant interaction between time and age group [$F(1, 13) = 3.75$, $p = .075$]. See Table 22.

Table 22. *Analysis of Variance for Group A and Group B: Scores on Picture Portion of TVTC-2, TVTRI-3*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-2, TVTRI-3)	1	.30	.590
Time X Age Group	1	3.74	.075
error	13	(15.11)	
	Between subjects		
Age Group	1	3.44	.086
error	13	(37.00)	

4.1.5 Results of the Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3

Among the 21 total participants, 17 completed the verbal portion of each of the three individual TVTs that were administered after rich instruction (TVTRI-1, TVTRI-2, TVTRI-3). Five children who spoke only English completed the TVTRI-1 and TVTRI-2, and four completed TVTRI-3. Results indicated that the group of participants demonstrated understanding of an average of 2.27 out of 5 target vocabulary words by correctly answering yes/no questions. Unlike performance on the picture portion of the TVTs, the children's average scores on the verbal portion did not increase and varied very little over time. More specifically, the average score on the verbal portion of TVTRI-1 was 2.29. The children's scores increased only slightly to 2.41 on TVTRI-2, and then decreased to 2.12 on TVTRI-3. See Table 23.

Table 23. *All Participants: Scores on Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3*

TVTRI-1		TVTRI-2		TVTRI-3	
M	SD	M	SD	M	SD
2.29	1.40	2.41	1.32	2.12	1.61

Results of a one-way repeated measures ANOVA with a within subjects factor of time confirmed this observation, indicating that the participants' performance on the verbal portion of the TVTs that corresponded to rich instruction was not significantly different from test-to-test at the $p<.05$ level [$F(2, 32) = .641$, $p = .533$]. See Table 24.

Table 24. *Analysis of Variance for All Participants: Scores on Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTRI-1, TVTRI-2, TVTRI-3)	2	.64	.533
error	32	(18.58)	

When grouped by age, results suggested that the older 4-year-olds and 5-year-olds in Group A demonstrated understanding of more target vocabulary words on the verbal portion of the TVTRI-1, TVTRI-2, and TVTRI-3 compared to the younger 4-year-olds and 3-year-olds in Group B. Specifically, average performance on the verbal portion of TVTRI-1 for Group A was 2.60 compared to 1.86 for Group B. The average score on the TVTRI-2 was 2.60 for children in Group A and 2.14 for Group B. Finally, average performance on TVTRI-3 was 2.30 for Group A and 1.86 for Group B. See Table 25.

Table 25. *Group A and Group B: Scores on Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3*

	TVTRI-1		TVTRI-2		TVTRI-3	
Group	M	SD	M	SD	M	SD
Group A	2.60	1.50	2.60	1.26	2.30	1.70
Group B	1.86	1.21	2.14	1.46	1.86	1.57

Results of a 2X3 mixed repeated measures ANOVA suggested that performance of the children in Group A and children in Group B on the verbal portion of the TVTs that were administered after rich instruction was not significantly different across time at the $p<.05$ level

[F(2, 30) = .577, p = .567]. Results also suggested that there was no main effect for age group at the p<.05 level [F(1, 15) = .702, p = .415]. In addition, no interaction was noted between time and age group at the p<.05 level [F(2, 30) = .193, p = .826]. See Table 26.

Table 26. *Analysis of Variance for Group A and Group B: Scores on Verbal Portion of TVTRI-1, TVTRI-2, TVTRI-3*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTRI-1, TVTRI-2, TVTRI-3)	2	.57	.567
Time X Age Group	2	.193	.826
error	30	(18.35)	
	Between subjects		
Age Group	1	.70	.415
error	15	(79.11)	

4.1.6 Results of the Verbal Portion of Total TVT pre-test and Total TVT posttest

The verbal portion of the Total TVT pre-test and Total TVT posttest was administered only to children in Group A. Among the 10 children in Group A, three spoke English only. Average scores for the 10 participants in this group increased from 7.30 at pre-test to 9.70 at posttest. See Table 27.

Table 27. *All Participants: Scores on Verbal Portion of Total TVT pre-test and Total TVT posttest*

Total TVT pre-test		Total TVT posttest	
M	SD	M	SD
7.30	2.00	9.70	3.46

A one-way repeated measures ANOVA with the within subjects factor of time was conducted to determine whether there were significant differences in the children's scores from pre- to posttest. Results indicated that were was not a statistically significant difference in the children's performance on the verbal portion of the Total TVT pre-test compared to their performance on the Total TVT posttest at the $p<.05$ level [$F(1, 9) = 3.85$, $p = .081$]. See Table 28.

Table 28. *Analysis of Variance for All Participants: Verbal Portion of Total TVT pre-test, Total TVT posttest*

Source	*df*	*F*	*p*
	Within subjects		
Time (Total TVT pre-test, Total TVT posttest)	1	3.85	.081
error	9	(67.20)	

4.1.7 Results of the Verbal Portion of TVTC-1 Compared to TVTRI-1

The children's performance on the verbal portion of the TVT administered after the first control session (TVTC-1) was compared to scores on the verbal portion of the TVT administered after the first rich instructional session (TVTRI-1). Among the 19 children who completed both of these assessments, five spoke only English. Similar to performance on the picture portion, average scores on the verbal portion increased from 1.95 on TVTC-1 to 2.21 on TVTRI-1. See Table 29.

Table 29. *All Participants: Scores on Verbal Portion of TVTC-1, TVTRI-1*

TVTC-1		TVTRI-1	
M	SD	M	SD
1.95	.97	2.21	1.43

Results of a one-way repeated measures ANOVA indicated that the difference in performance on the verbal portion of TVTC-1 was not significantly different from performance on TVTRI-1 at the $p<.05$ level [$F(1, 18) = .568$, $p = .461$]. See Table 30.

Table 30. *Analysis of Variance for All Participants: Verbal Portion of TVTC-1, TVTRI-1*

Source	*df*	*F*	*p*
	Within subjects		
Time (Total TVT pre-test, Total TVT posttest)	1	.56	.461
error	18	(20.84)	

When the children were grouped by age, average scores on the verbal portion increased from 2.11 on the TVTC-1 to 2.56 on the TVTR-1 for children in Group A. Scores for the children in Group B also increased from the first time point to the second time point, however minimally (mean = 1.80 and 1.90, respectively). See Table 31.

Table 31. *Group A and Group B: Scores on Verbal Portion of TVTC-1, TVTRI-1*

	TVTC-1		TVTRI-1	
Group	M	SD	M	SD
Group A	2.11	1.26	2.56	1.59
Group B	1.80	.62	1.90	1.28

A 2X2 mixed repeated measures ANOVA was conducted to determine whether differences in scores of the two groups of children on the verbal portion of TVTC-1 and TVTR-1 were statistically significant. Results suggested that scores of the children in Group A compared to Group B were not significantly different across time at the $p<.05$ level [$F(1, 17) = .580$, $p = .457$], and there was also no main effect for age group at the $p<.05$ level [$F(1, 17) = 1.21$, $p = .286$]. In addition, no interaction was noted between time and age group at the $p<.05$ level [$F(1, 17) = .232$, $p = .636$]. See Table 32.

Table 32. *Analysis of Variance for Group A and Group B: Scores on Verbal Portion of TVTC-1, TVTRI-1*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-1, TVTRI-1)	1	.58	.457
Time X Age Group	1	.23	.636
error	17	(20.56)	
	Between subjects		
Age Group	1	2.21	.286
error	17	(31.05)	

4.1.8 Results of the Verbal Portion of TVTC-2 Compared to TVTRI-3

Among the 15 children included in the analysis, 4 who completed the TVTR-3 and 5 who completed the TVTC-2 were native speakers of English. Consistent with performance on the picture portion of the assessments, average scores for the group of participants increased from 2.27 for TVTR-3 to 2.80 for TVTC-2. See Table 33.

Table 33. *All Participants: Scores on Verbal Portion of TVTC-2, TVTRI-3*

TVTC-2		TVTRI-3	
M	SD	M	SD
2.27	1.66	2.80	1.14

A one-way repeated measures ANOVA was conducted to determine whether the difference in the children's performance from test-to-test was statistically significant. Results indicated that the children's performance on the verbal portion of the TVTC-2 was not significantly different from their performance on the verbal portion of the TVTR-3 at the $p<.05$ level [$F(1, 14) = 1.58$, $p = .229$]. See Table 34.

Table 34. *Analysis of Variance for All Participants: Verbal Portion of TVTC-2, TVTRI-3*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-2, TVTRI-3)	1	1.58	.229
error	14	(18.86)	

Children in Group A received an average score of 2.44 on the verbal portion of the TVTR-3. Similar to performance on the picture portion of these assessments, their scores increased to 2.78 on TVTC-2. Children in Group B also demonstrated gains from TVTR-3 to TVTC-2 with average scores noted at 2.00 and 2.83, respectively. See Table 35.

Table 35. *Group A and Group B: Scores on Verbal Portion of TVTC-2, TVTRI-3*

	TVTC-2		TVTRI-3	
Group	M	SD	M	SD
Group A	2.78	.97	2.44	1.74
Group B	2.83	1.47	2.00	1.67

A 2X2 mixed repeated measures ANOVA was conducted to determine whether differences in the scores from the first time point to the second time point were significant when the children were separated by age. No main effect for time was noted at the $p<.05$ level [$F(1,$

13) = 1.72, p = .211], and there was no significant main effect for age group at the p<.05 level [F(1, 13) = .09, p = .766]. In addition, no interaction between time and age group was noted at the p<.05 level [F(1, 13) = .31, p = .583]. See Table 36.

Table 36. *Analysis of Variance for Group A and Group B: Scores on Verbal Portion of TVTC-2, TVTRI-3*

Source	*df*	*F*	*p*
	Within subjects		
Time (TVTC-2, TVTRI-3)	1	1.72	.211
Time X Age Group	1	.31	.583
error	13	(18.41)	
	Between subjects		
Age Group	1	.09	.766
error	13	(38.19)	

4.2 RESEARCH QUESTION 2

Table 37. *Research Question 2*

Research Question	Data Source	Hypotheses
Does baseline receptive vocabulary in the child's home language and in English have a significant relationship to word learning?	HLPVT, PPVT-III, TVTRI-1, TVTRI-2, TVTRI-3, Total TVT pre-test, Total TVT posttest, TVTC-1, TVTC-2	HLPVT and PPVT-III will have a significant relationship with performance on TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest

4.2.1 Results of the Peabody Picture Vocabulary Test (PPVT-III)

Results of the PPVT-III indicated that four (19%) of the 21 participants were demonstrating age-appropriate understanding of English vocabulary at the start of the study. Three of those children were in Group A, one child was in Group B, and all four were native speakers of English. Five children (about 24%) demonstrated a mild delay, and the same number demonstrated a moderate delay in English vocabulary development. Among the children with mildly delayed skills, three children were in Group A and two children were in Group B. Three children spoke Kirundi, one spoke Nepali, and one child was a native speaker of English. The children with moderately delayed skills included three children from Group A and two children from Group B. Two children spoke Kirundi, two spoke Karen, and one child with moderately delayed skills spoke a combination of Karen and Burmese. The remaining seven participants (about 33%) received scores on the PPVT-III that indicated a severe delay in English vocabulary skills. This included one child from Group A who was a native speaker of Burmese and six children from Group B. Three of the children in Group B spoke Karen, one spoke Nepali, and

two children spoke a combination of Russian and Ahiska Turkish. Table 38 provides an overview of performance on the PPVT-III.

Table 38. *PPVT-III: Baseline Receptive Vocabulary in English*

Interpretation of Standard Score of PPVT-III	**Frequency**	**Percent**	**Percent of Group A**	**Percent of Group B**
Age-appropriate	4	19%	30%	9%
Mild delay	5	23.8%	30%	18%
Moderate delay	5	23.8%	30%	18%
Severe delay	7	33.3%	10%	55%

The statistical procedure of Pearson's correlation was first used to investigate whether baseline vocabulary skills in English had a significant relationship to performance on the picture portion of the posttests that were administered after rich instruction (i.e., TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest). A strong positive correlation was noted between standard scores on the PPVT-III and scores on the picture portion of TVTRI-2 , $r(18) = .78$, $p < .01$, and TVTRI-3, $r(16) = .67$, $p = .002$. The researcher also examined the relationship between English baseline receptive vocabulary skills and performance on the picture portion of the Total TVT posttest. Performance on this posttest was also found to have a strong positive correlation with baseline English vocabulary, $r(19) = .71$, $p < .01$. Together, these results suggest that children with strong baseline English receptive vocabulary skills scored higher on the picture portion of TVTRI-2, TVTRI-3, and the Total TVT posttest compared to children who knew less words in English before receiving rich instruction.

Pearson's correlation was also used to analyze potential relationships between performance on the PPVT-III and scores on the verbal portion of the individual TVTs administered after rich instruction (TVTRI-1, TVTRI-2, TVTRI-3) and the Total TVT posttest. The first analysis included the verbal portion of the three individual TVTs and revealed a strong positive correlation between receptive vocabulary skills in English and performance on the verbal portion of TVTRI-1, $r(18) = .69$, $p = .001$, and TVTRI-3, $r(16) = .72$, $p = .001$. A moderate positive correlation was also noted between baseline English and performance on the verbal portion of TVTR-2, $r(18) - .56$, $p = .011$. The relationship between standard scores on the PPVT-III and performance on the verbal portion of the Total TVT posttest was also examined with results indicating a very strong positive correlation between the two variables, $r(8) = .94$, $p < .001$. Overall, these results suggest that the more English words the children knew at the beginning of the study, the better they performed on the verbal portion of each of the four posttests that were administered after rich instruction.

4.2.2 Home Language Picture Vocabulary Test (HLPVT)

Pearson's correlation was used to analyze potential relationships between the children's vocabulary knowledge in their home language and performance on the picture and verbal portions of the TVTs that were administered after rich instruction. No significant correlations were noted between the children's understanding of vocabulary in their home language and performance on the picture or verbal portions of any of the TVTs that corresponded to rich instruction (i.e., TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest).

4.3 RESEARCH QUESTION 3

Table 39. *Research Question 3*

Research Question	Data Source	Hypotheses
Do the following factors have a significant relationship to preschool Dual Language Learner's vocabulary development: home language, number of months in the U.S., and frequency of home book reading?	Caregiver interview, TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest	Home language, number of months in U.S., frequency of home book reading will have a significant relationship with performance on TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest

The researcher developed interview questions to gather general information about the linguistic and cultural background of each participant as well as data to answer the third research question. Caregivers' responses regarding the frequency of book reading in the home is presented in Table 40, and the amount of time that each child had been exposed to English based on the number of months that they have lived in the U.S. is presented in Table 41. Data for these two variables as well as the primary language spoken in the home (see Table 2) were included in the analysis that examined whether they had a significant relationship to scores on the picture and verbal portions of the TVTs that were administered after rich instruction.

Table 40. *Frequency of Book Reading*

Frequency	Percent
3	14.3%
6	28.6%
3	14.3%
0	0
7	33.3%
0	0

Table 41. *Number of Months in the U.S.*

Range of Months	Frequency	Percent
11 – 20	8	38%
21 – 40	5	23.8%
41 – 65	8	38%

The researcher used Pearson's correlation to first investigate whether each of the three variables (frequency of book reading, number of months in the U.S., and home language) related to the children's performance on the picture portion of the posttests that were administered after rich instruction (i.e., TVTRI-1, TVTRI-2, TVTRI-3, Total TVT posttest). No significant relationships were noted between the picture portion of any of these assessments and frequency of book reading or home language. However, a moderate positive relationship was noted between number of months in the U.S. and performance on the picture portion of TVTR-2, $r(18) = .50$, $p = .02$. This suggests that the greater amount of time the children lived in the U.S., the

more likely they were to identify more target words accurately on the picture portion of the TVTRI-2.

When the verbal portion of the TVTs that were administered after rich instruction were included in the analysis, three additional significant correlations with number of months in the U.S. were found. The first was between the number of months that the children lived in the U.S. and the performance on the verbal portion of the TVTRI-2. A moderate positive relationship was noted between these two variables, $r\ (18) = .48$, $p = .03$. A second moderate positive correlation was found between number of months in the U.S. and performance on the verbal portion of the TVTRI-3, $r\ (16) = .52$, $p = .03$. Finally, a strong positive correlation was noted between months in the U.S. and performance on the verbal portion of the Total TVT posttest, $r\ (8) = .86$, $p = .001$. Together, these results suggest that the longer that each child lived in the U.S., the more likely they were to receive a higher score on the verbal portion of the TVTRI-2, TVTRI-3, and Total TVT posttest. Results from the correlational analyses that were performed to answer research questions two and three are presented in the matrix in Table 42.

Table 42. *Correlation Matrix for Research Question 2 and Research Question 3.*

Assessment	PPVT-III	HLPVT	Frequency of Home Book Reading	Home Language	Number of Months in the U.S.
TVTRI-1 picture	.218	.068	-.074	.068	-.197
TVTRI-2 picture	.781**	.355	.063	.089	.503*
TVTRI-3 picture	.672**	.073	.303	.073	.161
Total TVT Posttest picture	.711**	.240	.160	-.042	.346
TVTRI-1 verbal	.689**	.459	.322	.154	.375
TVTRI-2 verbal	.556*	.319	.280	.196	.481*
TVTRI-3 verbal	.719**	.323	.173	.119	.517*
Total TVT Posttest verbal	.941**	.219	.474	.404	.863**

*Correlation is significant at the .05 level (2-tailed).
**Correlation is significant at the .01 level (2-tailed).

Findings from a number of the previously described analyses provide evidence to suggest that the components of rich instruction were effective in increasing preschool DLLs' ability to learn sophisticated words found in age-appropriate texts. Statistically significant differences in the group of children's performance were noted when scores on the picture portion of TVTRI-1, TVTRI-2, and TVTRI-3 and the Total TVT pre-test and Total TVT posttest were examined across time. In addition, when the children were grouped by age, results suggested that there were significant differences in the scores of the older children in Group A compared to the younger children in Group B on the picture portion of the Total TVT pre-test and Total TVT

posttest and TVTC-1 and TVTRI-1. In comparison, no statistically significant differences in the children's scores were noted when their performance on the verbal portion of the posttests was examined across time. Similarly, when the children were grouped by age, results also suggested that there were no significant differences in their performance on the verbal portion of the posttests across time or based on age group. The number of months that each child lived in the U.S. was found to have a significant relationship to performance on the verbal portion of the rich instruction TVTs, and the children's baseline English receptive vocabulary skills were found to have a significant relationship to performance on the picture portion. Results also indicated that the children's home language, their level of word knowledge in that language, and the frequency of book reading in the home did not have a significant relationship to their performance on any of the posttests that were administered after rich instruction. The next section includes a discussion of the limitations of the study and implications of the results outlined in this chapter.

5.0 DISCUSSION

There is little to no research available which focuses on the vocabulary development of preschool-age children who are learning their home language and English simultaneously. The current investigation provides a unique contribution to the literature by focusing on the three-, four-, and five-year-olds that speak six different languages other than English. Specifically, the present study investigated preschool-age Dual Language Learners' ability to learn sophisticated vocabulary that appears in authentic, age-appropriate children's literature through participation in rich instructional interactions. Potential influences on the children's word learning were also examined, including number of months in the U.S., baseline vocabulary in the children's home language, baseline vocabulary in English, home language, and frequency of book reading in the home.

5.1 LIMITATIONS

The most obvious limitation of this study is the small number of participants: 21 children total, with 10 in Group A and 11 in Group B. A larger sample size would have provided greater statistical power and may have revealed greater differences in performance within and between the two groups of children. More participants in each age group would have also allowed for

more definitive claims to be made about the effectiveness of rich instruction for preschool-age children of varying ages.

In addition, six languages other than English were represented in the sample, including: Karen, Burmese, Ahiska Turkish, Russian, Nepali, and Kirundi. As a result, this study provided much needed information about the vocabulary acquisition of preschool-age children who speak a language that shares little to no cognates with English. However, the large number of languages represented in the sample and the low number of children in each language group also limited the certainty with which conclusions could be made about the effectiveness of rich instruction for specific groups of Dual Language Learners. Having six languages in the sample also presented a number of challenges that negatively impacted the schedule of procedures as well as the development and use of the Home Language Picture Vocabulary Test.

Locating each of the five translators needed for the study and scheduling time for each of them to translate the consent forms and meet with the children's families to answer questions about the study proved to be the first of many scheduling challenges. Form A of the PPVT-III also had to be translated into five different languages for the HLPVT, and time had to be scheduled with each translator and family to administer the test as well as the interview questions. Due to the obvious scheduling difficulties that this presented, the HLPVT was administered and the interviews were conducted throughout the duration of the study rather than during pre-testing as originally planned.

The number of languages represented in the sample also posed significant challenges for the researcher in developing a reliable and valid assessment tool that could be used to measure the children's baseline receptive vocabulary in each of their home languages. Some translation issues were certainly anticipated when each translator and/or native speaker was asked to

translate Form B of the PPVT-III into each of the six languages. However, the drastic differences in the level and number of words that had to be omitted from each translated version of the test were unanticipated. The target words on the PPVT-III appear and are administered in developmental order with the most common, basic words appearing in the first sets of the test and the level of difficulty and rarity of the words increasing in each subsequent set. Even some very basic words that appeared in some of the first sets of the test could not be translated into some of the languages. For instance, there is no comparable word for cookie in Kirundi, and no translation of carrot in Karen. The validity and reliability of the test was severely compromised because different words and varying numbers of words had to be omitted from each translated version of the test. Specifically, 22 words could not be translated into Kirundi, 24 had to be omitted from the Karen version of the test, and 8 words were omitted from the Neplai translation. Findings from this study are consistent with results from Collins' (2010) recent work, suggesting that home language proficiency did not have a significant relationship to target word learning. However, the variability in content from one translated version of the HLPVT to another limits the certainty with which these results can be applied to this particular group of children or generalized to other groups of young Dual Language Learners.

Despite these limitations, findings from this study confirmed the hypothesis as well as results from similar research (e.g., Collins, 2010) that rich instruction was effective in increasing preschool-age DLLs' understanding of target words in English. Specifically, significant differences in the participant's performance were noted when scores on the picture portion of the Total TVT were examined from pretest to posttest. Findings from the study also provided evidence to suggest that word learning continued even after rich instruction ended. The older children in Group A demonstrated significant differences in their performance across time

compared to the children in Group B when picture portion scores after the first control session were compared to scores after the first rich instructional session. In addition, the children in Group A scored significantly higher than the children in Group B on the picture portion of the posttest that was administered after the third round of rich instruction. In the sections that follow, these findings will be discussed in the context of their implications.

5.2 IMPLICATIONS

Although not statistically significant, one finding that was surprising and not consistent with the corresponding hypothesis was that the children continued to demonstrate gains in their word learning even after rich instruction ended. Specifically, the children's scores on the picture portion of the TVT that was administered after the last rich instructional session (TVTRI-3) were lower than scores after the second control session (TVTC-2). One possible explanation for this finding confirms another related hypothesis: that the components of rich instruction were not only effective in teaching preschool-age DLLs the 15 words that were targeted during the study, but also the necessary skills needed to learn new words in general. Specifically, these results suggest that the strategies, activities and expectations for verbal and physical participation that were part of the rich instructional program helped the children develop consciousness about learning language. The children's continued word learning also suggests that the activities and strategies included in the rich instructional program were effective in teaching the children a number of skills and behaviors needed to develop word consciousness, including selective attention and time on task (Beck, McKeown & Kucan, 2002). The lead and assistant teacher's

anecdotal reports during the second half of the study provided evidence to support this interpretation of the data.

Approximately seven weeks into the study, children from both age groups began to demonstrate increased use of target vocabulary during free play and snack time. Throughout the remainder of the study, the lead and assistant preschool teachers' verbal reports and the researcher's informal observations suggested that the children began to apply skills and strategies for word learning that they were exposed to during rich instruction in an attempt to confirm and extend their understanding of target words outside of the context of the story. During one instance, three of the Kirundi speakers were working together on a computer game that included different zoo animals. Throughout the activity, the researcher observed one of the younger children from Group A describing and comparing the animals by saying, "See--this one is little, but this one is *tremendous*!" Each time she said the target word, she used the same gesture that the researcher modeled during rich instruction (i.e., the fist pump). Accurate use of the target word "tremendous" suggests that this particular child was able to generalize her understanding of the word's meaning to a new context.

A number of similar instances of extended word learning were observed in relation to the target word "bulge". For example, during snack time one of the older children in Group B, who was a native English speaker, without prompting, stuffed crackers in one side of his mouth to demonstrate the meaning of the word "bulge" for the researcher. Similarly, one of the older children in Group A, who was a Kirundi speaker, ran up to the researcher with his stomach sticking out and pointed to it and said, "Look—it's a bulge!" These examples as well as many others recorded in the researcher's field notes suggest that the children's consciousness, attention, and appreciation of words gradually improved during the study. These documented

instances in which the children applied strategies and skills for word learning to confirm and generalize their understanding of word meaning in various contexts provides strong evidence to explain why the children continued to demonstrate vocabulary gains even after rich instruction ended.

Unlike the picture portion of the TVTs, results from this study suggested that there were no significant differences in performance when scores on the verbal portion were compared across time and between age groups. However, as opposed to performance on the picture portion of the TVTs, results also indicated that scores on the verbal portion of each posttest had a significant relationship with the number of months that the children lived in the U.S. Examined together, these results are not surprising considering the level of language proficiency that is required for the two different assessments. The picture portion of each TVT was an identification task that required the children to demonstrate knowledge of target vocabulary by pointing to a picture from a field of four choices. To correctly complete each test item on the picture portion, the children needed to understand only the target word.

In contrast, the verbal portion was a second vocabulary comprehension measure that required quite sophisticated mental processing due to the linguistic characteristics of the two different test items. To complete the definition items, the children needed to understand not only the target word, but also the second vocabulary word included in each question (e.g., “Does graceful mean silly?”). The second type of test item included in the verbal portion were counterfactual if questions (e.g., “If you eat too much food will your belly bulge?”). In addition to needing to understand the vocabulary included in the scenario of these items, the complexity of the sentence structure required a high level of mental processing that was most likely beyond the scope of the Dual Language Learners’ capabilities. The level of difficulty of the test items on

the verbal portion is a plausible explanation for the discrepancy in the children's picture and verbal scores and results of the corresponding analyses; particularly, in regards to the younger children in Group B.

Age was the first of two variables that proved to be important in determining the extent to which the preschool children included in the study benefited from rich instruction. The older four- and five-year-old children in Group A demonstrated knowledge of more target words throughout the study than the younger four- and three-year-old children in Group B. The younger children in Group B also earned notably lower scores on both the verbal and picture portions of each of the TVTs compared to the older children in Group A. Specifically, children in Group A scored notably higher than children in Group B when average performance on the picture portion of the Total TVT was examined at pre-test and posttest. When the children were grouped by age, there were also statistically significant differences in the scores of the children in Group A compared to children in Group B when performance on the picture portion of TVTC-1 was compared to performance on TVTRI-1, and the picture portion of the Total TVT pre-test was compared to the posttest. In considering these results as well as the age of the participants and the level of words that were targeted during rich instruction, one possible explanation for these findings is that the components of rich instruction were not appropriate for the age and developmental level of the children in Group B. Specifically, researchers and practitioners in the field of education could argue that Tier 2 vocabulary words are not an appropriate target for children as young as three- and four-years-old.

Cummins' (1981) early theory of second language acquisition provides a framework to support this viewpoint. Based on his model of second language acquisition, second language learners first develop strong, basic interpersonal communicative skills (BICS) through social

interactions and everyday communicative exchanges. The idea that these basic language skills provide the foundation for cognitive academic language proficiency (CALP) has had a significant impact on a variety of educational policies and practices for second language learners in the U.S. Given that fifty-five percent of the children in Group B demonstrated a severe delay in English receptive vocabulary development at the start of the study, their lack of understanding of basic vocabulary is a plausible explanation for why they weren't able to experience the same benefits from rich instruction as the older children in Group A.

In addition to age, level of English language proficiency also proved to be an important variable in determining how many new words the children learned based on rich instruction. In general, the children who showed the most gains in sophisticated word learning during the study demonstrated higher standard scores on the PPVT-III during pretesting. This general finding is consistent with results from past research studies that also examined word learning in preschool-age children who were learning two languages simultaneously (e.g., Collins, 2010). In the present study, the five native English speakers had the highest overall standard scores on the PPVT-III, and demonstrated understanding of more words as compared to their age-matched peers on each of the TVTs that were administered after rich instruction. Specifically, one five-year-old participant who was a native speaker of English demonstrated understanding of five out of five target words on the verbal and picture portions of each of the three TVTs that corresponded to rich instruction. The same participant also received the highest overall score on the picture and verbal portions of the Total TVT posttest.

Among the Dual Language Learners, the children who were native speakers of Kirundi demonstrated the second highest level of English proficiency as a group based on their performance on the PPVT-III, and results also suggested that they earned higher overall scores

on the TVTs that were administered after rich instruction compared to participants from other language groups. Despite mildly delayed English vocabulary skills at the beginning of the study, a 4-year-old native speaker of Kirundi from Group B demonstrated nearly perfect performance on the verbal portion of each of the TVTs that corresponded to rich instruction. With the exception of one child in Group A, results also suggested that all of the native speakers of Kirundi doubled their scores from pretest to posttest on the picture portion of the Total TVT. However, when the pre- to posttest gains were examined for the native speakers of Karen, some exceptions to this general pattern of findings were noted.

Two native speakers of Karen from Group B demonstrated low levels of English proficiency at the start of the study, but still made notable gains in word learning based on their performance on the picture portion of the overall posttest. One three-year-old native speaker of Karen received a standard score on the PPVT-III that suggested that she was demonstrating a moderate delay in her understanding of English vocabulary at the beginning of the study. However, her score on the picture portion of the Total TVT more than doubled from pretest to posttest. Similarly, a four-year-old native speaker of Karen from Group B demonstrated severely delayed English receptive vocabulary skills at the start of the study, but still doubled her score on the picture portion of the Total TVT from pretest to posttest. The fact that these very young children demonstrated notable gains in word learning provides evidence not only of the effectiveness of rich instruction, but also the capacity for young Dual Language Learners to acquire sophisticated vocabulary from age-appropriate tradebooks.

Overall, this study provides encouraging results that suggest that the instructional strategies and activities included in the rich instructional program can positively influence preschool DLLs' ability to learn sophisticated words from common, age-appropriate texts. These

findings have important implications for teachers and caregivers who work with preschool children who are learning two languages simultaneously. Specific components and approaches that were part of the rich instructional program proved to be particularly effective in motivating and engaging the children included in this study. Specifically, the opportunities for verbal and physical participation that were provided during rich instruction as well as the use of visual aides should be considered when developing a vocabulary instructional program for young DLLs.

The numerous opportunities for physical and verbal participation proved to be one important component of rich instruction that lead to increased attention, interest and engagement on the part of the children. The researcher provided repeated models of gestures and verbalizations that the children were encouraged to imitate during each day of rich instruction. These consistent opportunities for movement and talk seemed to familiarize the children with the format of instruction as well as the researcher's expectations for their behavior and participation. During the first two days of rich instruction, the children had the opportunity to develop an initial understanding of each target word's meaning by participating in highly structured instructional procedures that linked gestures and movement to the words as well as their meaning. During the hands-on multi-modal activities on the third day of rich instruction, the children were provided with an opportunity to confirm and extend their understanding of word meaning through hands-on activities. The less structured format of the multi-modal tasks provided an opportunity for the children to engage in discussions about the target words with their peers as well as with the researcher.

The consistent use of visual aides was a second component of rich instruction that seemed to have a strong, positive influence on the children's attention, interest and understanding of the target words. Large, color copies of photographs of actual people, objects

and animals demonstrating or representing each target word's meaning were used during each day of rich instruction. These salient pictures proved to be extremely effective in focusing the children's attention on the target words during the more structured instructional tasks. The fact that many of the pictures depicted people and animals doing silly or strange things also provided a platform for the children to discuss word meaning during less structured activities. This was particularly true for the color photographs that were used when the target words were reviewed during week 10 of the study. All of the children, regardless of age or level of English proficiency, demonstrated excellent attention, interest and participation when the researcher lead them in a discussion about the pictures of their peers participating in the multimodal activities on Day 3 of rich instruction.

Recent research that has also focused on the vocabulary acquisition of young children who are learning English has stressed the importance of focusing instruction on basic, Tier 1 words (August, Carlo, Dressler & Snow, 2005). However, young children learning English are often exposed to this more basic vocabulary but aren't provided with the opportunity to learn higher-level words that they occur frequently in oral and written language. Results from this study suggest that preschoolers who are learning to speak Kirundi, Nepali, a combination of Ahiska Turkish and Russian, Karen, Burmese, a combination of Karen and Burmese, and English can learn sophisticated words in the context of rich instruction. Among the 21 participants, the children who demonstrated the most gains from pre-test-to-posttest and across time included those in the older age group. Results also suggested that children who spent more time in the U.S. and demonstrated understanding of more English words at the start of the study learned more sophisticated words through participation in the rich instructional activities.

APPENDIX A

LANGUAGE TYPOLOGY

Table 43. *Language Typology*

Language	Typology	Shares Cognates with English?
Karen	Moderately agglutinative	No
Burmese	Moderately agglutinative	No
Kirundi	Highly agglutinative	Yes (few)
Nepali	Moderately agglutinative	Yes (few)
Ahiska Turkish	Highly agglutinative	Yes (many)
Russian	Highly agglutinative	Yes (many)

APPENDIX B

TRADEBOOKS AND TARGET VOCABULARY

Table 44. *Tradebooks and Target Vocabulary*

Tradebooks	Average Number of Words/Page	Target Vocabulary
Edward the Emu Sheena Knowles Edward is tired of being an emu, so he decides to try being another animal at the zoo, including a seal, lion, and snake. However, Edward soon discovers that being an emu may not be so bad after all. He heads back to his pen and is surprised to find another emu waiting for him.	27	Set 1 *amuse* *grand* *detest* *impressive* *reside*
Tacky the Penguin Helen Lester Tacky the Penguin is a nonconformist who lives amongst other formal, proper penguins. However, Tacky is able to use his un-penguin-like behavior to foil the plans of three hunters who want to kill them.	32	Set 2 *companion* *odd* *graceful* *puzzled* *dreadful*
Big Al Andrew Clements	48	Set 3 *disguise*

Big Al is a nice fish that is also very big and very scary-looking. He has no friends because all of the other fish are afraid of him. Then one day, when a school of fish are trapped in a net, he frees them and proves that he's really a friendly fish.		*capture* *bulge* *tremendous* *dash*
It's Mine! Leo Lionni Three frogs live on an island together and all they do is bicker and argue with one another. Then, the island is flooded and an old toad saves the frogs. After that, the three frogs recognize the importance of sharing and living together in harmony.	27	Set 4 *quarrel* *defiant* *cling* *tremble* *subside*
Hi, Cat! Ezra Jack Keats On his way to hang out with the neighborhood kids, Archie greets a stray cat that proceeds to follow him everywhere. Archie tries to put on a street show, but the cat ruins it. At first, it seems like the cat is just a nuisance, but Archie realizes how much he likes the cat when it follows him home.	17	Set 5 *reflection* *delicious* *announce* *motion* *obey*

APPENDIX C

PROCEDURES

Group A = ages 4-7 to 5-6
Group B = ages 3-0 to 4-6

C-1 = Control Session 1
C-2 = Control Session 2
RI-1 = Rich Instruction Session 1
RI-2 = Rich Instruction Session 2
RI-3 = Rich Instruction Session 3

*HLPVT = Home Language Picture Vocabulary Test
PPVT-III = Peabody Picture Vocabulary Test-III
Total TVT = Total Target Vocabulary Test
TVT C-1 = Target Vocabulary Test for Control Session 1
TVT C-2 = Target Vocabulary Test for Control Session 2
TVT RI-1 = Target Vocabulary Test for Rich Instruction Session 1
TVT RI-2 = Target Vocabulary Test for Rich Instruction Session 2
TVT RI-3 = Target Vocabulary Test for Rich Instruction Session 3

Table 45. *Procedures*

	Mon.	**Tues.**	**Wed.**	**Thur.**	**Fri.**
Week 1 Pretesting		Group B Total TVT; PPVT-III	Group A Total TVT; PPVT-III	Group B Total TVT; PPVT-III	Group A Total TVT; PPVT-III
Week 2 C-1	Group A C-1 Day 1 Total TVT;	Group B C-1 Day 1 Total TVT;	Group A C-1 Day 2 Total TVT;	Group B C-1 Day 2 Total TVT;	

	Mon.	Tues.	Wed.	Thur.	Fri.
	PPVT-III	PPVT-III	PPVT-III	PPVT-III	
Week 3 C-1 TVTC-1	Group A C-1 Day 3	Group B C-1 Day 3	Group A C-1 Day 4 TVTC-1	Group B C-1 Day 4 TVTC-1	
Week 4 RI-1	Group A RI-1 Day 1	Group B RI-1 Day 1	Group A RI-1 Day 2	Group B RI-1 Day 2	
Week 5 RI-1 TVTRI-1	Group A RI-1 Day 3	Group B RI-1 Day 3	Group A RI-1 Day 4 TVTRI-1	Group B RI-1 Day 4 TVTRI-1	
Week 6 RI-2	Group A RI-2 Day 1	Group B RI-2 Day 1	Group A RI-2 Day 2	Group B RI-2 Day 2	
Week 7 RI-2 TVTRI-2	Group A RI-2 Day 3	Group B RI-2 Day 3	Group A RI-2 Day 4 TVTRI-2	Group B RI-2 Day 4 TVTRI-2	
Week 8 RI-3	Group A RI-3 Day 1	Group B RI-3 Day 1	Group A RI-3 Day 2	Group B RI-3 Day 2	
Week 9 RI-3 TVTRI-3	Group A RI-3 Day 3	Group B RI-3 Day 3	Group A RI-3 Day 4 TVTRI-3	Group B RI-3 Day 4 TVTRI-3	
Week 10 RI Review			Group A	Group B	
Week 11 Total TVT posttest C-1	Group A Total TVT C-2 Day 1	Group B Total TVT C-2 Day 1	Group A C-2 Day 2	Group B C-2 Day 2	
Week 12	Group A	Group B	Group A	Group B	

	Mon.	Tues.	Wed.	Thur.	Fri.
C-2 TVTC-2	C-2 Day 3	C-2 Day 3	C-2 Day 4 TVTC-2	C-2 TVTC-2	

**The HLPVT and the caregiver interviews were completed at various times throughout the study.*

APPENDIX D

SAMPLE SCRIPT FOR DAY 1 OF RICH INSTRUCTION

1. Read book uninterrupted.
2. Return to page eight in the text.

Table 46. *Day 1 Script*

Target word	Verbal	Physical
disguise	In the story, *Big Al wraps himself up in seaweed to disguise himself. That means he put something on to look different so the other fish wouldn't know it was him. Touch the picture that shows Big Al wearing a disguise.*	Show age 8 to each child.
	A disguise is something we wear to look different. Let's say the word that means something we wear to look different. Disguise. *This mask is a disguise. It makes the boy look different because you can't see his face. Let's say the word that means something we wear to look different. Disguise.*	Show picture of a baby wearing silly glasses.

APPENDIX E

SAMPLE SCRIPT FOR DAY 2 OF RICH INSTRUCTION

Table 47. *Day 2 Script*

Target Word	Script
disguise	(*Show picture from day 1*). Remember how we talked about the word disguise last week? A disguise is someone we wear to look different. This baby is wearing silly glasses; it's a disguise because it makes her look different. I'm going to show you some pictures. If you see a boy or girl wearing something that makes them look different say, "disguise". If not, put your fingers to your lips and shake your head "no".
bulge	*(Show picture from day 1).* A bulge is something that sticks out really far. There's a bulge in the hamster's cheek from the carrot. If you see a picture that shows a bulge or something that sticks out really far say, "bulge". If not, put your fingers to your lips and shake your head "no".
capture	*(Show picture from day 1).* If you capture something, you catch it and don't let it go. This bird is captured; that's why it's in a cage- so it doesn't get away. If you see of picture of something that is captured say, "capture". If not, put your fingers to your lips and shake your head "no".

tremendous	*(Show picture from day 1*). This rabbit is tremendous- it's really big. Tremendous means really big or really good. If you see something that's really big say, "tremendous". If not, put your fingers to your lips and shake your head "no".
dash	*(Show picture from day 1)*. Dash means to move really fast. These horses are dashing—they're running really, really fast. If you see something else that's moving really fast say, "dash". If not, put your fingers to your lips and shake your head "no".

APPENDIX F

SAMPLE SCRIPT FOR DAY 3 OF RICH INSTRUCTION

1) **disguise**

A disguise is something we wear to look different. (*Show picture from day 1.)* This baby is wearing a disguise. She has silly glasses and a nose and hair on—her disguise makes her look different. I'm going to give each of you a penguin mask to wear. It's a disguise because it makes you look different; you look like a penguin. You can keep your disguise on while we do the next activity. *(*Frequently model: I like your disguise. You look like a penguin!)*

2) **bulge**

A bulge is something that sticks out really far. *(Show picture from day 1.)* This hamster is eating a carrot that's so big it made his cheek bulge out. You're going to take turns putting different things in this bag. If they're big and make the bag bulge out—if they make the bag stick out really far—say, "bulge"! *(*Frequently model: That (banana) made a big bulge—it makes the bag stick out really far!)*

3) **tremendous**

If something is tremendous, it's really big or really good. *(Show picture from day 1.)* This rabbit is tremendous—it's really, really big! There are tremendous, or really big animals, and really little animals in the corn. We're going to dig to find the animals and put the tremendous, or really big ones, like this fish in this bucket. We're going to put the really little animals, like this dog, in this bucket. *(*Frequently model: That (giraffe) is tremendous! It's really, really big!)*

(Count number of tremendous animals at the end and model: "We found [10] tremendous animals—they're really, really big!")

APPENDIX G

SAMPLE SCRIPT FOR DAY 4 OF RICH INSTRUCTION

I'm going to show you some pictures and we're going to use them to talk about these five words one more time: (point to pictures on poster board) companion, graceful, odd, dreadful, puzzled.

Which animal looks very **graceful**? (Why?)
Correct: Good! That horse runs smoothly and easily- it is very graceful.
Incorrect: That's a picture of a giraffe. It's not moving smoothly and easily, or looking graceful. It's standing funny so it can drink water.
What are some things that you could do gracefully?

Which fish looks **odd**? (Why?)
Correct: Good! This fish is riding a bicycle; fish don't ride bicycles! They don't have feet!
Incorrect: This is a picture of a yellow and blue fish. Fish are not odd—we see them all the time.
What could you do to act odd?

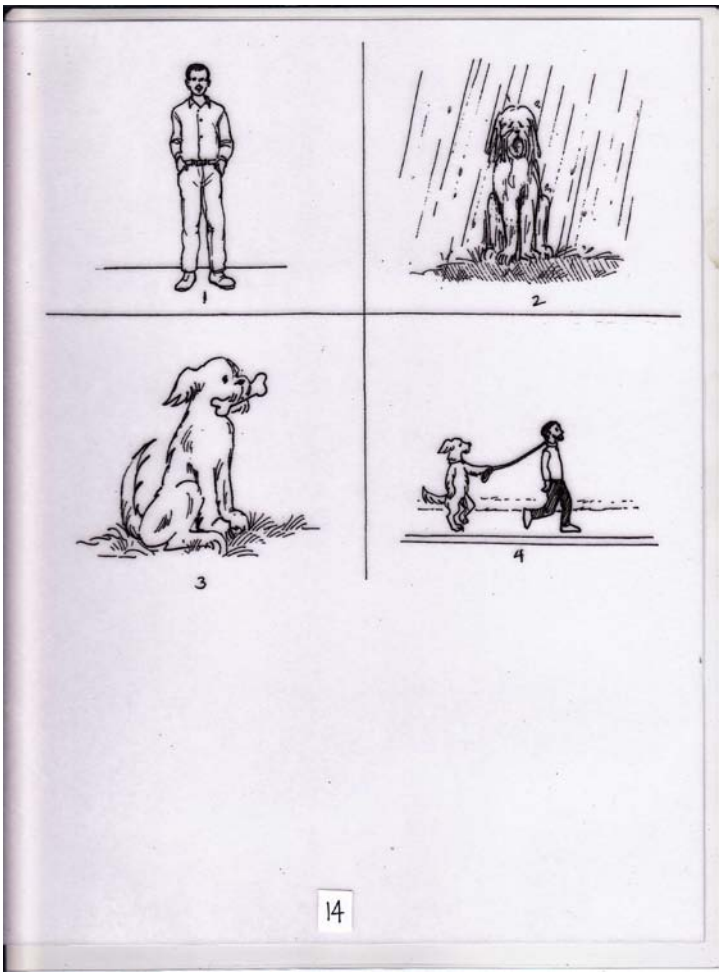
Which picture shows something **dreadful** that happened? (Why?)
Correct: Good! Both of these pictures show a bus but this picture shows the bus turned on its side. That's something really bad that happened; it's dreadful.
Incorrect: This is a picture of kids on a bus. It's not really bad or really scary. This picture shows the bus turned on its side. That's something really bad that happened; it's dreadful.
What could happen that would be dreadful?

Which picture shows **companions**? (Why?)
Correct: Good! These girls look like good friends- they look like they're together all the time and do things together. They're companions.
Incorrect: This little girl is talking on the phone by herself. This picture doesn't show two people that are together all the time.
Who are some of your companions?

Which boy looks **puzzled**? (Why?)
Correct: Good! This little boy is scratching his head. He's saying, "hmmm…I'm confused. I'm not sure…"). He's puzzled.
Incorrect: This picture shows a boy smiling. This little boy is scratching his head. He's saying, "hmmm…I'm confused. I'm not sure…"). He's puzzled.
When would you be puzzled?

APPENDIX H

SAMPLE TEST PAGE FROM THE PICTURE PORTION OF TOTAL TVT



APPENDIX I

SAMPLE TEST PAGE FROM THE VERBAL PORTION OF THE TOTAL TVT

Table 48. *Verbal Portion of Total TVT*

1. companion	Does companion mean someone you're with often?	Y	N	E
	If you're with someone everyday and you play and have fun together, would that person be your companion?	Y	N	E
	If you see a girl for the first time, is she your companion?	Y	N	E
2. odd	Does odd mean very happy?	Y	N	E
	If you eat macaroni and cheese is that odd?	Y	N	E
	If you go to bed at night is that odd?	Y	N	E
3. obey	Does obey mean to listen and do what you're asked to do?	Y	N	E
	If you sat quietly in your chair did you obey?	Y	N	E
	If you put your feet on the table during snack time did you obey?	Y	N	E
4. motion	Does motion mean to sing?	Y	N	E
	If you pointed to your house did you motion?	Y	N	E
	If you said "hi" did you motion?	Y	N	E
5. quarrel	Does quarrel mean to fight and yell?	Y	N	E
	If you yell and say mean things to your friend is that a quarrel?	Y	N	E
	If you read a book with your friend is that a quarrel?	Y	N	E
6. defiant	Does defiant mean to say no when you're	Y	N	E

told to do something?			
If you won't help clean up the toys, are you defiant?	Y	N	E
If you hold your mom's hand when you cross the street, are you defiant?	Y	N	E

APPENDIX J

HOME LANGUAGE PICTURE VOCABULARY TEST (HLPVT)

SET 1

1	ball
2	dog
3	spoon
4	foot
5	duck
6	banana
7	shoe
8	cup
9	eating
10	bus
11	flower
12	mouth

SET 2

13	pencil
14	cookie
15	drum
16	turtle
17	red
18	jumping
19	carrot
20	reading
21	toe
22	belt
23	fly
24	painting

SET 3

25	dancing
26	whistle
27	kicking
28	lamp
29	square
30	fence
31	empty
32	happy
33	fire
34	castle
35	squirrel
36	throwing

SET 4

37	farm
38	penguin
39	gift
40	feather
41	cobweb
42	elbow
43	juggling
44	fountain
45	net
46	shoulder
47	dressing
48	roof

SET 5

49	peeking
50	ruler
51	tunnel
52	branch
53	envelope
54	diamond
55	calendar
56	buckle
57	sawing
58	panda
59	vest
60	arrow

SET 6

61	picking
62	target
63	dripping
64	knight
65	delivering
66	cactus
67	dentist
68	floating
69	claw
70	uniform
71	gigantic
72	furry

SET 7

73	violin
74	group
75	globe
76	vehicle
77	chef
78	squash
79	ax
80	flamingo
81	chimney
82	sorting
83	waist
84	roof

SET 8

85	hyena
86	plumber
87	river
88	timer
89	catching
90	trunk
91	vase
92	harp
93	bloom
94	horrified
95	swamp
96	heart

APPENDIX K

INTERVIEW QUESTIONS

1. Was your child born in the United States? If not, how old was he/she when you moved here? Where was he/she born?
2. Who lives in your home?
3. Who takes care of your child when he/she is not at preschool?
4. What languages are spoken in the home (percentage of each)?
5. How many people in your home speak some English?
6. How well do you think your child speaks (home language)?
7. How important is it to you for your child to speak (home language)?
8. When (parent, sibling, grandparent, etc.) talks to the child, what language do they speak in most of the time (home language or English or other)?
9. When your child responds to (family member) what language(s) does he/she speak in?
10. How often per week do you (or another family member) read to your child?
11. How often do you (or the person who spends the most time with him/her each day) talk to your child each day?
12. What language(s) do you (or other family members) read to your child in?
13. How many English-language children's books are in the home?
14. How many (home/other language) books are in the home?
15. How many hours per day does your child watch television?
16. Does your child spend time anywhere besides your home and preschool each week? (e.g., neighbor's or relative's houses, grocery story, library, bus, play group; anywhere he/she might be exposed to English)?

REFERENCES

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print.* Cambridge: MA: MIT Press.

August, D., Carlo, M., Dressler, C., & Snow, C. (2005). The critical role of vocabulary development for English Language Learners. *Learning Disabilities Research & Practice, 20*(1), 50 – 57.

Ballantyne, K.G., Sanderman, A.R. & McLaughlin, N. (2008). *Dual language learners in the early years: Getting ready to succeed in school*. Washington, DC: National Clearinghouse for English Language Acquisition. Retrieved from http://www.ncela.gwu.edu/resabout/ecell/earlyyears.pdf

Barrera, R. B. & Bauer, E. B. (2003). Storybook reading and young bilingual children: A review of the literature. In A. van Kleeck, S. A. Stahl, & E. B. Bauer (Eds.), *On Reading Books to Children (*pp. 253 – 270). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Beck, I. L., & McKeown, M. G. (2007). Increasing young low-income children's oral vocabulary repertoires through rich and focused instruction. *The Elementary School Journal, 107*(3), 251 – 271.

Beck, I. L., McKeown, M. G., & Kucan, L. (2002). *Bringing words to life: Robust vocabulary instruction*. New York: Guilford Press.

Beck, I. L., McKeown, M. G., & Omanson, R. C. (1987). The effects and uses of diverse

vocabulary instructional techniques. In M. G. McKeown & M. E. Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 147-163). Hillsdale, NJ: Lawrence Erlbaum.

Biemiller, A. (2004). Teaching vocabulary in the primary grades: Vocabulary instruction needed. In J. F. Baumann & E. J. Kame'enui (Eds.), *Vocabulary instruction: Research to practice* (pp. 28 – 4). New York: Guilford Press.

Biemiller, A. (2003). Vocabulary: Needed if more children are to read well. *Reading Psychology, 34*, 323- 335.

Biemiller, A. (2001). Teaching vocabulary: Early, direct, and sequential. *American Educator, 25*(1), 24 – 28.

Biemiller A., & Boote, C. (2006). An effective method for building vocabulary in primary grades. *Journal of Educational Psychology, 98*(1), 44 – 62.

Carey, S. (1978). A case study: Face recognition. In E. Walker (Ed.), *Explorations in the biology of language*. Montgomery, VT: Bradford Books, 1978.

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

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

Catts, H. W., Fey, M. E., Zhang, X., & Tomblin, B. (1999). Language basis of reading and reading disabilities: Evidence from a longitudinal investigation. *Scientific Studies of Reading, 3*(4), 331 – 361.

Clements, A. (1988). Big Al. New York: First Aladdin Paperbacks.

Collins, M. F. (2010). ELL preschoolers' English vocabulary acquisition from storybook reading. *Early Childhood Research Quarterly, 25,* 84 – 97.

Cronbach, L. J. (1942). Analysis of techniques for diagnostic vocabulary testing. *The Journal of Educational Research, 36*(3), 206 – 217.

Cummins, J. (2000). Immersion education for the millennium: What we have learned from 30 years of research on second language immersion. In M. R. Childs & R. M. Bostwick (Eds.), *Learning through two languages: Research and practice. Second Katoh Gakuen International Symposium on immersion and bilingual education* (pp. 34 – 47). Katoh Gakuen, Japan: The Regents of the University of Minnesota.

Cummins, J. (1991). Interdependence of first- and second-language proficiency in bilingual children. In E. Bialystok (Ed.), *Language processing in bilingual children* (pp. 70 – 89). Cambridge, UK: University Press.

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

Cunningham, A. E. & Stanovich, K. E. (1998). The impact of print exposure on word recognition. In J. L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning literacy* (pp. 213 – 238). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Dickinson, D. K. & De Temple, J. (1998). Putting parents in the picture: Maternal reports of preschoolers' literacy as a predictor of early reading. *Early Childhood Research Quarterly, 13*(2), 241 – 261.

Dicksinson, D. K., McCabe, A., Anastasopoulous, L., Peisner-Feinberg, E., & Poe, M. D. (2003). The comprehensive language approach to early literacy: The interrelationships among

vocabulary, phonological sensitivity, and print knowledge among preschool-aged children. *Journal of Educational Psychology, 95*(3), 465 – 481.

Dickinson, D. K., & Tabors, P. O. (Eds.). (2001). *Beginning literacy with language: Young children learning at home and in school*. Baltimore, MD: Brookes Publishing Company.

Dunn, L. M., & Dunn, L. M. (1997). *Peabody Picture Vocabulary Test-III*. Circle Pines, MN: American Guidance Service.

Dunn, L. M., Padilla, E. R., Lugo, D. E., & Dunn, L. M. (1986). *Test de Vocabulario en Imagenes Peabody (TVIP) [Peabody Picture Vocabulary Test]*. Circle Pines, MN: American Guidance Service.

Durgunoglu, A.Y., Nagy, W.E. and Hancin-Bhatt, B.J. (1993). Cross-language transfer of phonological awareness. *Journal of Educational Psychology*, 85, 453 – 465.

Gersten, R. & Geva, E. (2003). Teaching reading to early language learners. *Educational Leadership, April*, 44 – 49.

Good, R. H., Simmons, D. C., & Kame'enui, E. J. (2001). The importance and decision-making utility of a continuum of fluency-based indicators of foundational reading skills for third-grade high-stakes outcomes. *Scientific Studies of Reading, 5*(3), 257 – 288.

Graves, M., & Slater, W. (1987). [April]. *The development of reading vocabularies in rural disadvantaged students, inner-city disadvantaged students, and middle-class suburban students.* Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

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

Hart, B. & Risley, T. (1995). *Meaningful differences in everyday experience of young American*

children. Baltimore, MD: Brookes Publishing Company.

Keats, E. J. (1970). *Hi, cat!* New York: Macmillan/McGraw-Hill School Publishing Company.

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

Knowles, S. K. (1988). *Edward the emu.* New York: Scholastic, Inc.

Lester, H. (1988). *Tacky the penguin.* Boston, MA: Houghton Mifflin Company.

Liberman, I. Y. & Shankweiler, A. M. (1989). The alphabetic principle and learning to read. In D. Shankweiler & I. Y. Liberman (Eds.), *Phonology and reading disability: Solving the reading puzzle* (pp?). Ann Arbor, MI: The University of Michigan Press.

Lionni, L. (1985). *It's mine!* New York: Scholastic.

Loban, W. (1964). Language ability: Grades seven, eight, and nine. (Cooperative Research Project No. 1131) Berkeley: University of California.

Lonigan, C. J., Burgess, S. R., Anthony, J. L., & Barker, T. A. (1998). Development of phonological sensitivity in two- to five-year-old children. *Journal of Educational Psychology, 90,* 294 – 311.

McBride-Chang, C., Wagner, R. K., & Chang, L. (1997). Growth modeling of phonological awareness. *Journal of Educational Psychology, 89*, 621 – 630.

McKeown, M. G., & Beck, I. L. (2003). Direct and rich vocabulary instruction. In J. F. Baumann & E. J. Kame'ennui (Eds.), *Vocabulary instruction: Research to practice*. New York: Guilford Press.

McKeown, M. G., Beck, I. L., Omanson, R. C., Pople, M. T. (1985). Some effects of the nature and frequency of vocabulary instruction on the knowledge and use of words. *Reading*

Research Quarterly, *20*(5), 522 – 535.

Metsala, J. L. (1999). Young children's phonological awareness and nonword repetition as a function of vocabulary development. *Journal of Educational Psychology, 91*(1), 3 – 19.

Metsala, J. L. & Walley, A. C. (1998). Spoken vocabulary growth and the segmental restructuring of lexical representations: Precursors to phonemic awareness and early reading ability. In J. L. Metsala & L. C. Ehri (Eds.), *Word recognition in beginning literacy* (pp. 89 - 120). Mahwah, NJ: Lawrence Erlbaum Associates.

Mezynski, K. (1983). Issues concerning the acquisition of knowledge: Vocabulary training on reading comprehension. *Review of Educational Research, 53*(2), 253 – 279.

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (2007). *National Assessment of Educational Progress (NAEP), 2007 Reading Assessment*. Washington DC: Author. Retrieved from http://nces.ed.gov/nationsreportcard/nde/

National Center for Educational Statistics. (2007). *The condition of education, 2007*. Retrieved from http://nces.ed.gov/Pubsearch/pubsinfo.asp?pubid=2007064

National Institute of Child Health and Human Development Early Child Care Research Network. (2005). Pathways to reading: The role of oral language in the transition to reading. *Developmental Psychology, 41,* 428 – 442.

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NIH Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.

Penno, J. F., Wilkinson, I. A. G., & Moore, W. (2002). Vocabulary acquisition from teacher explanation and repeated listening to stories: Do they overcome the Matthew effect? *Journal of Educational Psychology, 94*(1), 23 – 33.

Perfetti, C. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading, 11*(4), 357 – 383.

Perfetti, C. A. (1985). *Reading ability*. New York: Oxford University Press.

Perfetti, C. A. & Hart, L. (2001). The lexical bases of comprehension skill. In D. Gorfien (Ed.), *On the consequences of meaning selection* (pp. 67 – 86). Washington, DC: American Psychological Association.

Perfetti, C. A. & Hart, L. (2002). The lexical quality hypothesis. In L. Verhoeven, C. Elbro & P. Reitsma (Eds.), *Precursors of functional literacy* (pp. 189 – 213). Philadelphia, PA: John Benjamins Publishing.

Perfetti, C. A., Marron, M. A., & Folz, P. W. (1996). Sources of comprehension failure: Theoretical perspectives and case studies. In C. Cornoldi & J. Oakhill (Eds.), *Reading comprehension difficulties: Processes and intervention* (pp. 137 – 166). Mahwah, NJ: Lawrence Erlbaum Associates.

Reyes, I. & Azuara, P. (2008). Emergent biliteracy in young Mexican immigrant children. *Reading Research Quarterly, 43*(4), 374 – 398.

Roberts, T. A. (2008). Home storybook reading in primary or second language with preschool children: Evidence of equal effectiveness for second-language vocabulary acquisition. *Reading Research Quarterly, 43*(2), 103 – 130.

Roberts, T. A. & Neal, H. (2004). Relationships among preschool English language learner's oral proficiency in English, instructional experience and literacy development.

Contemporary Educational Psychology, 29, 283 – 311.

Roswell, F. & Chall, J.S. (1994) *Creating Successful Readers.* Chicago: Riverside Press.

Roth, P., Speece, D. L., & Cooper, D. H. (2002). A longitudinal analysis of the connection between oral language and early reading. *The Journal of Educational Research, 95*(5), 259 – 272.

Ruiz-de-Velasco, J., Fix, M., & Clewell, B. C. (2000). *Overlooked and Underserved: Immigrant Students in U.S. Secondary Schools*. Washington, DC: The Urban Institute.

Scarborough, H. S. (2001). Connecting early language and literacy to later (dis)abilities: Evidence, theory, and practice. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 97 – 110). New York: The Guilford Press.

Scarborough, H. S., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review, 14*, 245–302.

Senechal, M. (1997). The differential effect of storybook reading on preschoolers' acquisition of expressive and receptive vocabulary. *Journal of Child Language, 24,* 123 – 138.

Senechal, M. & LeFevre, J. (2002). Parental involvement in the development of children's reading: A five-year longitudinal study. *Child Development, 73*(2), 445 – 460.

Senechal, M., Thomas, E., & Monker, J. (1995). Individual differences in 4-year-old children's acquisition of vocabulary during storybook reading. *Journal of Educational Psychology, 87*(2), 218 – 229.

Silverman, R. D. (2007). Vocabulary development of English-language and English-only learners in kindergarten. *The Elementary School Journal, 107*(4), 365 – 383.

Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young*

children. Washington, DC: National Academy Press.

Snow, C. E., Tabors, P. O., Nicholson, P. A., & Kruland, B. F. (1994). Oral language and early literacy skills in kindergarten and first-grade children. *Journal of Research in Childhood Education, 10*(1), 37 – 48.

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

Storch, S. A. & Whitehurst, G. J. (2002). Language and code-based precursors to reading: Evidence from a longitudinal structural model. *Developmental Psychology*, *38*(6), 934 – 947.

Torgesen, J.K. (2004). Lessons learned from research on interventions for students who have difficulty learning to read. In McCardle, P. and Chhabra, V. (Eds.), *The voice of evidence in reading research*. Baltimore. Md.: Paul H. Brookes.

U.S. Bureau of the Census. (n.d.). Population and housing summary tape files 3A. Summary tape file 3 on CD-ROM. Washington, DC: U.S. Department of Commerce.

van den Broek, P. W., & Lorch, R. F., Jr. (1993). Causal relations in memory for narrative texts: Evidence from a priming task for network representations. *Discourse Processes, 16,* 75 – 98.

Vygotsky, L. S. (1986). The genetic roots of thought and speech. In A. Kozulin (Trans.& Ed.), *Thought and language*. Cambridge, MA: MIT Press.

Whitehurst, G. J. & Lonigan, C. J. (1998). Child development and emergent literacy. *Child Development, 69*(3), 848 – 872.

Ziegler, J. C. & Goswami, U. (2005). Reading acquisition, developmental dyslexia, and skilled reading across languages: A psycholinguistic grain size theory. *Psychological Bulletin,*

131(1), 3 – 29.