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Effects of Dual Language Learning on Early Language and Literacy Skills in Low Income Preschool Students

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Effects of Dual Language Learning on Early Language and Literacy Skills in
Low Income Preschool Students

by

Vanessa Tápanes

A thesis submitted in partial fulfillment
Of the requirements for the degree of
Education Specialist
Department of Psychological and Social Foundations
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EFFECTS OF DUAL LANGUAGE LEARNING ON EARLY LANGUAGE AND
LITERACY SKILLS IN LOW INCOME PRESCHOOL STUDENTS

Vanessa Tápanes

ABSTRACT

This paper presents a framework for literacy skill development relating to both monolingual and dual language learners. The purpose of this study was to identify the differences that may exist between monolingual and dual language learners' performance on literacy tasks, before having a significant amount of exposure to the preschool curriculum. The sample included 78 monolingual language learners and 44 dual language learners who were assessed using the Woodcock Language Proficiency Battery-Revised (WLPB-R). The researcher used scoring methods that took into consideration split vocabulary in dual language learners where a conceptual scoring technique was used (Bedore, Pena, Garcia, & Cortez, 2005). The research design employed was casual comparative where the effects of dual language learning on letter knowledge, concepts of print, vocabulary, listening comprehension, and broad language development were investigated. Findings from two *Multivariate Analysis of Variances* indicated that there were significant differences between monolingual and dual language learners on early language and literacy skills. This study contributes to the literature regarding dual language development and the use of appropriate scoring methods. Particularly, the

outcomes from this study provide guidance regarding best practices for assessment of dual language learners to identify learning and language difficulties.

CHAPTER I

Introduction

Statement of the Problem

Literacy has been an evolving phenomenon in the United States. A century ago, students completed middle school and went off to work. With this level of education, individuals were able to support a family and be successful. Later, in order to succeed, a high school education became necessary and higher levels of literacy became, and continue to be, essential. In recent years, initiatives such as the No Child Left Behind Act of 2001 (NCLB) and Early Reading First (2006)¹ have made clear the importance of reading by setting goals for achievement, focusing on early literacy, and making educators accountable for students' reading achievement. There has been a strong emphasis on improving reading rates of minority students, particularly for Latino students whose reading achievement is one of the lowest. In 2004, the National Center for Education reported that 17 year old Latino high school students read at the same levels as Caucasian 13 year olds (National Center for Education Statistics, 2005). Because Latinos are the fastest growing minority group in the U.S. (U.S. Census Bureau, 2000a), this has the potential to place the country at a great economic disadvantage.

In our battle against reading failure, we have come to realize that focusing our energies on the early years in education provides the best chance for improving reading

¹ Based on the Fiscal Year 2006 Application for New Grants for the Early Reading First Program, CFDA Number: CFDA No. 84.359A/Pre-application, U.S. Department of Education, Office of Elementary and Secondary Education.

outcomes. Early detection strategies have played a primary role in identifying children at risk for having reading difficulties and providing intensive services for improvement. Language screeners, early literacy screeners, assessments of phonological awareness, and many more assessment tools are used during the preschool years to identify students in need of extra assistance. The early years are particularly important because it has been documented that early reading ability is a strong predictor of later reading ability and success (Cunningham & Stanovich, 1997). Furthermore, early reading difficulties can lead to a lifetime struggle with reading. Children who experience reading problems early in their schooling show poor performance on literacy tasks and often fall far behind their peers. As students get older and fall further behind, gaps increase and are more difficult to close (a phenomenon known as the Matthew Effect; Bast & Reitsma, 1998; Stanovich, 1986). Struggling students are very likely to experience repeated difficulty throughout schooling if they are not identified at the early stages.

Recently, in the field of education, there has been a strong focus on early identification of children with learning difficulties and different disabilities. Reauthorization of the *Individuals with Disabilities Education Improvement Act of 2004* (IDEA; 2004) clearly states that early identification and screening are required in order to provide early intervention services. The President's Commission on Excellence in Special Education (U.S. Department of Education, 2002) noted that universal screening of young children is associated with better outcomes and they recommended that states be given flexibility to use funds from IDEA and other resources to finance these screening procedures. Moreover, the National Reading Panel (2000) discussed the importance of early identification and the impact it has on later reading success.

Attention to this matter is important when attempting to understand the changes in the law and education. Early identification is especially important for English language learners (ELLs) as research supports the benefits of bilingualism when a model of early identification and intervention is in place (Lesaux & Siegel, 2003).

Although ELLs have played a role in the recent focus on identification, there are two common errors often made when identifying ELLs with learning difficulties. On one hand, students may not be identified due to lack of appropriate measures, subjectivity on part of the assessor, lack of a structured and valid identification process (Fuchs & Fuchs, 1998), or misrepresenting deficits as second language issues (Barrera, 2003). First and second generation Latinos attending school in the United States often maintain their home language, as recent immigrants are less likely to assimilate when compared to immigrant groups in the past (Suarez-Orozco, 2000; Waters, 1999). Because of this, educators are having increased contact with children who maintain their home language and are exposed to the English language as well while residing in the United States. In this paper the term dual language learners refers to students who have exposure to two languages before the age of 5 years.

With increased immigration by Latinos, dual language learners are becoming more and more prevalent in the school system. Due to these changes and unfamiliarity with dual language development, professionals are often excessively careful in identifying dual language learners as having learning or language difficulties for fear that they are incorrectly categorizing these students due to language differences; they do not want to make the mistake of identifying a student for special services when in fact the student has simply not mastered the English language (Gerber et al., 2004). Conversely,

some professionals misidentify students as having deficits or delays when in fact differences in development are due solely to dual language development (Klingner & Artiles, 2003). This situation highlights the lack of effective and efficient methods of identifying learning difficulties in students with dual language systems.

Barrera (2003) discussed this lack of valid measures to identify these students and the need to distinguish typically developing English language learners from those with learning disabilities. This double edged sword often plays a significant role in the processes used to identify dual language learners for deficits in early literacy skills. Thus, it is crucial that researchers and educators understand the development of early language and literacy skills and how it compares to the development of these skills in dual language learners. In order to correctly identify dual language learners who need additional services and those who do not, the similarities and differences of these two populations need to be identified. Additionally, it is important to be aware of how dual language development affects literacy development.

Literacy Development and Dual Language Learners

In an analysis of two dominant approaches to literacy development, Dickinson, McCabe, Anastopoulos, Peisner-Feinberg, and Poe (2003) discussed literacy development in the context of two contrasting views: the phonological sensitivity approach (PSA) and the comprehensive language approach (CLA). PSA suggests that general language abilities, especially vocabulary, provide the basis for phonological sensitivity, which then leads to literacy. CLA suggests that a variety of oral-language skills, including phonological sensitivity, semantics, syntax, discourse, reading and writing, are important in emergent literacy and play critical roles in reading achievement.

Dickinson et al. (2003) noted that many of the studies supporting PSA are methodologically flawed (e.g., using language solely as a control variable rather than as a predictor variable in analyses). Dickinson et al. purported to identify the process through which these early language and literacy skills develop and which view of literacy development was supported by their findings.

The results from the analyses conducted by Dickinson et al. (2003) support the CLA theory as correlational analyses showed moderate relationships between vocabulary, phonological sensitivity, and literacy. Additionally, phonological sensitivity and vocabulary equally predicted literacy, each accounting for 7% of the total variance. The interrelationships between vocabulary and phonological sensitivity were displayed when analyzing weaknesses in the respective areas. As children's abilities in each individual area decreased, literacy scores were also lower. For example, if a student was weak in phonological awareness, but not in vocabulary, literacy scores were lower. The same was true if vocabulary scores were low and phonological awareness in the normal range. In other words, when one of the skills was lacking, the other's power to predict literacy decreased. The National Reading Panel (2000) also noted the importance of phonological sensitivity, language, and other skills in literacy development.

Whitehurst and Lonigan (1998) identified these skills in the framework of two overarching skill domains. These include inside-out skills and outside-in skills. Inside-out skills refer to some of the basic building blocks of reading. These skills represent the understanding of the rules for translating written text into sounds (Whitehurst & Lonigan, 1998). The rules refer to basic and very narrow conventions that are necessary for reading and literacy attainment. These inside-out skills include: phonological awareness,

letter knowledge, and the alphabetic principle. Outside-in skills refer to broader skills related to literacy. These skills are necessary for the understanding of text and the context in which it occurs. They are broad skills that assist in overall outcomes of literacy development. Outside-in skills include concepts of print and language. Language also can be broken down into smaller parts including syntax, vocabulary, decontextualized language (Whitehurst & Lonigan, 1998) and listening comprehension or memory for language (Meier, 2004).

As mentioned previously, in the review of literacy development approaches (Dickinson et al., 2003), it was found that these sets of skills typically develop interdependently and predict literacy and reading success. Literacy develops as a combination of these interdependent skills that predict literacy success and develop in the early years.

Cross Language Transfer. Dual language learners develop similar skills. These skills may be attained in one language or the other. No matter in which language these skills develop first, research has shown that they correlate with the same skills in the other language (Leafstedt & Gerber, 2005; Genesee, Paradis, & Crago, 2004), except in the case of vocabulary, which falls under the outside-in skill of language development (Bedore, Pena, Garcia, & Cortez, 2005; Lindsey, Manis & Bailey, 2003). This suggests that development in either language on most early literacy skills can foster reading success in English. To some, this also may suggest that students can be assessed in either language to determine whether they are experiencing early learning difficulties in the area of literacy. Still, when assessing dual language learners on early literacy skills, vocabulary plays a very important role and because this skill does not transfer, these

students appear to have language deficits when in fact they have split resources of vocabulary. With early identification and intervention, these children eventually develop similar vocabularies in each language to their same age peers and often develop higher level metalinguistic skills (Genessee et al., 2004).

Scoring Methods Used with Dual Language Learners. It is important that dual language learners be viewed in terms of their overall linguistic capabilities rather than being assessed solely in one language and viewed through a dichotomous lens. There has been debate regarding these issues and methods for appropriate calculation of overall linguistic capabilities. A study conducted by Bedore et al. (2005) used three types of scoring methods to see which was most appropriate for this population of students. The three methods included monolingual scoring, total scoring, and conceptual scoring.

Monolingual scoring is generated from a single language measure. Many believe that monolingual scoring is most beneficial as standardized scores are generated and a monolingual-English examiner is sufficient for assessment, which is often the most available in education systems. This is the method most often used, but it underestimates bilingual students' abilities (Bedore et al., 2005). Monolingual scores ignore that bilinguals use different languages in different contexts and that with dual language development there is often not equal proficiency in each of the students' languages. This method of scoring, which is so often used within the school system, is not suggested as best practice.

The second type of score is a total score. This type of scoring is generated when English and Spanish abilities are assessed by two different examiners. For example, a bilingual student would be assessed in Spanish and in English and receive a monolingual

score in each language, with the sum of the scores resulting in a total score. Pearson, Fernández, and Oller (1993) found that bilingual toddlers scored lower on both measures of vocabulary than the monolinguals that the tests were designed for. Summing the words known in each language yielded a more representative score of bilingual abilities accounting for the unique development of bilinguals' semantic development. An example of total scoring would include a bilingual student knowing the word for "ball" in English and Spanish and knowing the word for "play" in Spanish, but not in English, such that the raw score for this student would be three. However, this method of scoring may be problematic because it can overestimate the abilities of the bilingual student, especially if there is similar vocabulary assessed in each language. As in the example above, if the student knows the word for "ball" in English and in Spanish, many would say that it should only be counted once as monolingual language learners do not have the opportunity to earn additional points for synonyms.

Lastly, Pearson et al. (1993) and Bedore et al. (2005) proposed conceptual scoring. Conceptual scoring involves counting overlapping vocabulary once while allowing for responses in either Spanish or English to be counted as correct. Bilinguals' languages can be examined simultaneously by a bilingual examiner or assessed in English and then in Spanish and calculated thereafter. This method of scoring takes into account the dual language development of bilinguals without overestimating their performance and allowing them to slip through the cracks if they are experiencing learning difficulties.

Purpose of the Study

The purpose of this study was to identify differences that exist between monolingual and dual language learners' performance on literacy tasks before they had a significant amount of exposure to the preschool curriculum. To determine these differences, a monolingual scoring method was used. Additionally, the study examined whether differences exist between these groups after controlling for split vocabulary in dual language learners using a conceptual scoring method.

Research Questions

1. What are the effects of dual language learning on performance of tasks measuring letter knowledge, concepts of print, vocabulary, listening comprehension, language memory and broad language development in low income preschool students?
2. When controlling for split resources in vocabulary, are there differences in performance on tasks measuring vocabulary and broad language possessed by low income monolingual and dual language learners in preschool?

Phonological awareness was not assessed in this study for a number of reasons. First, for the age range (4 to 5-years-old) of students that participated in this study, there are no standardized or published measures to assess phonological awareness. Also, although phonological awareness is critical to growth in reading skills, Lindsey et al. (2003) noted that this skill may be a better predictor of reading skills after some instruction has occurred whereas these other literacy skills may play a greater role than previously expected.

Significance of the Study. Progress and development of early language and literacy skills are important for all preschool populations but considering the lack of reading success among Latino students previously discussed, this study has sampled from the population of Spanish/English dual language learners and English monolingual children from preschool Head Start classrooms. Of additional importance, this study has taken into account dual language development so that bilingual students were not over or under identified as experiencing difficulties because of split resources among two languages. This has implications for bilingual schooling, identification of dual language learners with learning difficulties, and future research regarding the relationship between bilingual language development and reading success.

Particularly, for school psychologists, the outcomes from this study provide further understanding of language development in young dual language learners and guide assessment procedures when confronted with uncertainty regarding learning difficulties within this population. Currently, there seems to be continuous misunderstanding about dual language development and how it affects the schooling process and literacy development as evidenced by over and under identification of these students in special education services (Gerber et al., 2004; Klingner & Artiles, 2003). This study clarifies how these students may be appropriately assessed and the differences that exist between them and their monolingual peers when entering school without a significant amount of formal schooling.

Lastly, this study contributes to the literature regarding the measurement of young dual language learners' early language and literacy skills. Although there has been some research regarding the use of conceptual scoring to measure vocabulary skills (Bedore et

al., 2005; Pearson, Fernández, & Oller, 1993), there are few studies that have taken this into consideration when comparing monolingual to dual language learners.

Operational Definitions of Terms

Early language and literacy skills are the skills that are most predictive of later reading success. They include skills that constitute the building blocks of reading as well as broader skills that are necessary for literacy. Due to the limited set of tools to measure early language and literacy skills in preschool aged children, this study used a broad language measure which assesses some inside-out skills (letter knowledge) and outside-in skills (concepts of print and language, which includes vocabulary and listening comprehension). A brief description of each of the skills that were measured in this study follows.

Letter knowledge refers to children's knowledge of distinctive features of the alphabet letters and their representations in both uppercase and lowercase letters.

Concepts of print is the understanding of how print functions and that various forms of print exist in the environment.

Vocabulary is a language skill that refers to the ability to translate visual codes and abstract thought into meaningful language.

Listening comprehension is also a language skill that represents the cognitive understanding of orally presented language, which involves an integration of language understanding and short term memory.

Language develops differently depending on the exposure that one receives. Any young child who is acquiring language is considered a language learner. Individuals who

learn a new language at an older age are also considered language learners. Language learner is a broad term that requires in many cases a descriptor.

Monolingual language learners are individuals who are exposed to and speak only one language.

Dual language learners are individuals who are exposed to two languages before the age of 5 years. In this study dual language learners were children who have been exposed to any amount of English and Spanish before the age of five. These children are of Hispanic descent, where they, their parents, grandparents, or ancestors were born in a Spanish-speaking country in Latin America.

Delimitations and Limitations

As this study sampled from a population of low income families in Head Start preschools in a western county in the state of Florida, the findings may be generalizable to similar populations. Findings may be representative of low income, monolingual and dual language learners entering Head Start preschool classrooms (ages 4 years through 5 years and 4 months) in this region of the United States. By limiting the sample, generalizability was reduced. The findings of this study may not be generalizable to other low income preschool students who do not live in the county from which the population was sampled. Students from Head Start preschools may also differ significantly from low income populations that do not attend Head Start preschools or do not attend preschool at all.

Limitations to this study include assessment procedures, assessment tools, and limitations resulting from secondary analysis. The method used to obtain conceptual scoring in this study is not ideal. Rather than administering two assessments to each dual

language learner (one in English and one in Spanish), as was conducted in this study, the most appropriate procedure would be to allow students to respond in either language during a single assessment period. Assessing children twice, in each language individually, may affect students' performance on measures the second time they are assessed due to familiarity with the test; this may affect ecological validity. Currently, there are few measures that allow for bilingual responding therefore monolingual English and Spanish measures were used.

Also due to a lack of appropriate measures to assess early language and literacy skills (phonological awareness, letter knowledge, alphabetic principle, concepts of print, syntax, decontextualized language, and vocabulary) in young preschool students, a broad language measure was used that does not include all language and literacy variables. Skills of phonological awareness, alphabetic principle, syntax, and decontextualized language were not observed in this study.

This study was based on data collected for a previous study, the Language and Literacy Project (currently in progress at a large southeastern university). There has been note of the limitations and strengths of using secondary data (Sales, Lichtenwalter, & Fevola, 2006; Thomas, Heck, & Bauer, 2005). Although using secondary data minimizes the demands of data collection within a specific time frame and all the logistics related to data collection, such as searching for participants, obtaining consent, and other timely matters, it also leads to possible deficits in data specific to one's research questions and design (Sales et al., 2006; Scott, Heck, & Bauer, 2005). Particular to this study, there were no descriptors collected regarding nationalities of dual language learners. Latin America encompasses many Spanish speaking countries with a large variety of dialects

and customs. Without identifying children's descent this study was unable to control for variations in language maintenance and development based on nationality.

Organization of Remaining Chapters

The following chapters highlight the specifics of this study. Included in Chapter II is a review of the literature relating to early language and literacy skills and their ability to predict literacy for both monolingual and dual language learners and those skills that transfer from one language to the other. Chapter III describes the methods that were used in this study including research design, a description of the participants, variables, assessment instruments, procedures, and data analysis. Chapter IV displays the results from this study and Chapter V includes a discussion of the results and an overall discussion of the findings and implication of this study.

CHAPTER II

Review of the Literature

This chapter provides a review of the literature in the area of early language and literacy skills predicting literacy and reading success. These skills are discussed in the context of the monolingual population. Subsequently, the relationship between early language and literacy skills in monolingual language learners and dual language learners is discussed. The significance of the following information is that it may lead to knowledge regarding how to correctly identify dual language learners with reading difficulties.

Early Language and Literacy Skills

This section briefly defines literacy, discusses the development of literacy, and describes the factors that play a role in literacy development. Literacy as defined by Roskos, Tabors, and Lenhart (2004) is “a written system of marks that fixes language in place so it can be saved and referred to at a later point in time;” it involves “reading, writing, and thinking to produce and comprehend texts” (p. 23). The earliest phases of literacy refer to the time during which children come to understand the features and functions of the spoken and written word; this understanding often occurs before structured reading instruction (Smith, Dickinson, Sangeorge, & Anastasopoulos, 2004). Children frequently interact with adults and their environment in ways that assist in the development of these prerequisite skills to reading. Although literacy is often viewed

solely as the ability to read it actually includes many other factors. Within the comprehensive language approach (CLA) to literacy development, there are inside-out and outside-in skills that interact to predict literacy. Together these skills include phonological awareness, letter knowledge, alphabetic principle, concepts of print, and language.

Inside-out Skills

Inside-out skills refer to some of the basic building blocks of reading. These skills represent the understanding of the rules for translating written text into sounds (Whitehurst & Lonigan, 1998). These rules refer to basic and very narrow conventions that are necessary for reading and literacy attainment. Some of these inside-out skills include: phonological awareness, letter knowledge, and the alphabetic principle.

Phonological awareness. Phonological awareness is the awareness and understanding of sounds and their structure in language. Students should be able to understand that spoken words are made of sounds in speech. Additionally, phonological awareness includes understanding of onset-rime, sentence and syllable segmentation, blending and segmenting sounds, the ability to delete and manipulate certain sounds from words, and individual letter sounds or phonemes (Chard & Dickson, 1999; Whitehurst & Lonigan, 1998). Phonological awareness is a broad category and one of the building blocks of reading. As children begin to develop an awareness of phonology, around three or four years of age (Carroll, Snowling, Hulme, & Stevenson, 2003), they begin to understand that with different combinations of sounds, different words can be produced.

Chard and Dickson (1999) described these skills that fall under the umbrella of phonological awareness in the context of a continuum, with increasing complexity. The least complex of the skills includes initial rhyming and rhyming songs. Children are often taught nursery rhymes and songs in order to help foster this skill. Next on the continuum lies sentence segmentation, where children become aware of the ability to break spoken speech into individual words. This understanding is often displayed by activities where children draw a single mark for each word that is spoken to represent a transcription of a conversation. The next step on the continuum refers to the ability to segment words into syllables and blend syllables together to make words. Similar to sentence segmenting, children begin to draw one mark for each syllable rather than for each individual word. Children then acquire the ability to segment words into onsets (bat) and rime (bat) and blend these sounds together when they are presented separately. Last on the continuum is the most complex of phonological awareness skills, phonemic awareness. Phonemic awareness is the ability to separate words into individual sounds or phonemes and manipulate these phonemes by segmenting, blending, or substituting phonemes to create new words. Children often do not reach this most complex level until they have begun the process of learning to read (Perfetti, Beck, Bell, & Hughes, 1987).

The importance of phonological awareness for reading attainment has been noted in numerous empirical articles and reviews in recent years (Daly, Chafouleas, Persampieri, Bonfiglio, & LaFleur, 2004; Dickinson et al., 2003; Nation & Snowling, 2004; National Reading Panel, 2000; Rack, Hulme, Snowling, & Wightman, 1994; Whitehurst & Lonigan, 1998). Nation and Snowling conducted analyses to determine which factors best predicted reading comprehension and word recognition. The purpose

of the study was to identify what factors contributed to reading development. Students were assessed at two different times: when students were approximately 8.5 years old, and when students were 13 years old. Nonword reading (a task requiring students to read make believe words that are phonetically spelled) and phonological awareness skills (rhyme fluency and judgment) were included in their analyses. Together, these skills accounted for unique variance in all models. When predicting reading comprehension, nonword reading and phonological skills accounted for 20% of the variance at time 1 and 16% of the variance at time 2. When predicting word recognition, the predictive ability of these skills increased. At time 1, nonword reading and phonological skills accounted for 72% of the variance and at time 2 for 10% of the variance.

Phonological skills comprise one of the building blocks leading to children's ability to understand the sounds that make up the spoken word and how different words are related. In order for children to read effectively and efficiently, it is important that they form this basic understanding of the composition of written language. Particularly, phonological awareness contributes to reading attainment by helping children develop efficient word-recognition strategies such as detecting pronunciations (Gunn, Simmons, & Kameenui, 1995).

Letter knowledge. Letter knowledge is the knowledge of distinctive features of alphabet letters and their representation in both uppercase and lowercase letters (Gunn et al., 1995). Children acquire the ability to recognize letters when they see them and often times may point out that, for example, a stop sign has an *s* in it. Children must be able to distinguish between forms to understand which sound is to be produced with each representation as letter names give clues about the sounds they make.

Along with other skills, letter knowledge has been identified as an early language and literacy skill as well (Ehri & Sweet, 1991; Gunn et al., 1995). Ehri and Sweet investigated the types of print knowledge necessary for early learners to participate in pointing to words from memorized text. This activity was operationalized as an early skill linked to reading and word recognition. The participants in the study included 36 4.5 to 6 year olds who were administered assessments of various reading skills and print knowledge (including letter knowledge, phonemic segmentation and knowing how to read preprimer words). The students were then trained in finger-point reading or pointing to words in text that had been memorized. After the training, students were re-assessed on their reading skills. Regression analyses were conducted to determine which skills predicted early reading achievement. Letter knowledge (letter name knowledge and letter discrimination) accounted for unique variance ($r^2=.07$) in later reading skills such as reciting text accurately. Letter knowledge was a strong predictor of the ability to locate words within the text ($r^2=.08$) and recognizing altered text ($r^2=.37$). These findings highlight the importance of letter knowledge in the early years of literacy development. It is particularly important to note the effects that letter knowledge have on word-recognition skills as evidenced by participants' awareness of altered text.

Alphabetic principle. The alphabetic principle refers to the ability to associate sounds with letters and the use of these sounds to form words (Gunn et al., 1995). This skill is linked to phonological awareness as children begin to understand that each letter represents a sound and has a name. With these letters and the sounds they create, children understand that words can be created by combining the sounds. This skill relates to the ability to later recognize words in text, sound out words, and read connected text.

In a study conducted by Lindsey et al. (2003), a number of analyses were conducted to determine which skills best predicted later reading ability. The participants in the study included 303 students who were assessed on various skills at three different times, some of which included letter sound knowledge and reading outcome measures (i.e., reading comprehension, word attack, and word identification). Using hierarchical regression analyses, the authors found that letter sound knowledge at time 2 accounted for unique variance on these reading outcome measures ranging from approximately 6-9%.

Outside-in Skills

Outside-in skills refer to broader skills related to literacy. These skills are necessary for the understanding of text and the context in which it occurs. They are broad skills that assist in overall outcomes of literacy development. Some outside-in skills include awareness of print and language.

Concepts of print. Concepts of print refer to understanding of the forms and functions of print (Gunn et al., 1995). Early on, children often become aware of their surroundings wherever they go. They take notice of books, billboards, signs, and other objects that display print. Even more, they begin to understand the functions of the text they constantly see in their environments, inquiring about it and observing others interact with it. These concepts refer to the knowledge about the way print functions, the importance of print to convey messages, and the use and organization of printed materials (Gunn et al., 1995). For example, one reads to gather information and reads from left to right and turns the pages in a book in the same way (for most languages). Developmental writing skills and understanding the function of environmental print also fall in this

category of early literacy (Justice & Kaderavek, 2004). For example, children may attempt to write a message and make a mark to represent each word or syllable or make attempts at story-writing by talking through the story as they draw marks or lines on paper or writing one letter to represent each word. A child who participates in these activities displays the understanding that his or her spoken words can be represented in writing despite his or her incomplete attainment of letter knowledge and phonological awareness.

Neuman (1999) demonstrated the importance of the conceptualization of print in later reading ability by identifying the relationship between the early literacy skills and presence of storybooks. A random sample of 255, 3 and 4 year old students were selected for the intervention condition and 100 students were in the control group. The students were assessed on their ability to identify environmental print in the form of signs, knowledge of letter names, concepts of print (e.g., identifying that print tells the story not pictures), receptive vocabulary, concepts of writing (e.g., asked to write something and writing was rated on level of understanding), and concepts of narrative (e.g., telling a story with a wordless picture book). During the intervention, teachers were trained on various reading techniques, the daycare centers were provided with books (at a ratio of five per child) and bookshelves, and the staff was invited to local libraries for book talks. Findings from the study indicated that, after the intervention, there were more interactions around literacy activities and during story book reading. Additionally, when students were re-assessed on the literacy measures, the intervention group performed better than the control group on the concepts of print task, knowledge of letter names, concepts of writing, and concepts of narrative. Overall, increasing

children's awareness of print leads to greater success with the relation of print to speech and letter knowledge, which influence literacy development.

Language. Speech and language are important in early literacy development as they are the earliest experiences children have with literacy related tasks before they receive formal instruction. Language, like literacy, is often understood in broad terms but rarely broken down into its smaller components. It often is perceived as spoken words that are used to communicate. This is the big picture of language but, in fact, language involves a number of other complex skills that are important in literacy acquisition, such as complex syntactic constructions, vocabulary, decontextualized language (Whitehurst & Lonigan, 1998), and listening comprehension or memory for language (Meier, 2004).

Syntax. An important skill in language development includes the ability to understand and produce increasingly complex syntactic constructions (Whitehurst & Lonigan, 1998). This refers to the rules for the formation of grammatical sentences. The ability to understand and form complex sentence structures affects students' understanding of text.

There have been numerous studies that have supported the importance of language in predicting literacy success (Berninger, Abbott, & Thomson, 2001; Bowey, 1994; Catts, Fey, Zhang, & Tomblin, 1999; Dickinson et al., 2003; Nation & Snowling, 2004; Scarborough, 1990). Scarborough's research displayed the importance of syntax in later reading ability and how early differences in language skills are related to later reading difficulties. Thirty-two children from families in which dyslexia was prevalent were selected to participate in the study. Of these children, 20 subsequently developed a reading disability, and 12 did not. An additional 20 children were selected from control

families without a history of dyslexia. The students were assessed at 30 months old in a number of literacy skills, some of which included syntactic and lexical skills. Language samples were recorded during play sessions, and two measures of productive syntax were coded. The mean length of utterance was noted for each child, and the *Index of Productive Syntax* was used to determine types of sentence constructions (e.g. noun phrase elaborations, interrogative and negative forms). Additionally, lexical diversity (number of different words within the first 250 words produced) was coded. At 60 months, follow-up included assessment of reading readiness skills including letter identification, letter-sound correspondence, phonological awareness (rhyme matching and first sound matching), and reading achievement (an achievement test which was predictive of grade 2 reading ability).

Analyses from this study (Scarborough, 1990) were conducted, in which IQ was controlled, to determine if there were differences at 30 months between the groups of children with dyslexia, those who came from families with dyslexia but did not have a reading disability, and those that came from “non-dyslexic families.” No differences were found between groups on performance of most literacy tasks but children with dyslexia performed significantly lower on syntax and had a higher rate of consonant errors. When analyses were conducted to determine which factors were significant predictors of reading achievement after controlling for IQ and the other factors measured, only syntax predicted future reading achievement. These findings are important as they highlight early differences that can be identified to provide extra support for children at-risk for reading difficulties. Furthermore, it points out the importance of syntactic ability in predicting future reading difficulties.

Vocabulary. Another important skill is vocabulary knowledge which allows children to make meaning of the conversations they have and the text they read. Understanding vocabulary refers to the ability to translate visual codes, words (Whitehurst & Lonigan, 1998), or abstract thought into meaningful language. For example, there are some young students who have excellent decoding skills and can read high school level text but, due to a lack of vocabulary knowledge, they do not understand what they are reading.

Berninger et al. (2001) identified vocabulary skills in conjunction with other verbal skills as important predictors of reading comprehension. This study included children with reading and/or writing difficulties in grades 1 through 6. Students' reading comprehension, verbal IQ, phonological skills, writing skills, and a number of other literacy skills were assessed. The authors conducted regression analyses to identify predictors of reading fluency, accuracy, and comprehension. Verbal IQ was identified as a predictor (contributing unique variance) of the reading comprehension outcome measures. Additionally, Metsala (1999) identified vocabulary growth as a strong predictor of phonological awareness, which has been noted previously to predict reading ability (Daly et al., 2004; Dickinson et al., 2003; Nation & Snowling, 2004; Rack et al., 1994).

Roth, Speece, and Cooper (2002) provided further support for vocabulary in predicting literacy success. Roth et al. conducted a longitudinal study in which they assessed children's abilities in various oral language and pre-reading skills in kindergarten, first grade, and second grade. The investigators found that semantic ability, oral vocabulary, and word retrieval in kindergarten were significant predictors of reading

comprehension in second grade, accounting for 23% of the variance even after kindergarten print awareness skills were controlled. When print awareness, oral vocabulary, and word retrieval were included in one model, together they accounted for more of the variance when predicting reading comprehension in first and second grade than phonological skills.

Nation and Snowling (2004) also identified vocabulary as a strong predictor of future reading success. These authors examined the relationship between oral language and reading comprehension and hypothesized that reading comprehension would be closely related to oral language. Additionally, they predicted that there would be a relationship between oral language and word recognition and that children with weak language skills would have difficulty reading words that are not phonetically spelled (exception word reading). Seventy-two students were tested at two points in time: at about 8.5 and 13 years old. Tests tapped nonverbal ability using the Weschler Intelligence Scale for Children (WISC)-III Block Design task and phonological skills (generation of rhymes and detection of rhyme). Oral language skills that were assessed included: expressive vocabulary (WISC-III vocabulary subtest), listening comprehension, semantic skills (generation of sets of semantically related words), and synonym judgment (heard pairs of words and had to determine whether they had similar meanings or not). Reading skills were operationalized using a word recognition task (Weschler Objective Reading Dimensions Basic Reading Scale), nonword reading (the Graded Nonword Reading Test which tapped decoding skills), reading comprehension (Neale Analysis of Reading Ability-Revised), and exception word reading (reading of a list of words that were not phonetically spelled).

Additionally, results from the Nation and Snowling (2004) study showed that oral language skills such as semantic skills ($r^2=.15$) and vocabulary ($r^2=.25$) accounted for unique variance in predicting reading comprehension at time 1. When predicting reading comprehension at time 2 using time 1 language skills, semantic skills ($r^2=.05$), and vocabulary ($r^2=.05$) contributed uniquely to the variance, even after controlling for reading comprehension at time 1 ($r^2=.32$) and nonverbal ability ($r^2=.07$). When predicting word recognition at time 1, oral language skills also contributed unique portions of the variance (semantic skills, $r^2=.04$; vocabulary, $r^2=.04$). Time 1 oral language skills continued to predict word recognition at time 2 but to a lesser degree (semantic skills, $r^2=.02$; vocabulary, $r^2=.02$). The last prediction the authors made with regard to the ability of oral language skills to predict exception word reading (non-phonetically spelled words) was also supported by the analyses. Time 1 vocabulary predicted time 2 exception word reading ($r^2=.03$). Overall, analyses regarding the relationship between oral language skills, word recognition, and exception word reading supported the authors' hypotheses. Children with weaker language skills tended to have lower word recognition skills than expected considering their nonword decoding skills (determined by correlations between standardized residuals and measures of verbal-semantic skills). Overall, these findings suggest that broader language skills such as vocabulary and semantic ability play a significant role in reading achievement.

Decontextualized language. Decontextualized language is also an important factor in literacy attainment (Dickinson & Snow, 1987; Whitehurst & Lonigan, 1998). In regular conversation, we often refer to objects around us or common experiences, so it is not difficult for one to follow along and understand, and if there is something that is

unclear, one could seek immediate feedback from the environment. Decontextualized language is somewhat different. The importance of this phenomenon lies in the ability to understand narrative text and story lines. Oftentimes, before reading a story, there is no knowledge or understanding of the characters, their experiences, where they are, or the physical objects surrounding them. It is necessary for the reader to understand and listen for novel information without any background knowledge (Dickinson & Snow, 1987; Whitehurst & Lonigan, 1998).

For some time, language and its role in education have been discussed, and differences in language use have been noted. Cummins (1981) distinguished between cognitive academic linguistic potential (CALP) and basic interpersonal communication skills (BICS). The two skills are similar to decontextualized language and contextualized or conversational language skills. Cummins noted the importance of CALP for academic success in bilingual students versus BICS, which develop more rapidly even in monolinguals. The difference in rate of development of these skills suggests that they are two separate skills and that one is easier to acquire than the other.

Research has identified decontextualized language abilities (i.e., providing a description for a presented picture, defining isolated words) as opposed to conversation, as important in leading to academic success and reading mastery in the later school years (Dickinson & Snow, 1987). As children develop different oral language skills, such as expressive language use, they become competent in the use of language and the ability to manipulate language without the cues of conversation (or use decontextualized language). With competence in manipulating oral language, children begin to understand written language, its structure, and its purposes. More recent research has identified the

predictive ability of narrative discourse (a measure of decontextualized language) to later reading comprehension (Roth et al., 2002). This study was described above when discussing results for vocabulary. Results from multiple regression analyses showed that narrative discourse in kindergarten was predictive of reading comprehension in first grade. The ability of narrative discourse to predict comprehension diminished when predicting second grade comprehension. This may suggest that decontextualized language may be necessary to comprehend text early on but once other higher level literacy skills develop, decontextualized language abilities lose their ability to predict reading comprehension.

Listening comprehension. Lastly, listening comprehension predicts reading abilities. Listening comprehension is the cognitive understanding of orally presented language (Gunn et al., 1995). This skill involves an integration of language understanding and short term memory (Gathercole, Tiffany, Briscoe, Thorn, & The ALSPAC team, 2005) as children are asked to recall language that they attend to. Understanding language includes the ability to hear complex sentence structures and understand the meaning of what has been said. Memory plays a significant role in language development, especially in younger children, as language experiences need to become part of a child's repertoire for future use. Meier (2004) emphasizes the importance of exposure and memory in children's language development. As they are exposed to different forms of language, they develop a schema for use. With more exposure and with incorrect and correct language use, children adapt those schemata for interacting with orally presented text. Together, understanding language heard and remembering it creates this phenomenon, listening comprehension.

Kazuvire and Everatt (2005) identified, the importance of listening comprehension in predicting literacy attainment. Study participants included 116, second to fifth grade bilingual students who were assessed on their listening comprehension, word reading, nonword reading (make believe words that are phonetically spelled), semantic fluency, phoneme recognition and other preliteracy skills in English and Herero (a language spoken in Namibia). Regression analyses displayed that listening comprehension in English was a significant predictor of students' performance on word reading tasks in English.

Summary of Early Language and Literacy Skills

Overall, there are a number of early language and literacy skills that have been identified as strong predictors of literacy. Some skills such as phonological awareness, letter knowledge, and vocabulary have been identified more often and included in analyses to predict literacy more frequently. Other skills, such as decontextualized language and alphabetic principle, need additional research support. Although links between these skills and future literacy attainment can be identified, there are few studies that have looked at their direct paths to literacy skills. Also, caution should be taken when interpreting results from studies predicting literacy, as outcomes measures used may vary depending on when the study was conducted, operational definitions of the investigators, and age of the students included. The age of the participants in the studies is of particular importance because of the rapid development of literacy skills within the first few years of schooling and ways to measure these skills. Unless studies are longitudinal in design, reading measures are difficult to administer, and greater inference must be made. Although it is known that many skills are important to the development of

literacy, there is debate about which measures should be used as outcome measures for reading ability with young students. Still, overall, all of these skills have been identified at some point as contributing to future literacy.

Cross Language Transfer of Literacy Skills

This section briefly discusses cross language transfer and describes research indicating the relationships, similarities, and differences in literacy skill development between bilingual and monolingual students. This is important as it clarifies the relationship between monolingual and dual language learning.

Bilingual students' literacy development is similar to monolingual development in many ways, particularly when both languages are alphabetically based. On the other hand, there are some differences that are important to note, particularly when discussing identification of disabilities in bilingual students. Cross language transfer refers to the "access and use of linguistic resources from L1 [first language] by students while learning other languages" (Leafstedt & Gerber, 2005, p. 227). When students acquire two languages, their understanding of concepts in one language often can be used as building blocks in the second language. Dual language learning is somewhat unclear to many as these individuals may develop each language at different rates (Genesee et al., 2004). This is often understood as a sign of weakness in one language, the other, or both. However, learning in one language can transfer over into the second language in most aspects of literacy. There is evidence of cross language transfer in skills of phonological awareness (Cisero & Royer, 1995; Leafstedt & Gerber, 2005; Lindsey et al., 2003), letter knowledge (Lindsey et al., 2003), alphabetic principle (Lindsey et al., 2003), concepts of print (Lindsey et al., 2003), syntactic awareness (Durgunoğlu, Mir & Ariño-Martí, 2002),

decontextualized language (Durgunoğlu, Peynircioğlu & Mir, 2002), and listening comprehension (Lindsey et al., 2003) as presented subsequently.

Phonological Awareness

López and Greenfield (2004) conducted a study with 100 bilingual students in Head Start preschool classrooms. The study measured the children's language proficiency in both English and Spanish using the preLAS2000 and developed an instrument to measure phonological sensitivity skills (including rhyme matching, alliteration matching, and sentence segmenting). Correlational analyses were conducted to determine whether phonological skills in Spanish crossed over to these same skills in English. The authors found that the test scores from the Spanish and English versions of the phonological sensitivity measure were significantly correlated ($r=.41$) suggesting that these skills transfer across languages. Additionally, the authors conducted mean comparisons in which the language scores and phonological sensitivity scores were compared by language. Findings displayed that the mean score for the Spanish language proficiency test was significantly higher for this group than the English test but there were no significant differences between phonological scores. This shows that even though the students' English language had not developed as fully as their Spanish language had, the students' phonological sensitivity skills were still developing at a similar rate in both languages.

Cisero and Royer (1995) aimed to identify whether phonological awareness transfers to a second language once developed in the first as well. The study was conducted with mainstream and English as a Second Language (ESL) students in transitional bilingual programs in kindergarten and first grade. ESL and monolingual

students were assessed in both English and Spanish on rhyme detection, initial phoneme (onset) detection and final phoneme detection tasks (all of which fall under the umbrella of phonological awareness); students had to identify whether the words provided shared the target sound or not. Findings provided support for cross-language transfer in all students. Through regression analyses, the authors displayed that initial phoneme detection at time 1 in L1 (first language) and L2 (second language) predicted initial phoneme detection in L2 at time 2. Correlational analyses displayed that for the ESL group, time 1 performance on L1 tasks were moderately to mildly correlated with performance on the respective time 2, L2 tasks (rhyme detection, $r=.45$; initial phoneme detection, $r=.31$; final phoneme detection, $r=.13$). For the mainstream students, the patterns of correlations were similar (rhyme detection, $r=.36$; initial phoneme detection, $r=.51$; final phoneme detection, $r=.55$) displaying that cross-language transfer of phonological skills occurred in both ESL and mainstream students.

Lindsey et al. (2003) aimed to identify whether cross-language transfer would be observed for a number of different literacy skills, including phonological awareness at three different times and whether the same variables that are predictive of later reading ability in monolingual children show cross language transfer. The participants included in the study were kindergarten students in a bilingual program, where they received the majority of their instruction in Spanish and one hour per day of instruction in English. In first grade, many of the students moved into an English language program where English was introduced more and more gradually throughout the year. Results suggest the presence of cross language transfer for phonological awareness as evidenced by moderate to strong relationships between performance on Spanish letter-sound and English letter-

sound tasks (tasks involving phonological awareness and phonological decoding skills). Spanish measures of phonological awareness also were found to be moderately to highly correlated to English reading measures suggesting that skills in L1 transfer even when predicting other reading skills in L2. Overall, this study highlighted the transfer of phonological skills and their importance in predicting later reading ability.

Letter Knowledge

Lindsey et al. (2003), as discussed above, aimed to identify whether cross language transfer would be observed in a number of literacy skills. The researchers also assessed the bilingual students' ability to identify capital and lower case letters in English and in Spanish. Performance on the Spanish Letter identification task at time 1 correlated moderately ($r=.66$) with its English counterpart at time 3 and the Spanish letter sound task at time 2 correlated moderately with its English letter sound task ($r=.37$) at time 3. Additionally, letter knowledge at time 1 was predictive of English decoding skills ($r^2=.13$), and English passage comprehension ($r^2=.15$) at time 3.

Alphabetic Principle

Lindsey et al. (2003) also included measures of letter sound relationships in their previously described study. This measure was administered in English and Spanish to the participants. Correlational analyses suggest that performance on the Spanish letter sounds tasks was moderately correlated with the students' performance at time 3 on the English letter sounds task ($r=.37$). This suggests that even after some time passes, in this case, four weeks, there still exists a relationship between performance on letter sound tasks in English and Spanish.

Concepts of Print

Lindsey et al. (2003) also identified cross language transfer of awareness of print. One would expect concepts of print to transfer as it refers to the understanding of how print functions and is one of the least language loaded tasks. Children recognize that there are certain ways in which objects are handled and the uses they serve. When this refers to books, children can answer questions about how to use books in Spanish, as was done in this study, and in turn understand reading tasks in any language. Findings from this study support this as the time 2 Spanish concepts about print measure was one of the most consistent predictors of the English reading variables at time 3. It accounted for 5% of the variance when predicting English letter-word identification, 2% of the variance when predicting English word attack, and 2% of the variance when predicting English passage comprehension.

Language

Syntax. Durgunoğlu et al. (2002) noted that cross language transfer occurs in syntactic awareness as well. The study assessed bilingual children on their knowledge of correct syntax use. Children were presented with a syntactically incorrect sentence visually and the examiners also read the sentence aloud to the child. The subject was then asked to correct the sentence. Similar errors were presented in English and Spanish, although these were not direct translations due to differences in grammar structure per language. Children who could correct the errors in one language were more likely to display similar accuracy in the other language supporting transfer of syntactic awareness skills.

Verhoeven (1994) completed a similar study with bilingual Turkish speaking children in Dutch schools. In this study, children were presented with sentences orally and were asked to repeat the sentences in each language. The accuracy of morphemes and word order was analyzed for mistakes. When correlational analyses between languages were conducted there was a moderate correlation ($r=.25$) between the tasks.

Decontextualized language. A study conducted by Durgunoğlu et al., (2002) found that cross language transfer occurs in decontextualized language. The study examined the abilities of fourth grade students to produce formal definitions in each language. Additionally, the students were assessed using measures of general vocabulary and word recognition. When correlations between the students' performances on the formal definitions task were conducted, the performances on the Spanish and English tasks were highly correlated. When regression analyses were conducted to determine which variables best predicted formal definition performance in one language, performance in the other language was a significant predictor even when controlling for vocabulary and word recognition skills.

Listening comprehension. Lastly, Lindsey et al. (2003) identified the presence of cross language transfer on a task that involved memory for sentences, which, as discussed previously, plays a major role in listening comprehension and literacy development in young children. The researchers assessed the bilingual students' using the Memory for Sentences subtest from the Woodcock-Johnson Psychoeducational Battery-Revised. Results from bivariate correlations show that the performance of bilingual students on the Spanish assessment of Memory for Sentences at time 1 was moderately correlated with

their performance on the English assessment ($r=.37$) at time 3. Additionally, performance of the Spanish memory for sentences task at time 2 was predictive of later English passage comprehension ($r^2=.03$).

Vocabulary. Vocabulary is one of the predictors of literacy that has been identified as a skill that does not transfer across languages (Bedore et al., 2005; Lindsey et al., 2003). Bedore et al. (2005) conducted an investigation where 55 children of Latino descent between the ages of 4 and 8 years were divided into four groups based on parent and teacher report, by percentage of language output: primarily Spanish (use Spanish 80% or more), primarily English (use English 80% or more), bilingual English (use English 50-79%), and bilingual Spanish (use Spanish 50-79%). Children were assessed on their receptive and expressive vocabulary. Results from an analysis of variance indicated that bilingual children performed better in their dominant language when compared to their performance on measures in their non-dominant language. Although correlational analyses were not conducted to determine the relationship between performances on each measure, there were significant differences within groups noted based on the language of assessment.

Lindsey et al. (2003) did conduct correlational analyses based on the performance of 249 bilingual students. The vocabulary measure in this study was a receptive vocabulary measure. Students were assessed in both English and Spanish. Notably, the picture vocabulary subtests had a low correlation ($r=.15$). This suggests that there is a small relationship between English and Spanish receptive vocabulary.

Uchikoshi (2006) conducted a recent study on 150 bilingual students and suggested that there is transfer of vocabulary from one language to another. Students'

receptive and expressive vocabularies were assessed and correlational analyses were conducted. When results from this study were reviewed, it was noted that analyses did not produce statistically significant relationships between performance on English and Spanish vocabulary assessments despite what the author reported. The author discusses that although the results were not statistically significant, there was a 15 point increase in standard scores on Spanish vocabulary tasks associated with a 2.85 point increase in English vocabulary scores.

Because vocabulary is an important preliteracy skill that does not transfer across languages, it is important to identify if dual language learners display gaps in their vocabulary development in both languages. Since dual language learners often develop different vocabularies in each language based on the settings they hear these vocabulary words in, determining a child's vocabulary knowledge in one single language may underestimate their lexical knowledge (Bedore et al., 2005; Pearson et al., 1993). On the other hand, using total scoring methods may lead to an overestimation of dual language learners' vocabulary knowledge. In order to best represent dual language learners' vocabulary knowledge, conceptual scoring methods, where both languages are taken into consideration but only single labels are counted for each possible item, are necessary (Bedore et al., 2005; Pearson et al., 1993).

Conclusion

In the past, there were strong beliefs that bilingual children had poorer outcomes because they did not develop sufficiently in either language or in fear that the dominant language of the society they live in would not develop sufficiently because of their first language. For example, if a student from a Spanish-speaking home in the U.S. developed

his/her home language completely, it would in turn negatively affect the student's English abilities. Considering the findings discussed previously, it is clear that students' development of literacy skills in their first language has not been found to impinge on the development of a second language; rather, it fosters development of the same or even higher order skills in the second language. Therefore, some would suggest assessment in the second language is sufficient to determine whether children are having learning difficulties (Lindsey et al., 2003). Still, many of the correlational studies displaying relationships between first and second language performance on literacy skill subtests show moderate to mild correlations. Additionally, vocabulary plays a significant role in predicting later reading ability and this literacy skill does not show evidence for transfer from one language to another. Thus, it is important to identify whether gaps exist between monolingual and bilingual students after controlling for differences in vocabulary.

CHAPTER III

Methods

Research Design

The research design employed in this study was casual comparative where the effects of dual language learning on letter knowledge, concepts of print, vocabulary, listening comprehension, and broad language development were investigated.

Extraneous variables including SES were controlled for by only including students of low income families (with incomes below the federal poverty level) enrolled in Head Start preschool programs. Additionally, considering variations in language use in Latino homes due to length of time in the United States, differences in exposure to language was controlled for by only including participants who were 4 years old through 5 years and 4 months old. At the same time, there continues to be some level of variability which cannot be controlled for. Thus, participants have only had three to five years additional exposure to the English language compared to the other dual language learners.

Hammer, Miccio, and Wagstaff (2003) indicated that these variations in the amount of exposure do not produce significant differences in young dual language learners' early literacy skills.

Data used in this study were collected for the purposes of the Language and Literacy Project² conducted previously by a professor at a large southeastern university.

Participants

Participants in this study were sampled from a target population of low income students in the state of Florida in Head Start classrooms. Families served by Head Start are eligible to enroll their preschool aged children to attend school free of charge. The purpose of this educational program is to close the gaps that appear early on between low SES and middle and high SES students by exposing children to early instruction in skills necessary for later academic success (National Head Start Association, 2006).

The accessible population, from which the sample was drawn, was low income students in one county. Thereafter, a simple random sampling method was used to select Head Start classrooms to be included in the study. The participants in this study were recruited as part of a larger study, the Language and Literacy Project. In the beginning of the year the Head Start agency randomly selected 32 classrooms to participate in research for the year. From these 32 classrooms 16 were randomly selected. The total number of Head Start centers which were included from the randomly selected classrooms was 11 centers. Parents of children in the selected classrooms were contacted by the principal investigator of the Language and Literacy Project. Parents were contacted through letters dispersed by the Head Start classroom teachers, which included permission forms for their child to participate. If parents consented, the form was completed, including information regarding the child's birth date and the languages spoken at home. All of the children were between the ages of 4 years and 5 years and 4 months. No child had turned

² This research project was supported by an NSF minority postdoctoral researcher starter grant (SES-0527084) awarded to Lisa M. López.

5 years and 5 months old by the time of the assessment. The sample is made up of 122 children who were assessed in the fall of 2005. Approximately half of the sample were female and half were male (51.2% male, 48.8% female). The mean age for the total sample at the time of assessment was 4 years and 10 months old. Considering the sample was drawn from Head Start preschools, the family incomes for all students in the sample were below the federal poverty level.

Within this sample, there were 44 children (37%) who were of Hispanic descent and received some Spanish language input in the home based on parent report. The other 78 students in the sample were from monolingual English speaking homes. There were no statistically significant differences on age, $t(120) = .40, p = .69$, or gender, $\chi^2(1) = .06, p = .81$, by type of language learner. In the state of Florida, individuals of Latino descent approximate 19% of the population and in the county from which the population was drawn, Latinos comprise approximately 20% of the population (U.S. Census Bureau, 2000c). Additionally, approximately 17% of the population in Florida speaks Spanish in the home (U.S. Census Bureau, 2000b). Within each of the selected classrooms, English was the dominant classroom language.

Variables

Type of Language Learner

In this research study, the independent variable was type of language learner. There were two levels of this variable: monolingual language learner and dual language learner. Monolingual language learners are students who are exposed to English only from birth and have had no input of any other language. Dual language learners are students who have been exposed to two languages, English and Spanish in this study,

before the age of 5 years. The amount of input in each language may vary by individual based on the amount of time the family has been living in the United States, the community the child lives in, the amount of contact the child has with extended family, and other characteristics that this study could not control for. Classification for type of language learner was based on parent report. Each parent filled out a parent intake form when enrolling their child in Head Start. The following questions on the intake form regarding language use were used to classify the type of language learner: “Language spoken at home: ___English ___Spanish ___Creole ___Other” and “Language spoken by child: ___English ___Spanish ___Creole ___Other.” Parents were asked to check one language. If either response was Spanish, the child was classified as a dual language learner. If only English was selected for both items, the child was classified as a monolingual language learner.

Early Language and Literacy Skills

The dependent variables in this research study included a number of early language and literacy skills (as discussed in Chapter 2). These include letter knowledge, concepts of print, vocabulary, and listening comprehension. Additionally, a language memory task, which is indicative of listening comprehension, and broad language ability, were included as dependent variables in this study. Broad language ability is a compilation of scores on language memory, vocabulary, letter knowledge, and concepts of print tasks. These variables are based on an interval level scale on which children are compared to their same age peers.

Two additional dependent variables included in the analyses of this study were created: conceptual vocabulary and conceptual broad language ability. The conceptual

vocabulary score is comprised of a combination of the child's vocabulary in both English and Spanish. It takes into account split vocabulary resources while providing credit only once for those words that overlap as discussed in previous chapters. The conceptual broad language ability is a compilation of scores on language memory, conceptual vocabulary, letter knowledge, and concepts of print tasks.

The measures used to assess the dependent variables are described in depth below. This section also provides additional understanding of each of the variables.

Measures

As described in Chapter 1, the battery of assessments that was used in this study is a broad language measure which includes assessments on some of the basic early language and literacy skills.

The Woodcock Language Proficiency Battery - Revised (WLPB-R)

The Woodcock Language Proficiency Battery – Revised, as developed by Woodcock (1991), is a standardized assessment consisting of a comprehensive set of individually administered tests for measuring abilities and achievement in oral language, early reading, and written language. The subtests from the WLPB-R administered to the students in this study included: Memory for Sentences, Picture Vocabulary, Listening Comprehension, Letter-Word Identification, and Dictation. Each subtest has a requirement to obtain a basal and ceiling point in which students have to answer a certain number of lowest consecutive items correctly (basal) and a certain number of the highest consecutive items incorrectly (ceiling). The basal and ceiling for most subtests is 6 items, whereas the Memory for Sentences has a basal of 4 items. A description of each subtest follows. These tests also provide an overall measure of language competency.

Standard scores on the WLPB-R range from 0 to 200, with a mean score of 100 and standard deviation of 15. Standard scores between 80 and 120 suggest average abilities. Scores below 80 would be classified as low or below average and scores above 120 as high or above average. The *Woodcock Johnson III Compuscore and Profiles Program* was utilized to convert raw scores based on correct and incorrect responses into standard scores for all of the measures. Standard scores were used for analyses.

There are two versions of this assessment battery including one in English and one in Spanish. The English Form of the subtests was normed on a randomly selected population of 6,359 English-speaking individuals in the United States. The sample was stratified and weighted so that the population is representative of the distribution and characteristics of the country's population. Accordingly, the norms for these assessments were developed from monolingual English speaking children. The preschool sample, that the measure was normed on, included 705 children between the ages of 2 and 5 years old.

The Woodcock Language Proficiency Battery-Revised - Spanish Form (Woodcock & Muñoz-Sandoval, 1995) is parallel in content and structure to the English Form. The items were standardized using a norm sample of approximately 2,000 monolingual Spanish-speaking individuals both inside and outside the U.S. (Arizona, California, Florida, New York, Texas, Puerto Rico, Costa Rica, Mexico, Peru, and Spain). Spanish norms were equated to the English monolingual norms meaning that the tasks on the Spanish test are rescaled according to the empirical difficulty of counterpart English tests based on translation of materials and performance by monolingual Spanish-speakers. For further discussion of test equating refer to the *Woodcock Language Proficiency Battery-Revised Spanish Form* (Woodcock & Muñoz-Sandoval, 1995).

Broad language ability (Early developmental scale). This Broad Language Ability—Early Development Scale is a broad measure of language ability which was made for use with children at the preschool level. The scale includes measures of linguistic competency, a range of receptive to expressive vocabulary, a range of symbolic learning to reading identification skills, and a range of prewriting to writing skills (Woodcock, 1991). It is comprised of four tests: Memory for Sentences, Picture Vocabulary, Letter-Word Identification, and Dictation. These tests are also available to be administered in Spanish. The standard score on the broad language measure was used in analyses.

Memory for Sentences. Memory for Sentences measures the students' ability to remember and repeat words, phrases, and sentences presented to them auditorily by the examiner. In this task, the student makes use of the sentence meaning and short-term memory to aid in recall. This test is being used in the present study to index children's memory for language and listening comprehension skills. The language memory variable used in this study consists of the Memory for Sentences score. Scoring on this subtest is based on the errors the student makes when responding. When repeating a phrase, if the student does not make any errors of omission, insertion, or mispronunciation, then the student receives 2 points; if one error is made, the student receives a score of 1 point, and if there is more than one error, the student receives 0 points for that item.

Picture Vocabulary. In the Picture Vocabulary and Vocabulario sobre Dibujos (Spanish version of Picture Vocabulary) subtests children are asked to select pictures to match words provided auditorily and to say a word when shown a picture. The vocabulary variable used in this study consists of the Picture Vocabulary score.

Vocabulary is assessed using a measure in which the examiner names a picture and the student is asked to point to the correct picture out of a group of four to six (receptive vocabulary). These measures also include solitary pictures to which the student is asked to produce the name of the picture (expressive vocabulary). These subtests are scored dichotomously where students receive a score of 1 based on a correct response and 0 for an incorrect response.

The conceptual vocabulary variable consists of a combination of scores from the Picture Vocabulary and Vocabulario sobre Dibujos subtests. Conceptual vocabulary was assessed using both English and Spanish vocabulary measures and summing the responses that were provided in one language with the correct responses from the other language, while subtracting those that overlapped.

Letter-Word Identification. The Letter-Word Identification subtest first measures symbolic learning through the use of pictorial symbols, followed by identification of letters and words which the child may need to decode. This test was used in the present study to represent students' letter knowledge. Correct responses on this subtest are given a score of 1.

Dictation. The Dictation subtest items measure prewriting skills such as drawing lines, and copying letters. Additionally, the subtest requires students to provide written responses to questions requiring knowledge of letter forms, spelling, punctuation, capitalization, and word usage. This test was used to measure concepts of print. On the Dictation subtest, correct responses are given a score of 1.

Listening Comprehension. The Listening Comprehension subtest measures the child's ability to comprehend a passage and supply the single word missing at the end in

an oral cloze procedure. The passage is presented orally by the examiner and the student completes the sentence. For example, the examiner may say, “Man is to boy as woman is to ____.” The appropriate response would be *girl*. This measure was also used to measure listening comprehension in addition to the memory task. Scoring on this subtest is dichotomous where correct responses receive a score of 1.

Reliability and Validity

Reliability of the *WLPB-R* measures used in this study was determined by measurement of test-retest reliability (correlations ranging from $r=.85$ to $.95$) and internal consistency reliability (correlations ranging from $r=.78$ to $.92$; Woodcock, 1991).

Validity was established using various approaches. Concurrent validity was established with a number of populations including ESL students, college students, and preschool students (Woodcock, 1991). Woodcock reports that moderate concurrent validity was established in a study conducted with preschool students comparing scores on similar subtests on the Stanford-Binet IV, the Peabody Picture Vocabulary Test-Revised, and other tests sampling similar skills. Content validity, as reported by Woodcock, was established based on the content of the items using item validity studies and expert opinion.

Procedures

Assessment sessions were conducted one-on-one at the Head Start preschool sites and lasted approximately 30-45 minutes. Students were assessed in any office within the center that was available and provided a table, chairs, and a quiet place for testing. All assessments were conducted between the hours of 8:30 a.m. and 11:30 a.m. There were five assessors who received 4 hours of training on administering the assessment battery

including: a University professor, two graduate students in school psychology and Speech/language programs, and two undergraduate students in Early Childhood Education. Assessors were provided with a description of the measures that would be used, discussion regarding rules for standardized administration, and rules regarding language use with the child being assessed. During the training, administration was modeled and students were asked to practice the administration with each other while being supervised and provided with performance feedback. Additionally, assessors were asked to take the assessment kits home and practice prior to their first administration with a child. Lastly, assessors were supervised and provided with feedback regarding any mistakes that they made in administration during their first visit to the Head Start centers.

During the assessment session, children were allowed to discontinue the testing situation at any time. Monolingual learners were assessed once by an English speaking examiner between the months of October, 2005 and January, 2006. Within the same time frame, dual language learners were assessed twice, once in English and once in Spanish by two different examiners (order was determined primarily on the availability of the Spanish speaking examiner). When working with dual language learners, examiners only spoke in the language in which the child would be assessed so that the child did not know that the examiner spoke another language. This inhibited code-switching, or responses in two languages, within one assessment.

Data Preparation: Conceptual Scores

For dual language learners, a conceptual vocabulary score (Bedore et al., 2005; Pearson et al., 1993) was computed. For each participant, responses on the English and Spanish picture vocabulary assessments were compared. Dual language learners received

a summed score of all the correct items from each language assessment minus the number of items that overlapped in both languages. For example, a student assessed in two languages, answers all vocabulary items correct on the English subtest, which includes the vocabulary words, *shoe*, *car*, *train*. The student also answers all Spanish vocabulary correct which includes the words *zapato* (shoe), *sopa* (soup), and *tren* (train). The student would receive a total conceptual score of 4 points because two of the words overlap (the student receives only 2 points instead of 4 for these items) and 1 point for each of the other two, non-overlapping, correct items. This raw score was entered into the *Woodcock Johnson III Compuscore and Profiles Program* in the place of the monolingual picture vocabulary score to obtain the standard score for conceptual vocabulary.

The conceptual vocabulary raw score was then entered into the *Woodcock Johnson III Compuscore and Profiles Program* along with the Memory for Sentences, Letter-Word Identification, and Dictation scores to obtain a Conceptual Broad Language standard score. The conceptual vocabulary and conceptual broad language scores for monolingual language learners were the same as their English vocabulary and broad language scores.

Confidentiality

Each participant was assigned an identification number and assessment protocols included this number and the child's first name. Protocols were stored by the principal investigator and access was prohibited by anyone other than the principal investigator and her graduate assistant. When data were entered into the database, names and all

identifying information were deleted. Once the Language and Literacy Project is completed, all protocols will be destroyed to maintain confidentiality of all participants.

Data Analysis

SPSS version 14.0 was used to conduct statistical analyses for this research project. Descriptive statistics were calculated as preliminary analyses to this study. Distributions, ranges, means and standard deviations for each of the measures by total group and subgroups are reported for each early language and literacy skill. Additionally, differences between each dual language learners' performance on the English and Spanish vocabulary measures were calculated based on the number of items answered correctly. The range and mean difference were also computed.

In order to answer the proposed research questions, two multivariate analysis of variances (*MANOVA*) were conducted between monolingual and dual language learners' performances on early language and literacy skills. The *MANOVA* procedure was selected in order to minimize the chance of producing a type I error in statistical analysis and to form linear combinations of the dependent variables to best discriminate among monolingual and dual language learners' performance. Additionally, effect sizes were calculated for each dependent variable.

To answer the first research question language memory, English vocabulary, letter knowledge, concepts of print, listening comprehension, and broad language ability were entered into a *MANOVA*. This analysis determined the overall effects dual language learning had on early language and literacy skills in low income preschool students in Florida. As a follow-up analysis, univariate comparisons were made to determine whether there were differences by individual dependent variables. To answer the second

research question, language memory, conceptual vocabulary, letter knowledge, concepts of print, listening comprehension, and conceptual broad language ability were included in the multivariate model. This analysis determined the overall effect dual language learning has on early language and literacy skills after controlling for split vocabulary resources in dual language learners. Again, univariate comparisons followed to determine if there were differences by type of language learner on each measure.

CHAPTER IV

Results

This chapter provides a description of the results of the current study. Standard scores were used for all analysis. Results from descriptive analyses, correlations, and *MANOVAs* follow. The purpose of the preliminary descriptive analyses was to determine the normality of the scores used in the later analyses. Correlations were conducted to identify which variables cluster together. *MANOVAs* were conducted to determine if differences between monolingual and dual language learners' performance on measures of literacy exist at the time of preschool entrance in low income students.

Descriptive Analyses

Table 1 presents results from descriptive analyses including mean scores, standard deviations, skewness, kurtosis, and minimum and maximum scores by each literacy skill for the total sample, and monolingual and dual language learners. Results from these analyses indicate that the scores for later analyses were approximately normally distributed and that typical analyses could be pursued for mean comparisons.

The mean standard score from the norming sample of the WLPB-R is 100 and the standard deviation is 15. When comparing the sample used in this study to the norming sample, overall, the students' average performance on all early language and literacy skills was below the mean. On measures of vocabulary, language memory, and broad language the students performed approximately one standard deviation below the mean.

On the listening comprehension measure, students performed almost two standard deviations below the mean.

Although the Spanish vocabulary scores were not used in analyses individually, the scores were used to create the conceptual vocabulary score (sum of items responded correctly on English and Spanish vocabulary minus the number of items that overlapped) therefore differences between the English and Spanish vocabulary raw scores were computed for each dual language learner. The average difference was 8.20 ($SD=5.87$) items and differences ranged from 1 to 19 items. Ten dual language learners performed better on the Spanish vocabulary measures whereas 34 performed better on the English measure.

Correlational Analyses

Correlations were calculated to determine if the early language and literacy skills were related. The correlation matrix also included the Spanish vocabulary scores, conceptual vocabulary scores, broad language scores and conceptual broad language scores. Results from this analysis are presented in Table 2. The correlation matrix indicated that letter knowledge was mildly to moderately correlated to concepts of print ($r=.58, p<.001$), monolingual English vocabulary ($r=.26, p<.01$), and language memory ($r=.26, p<.01$). This skill was also highly correlated to both monolingual ($r=.72, p<.001$) and conceptual broad language scores ($r=.72, p<.001$). Concepts of print was found to be mildly to moderately related to listening comprehension ($r=.19, p<.05$), letter knowledge ($r=.58, p<.001$), monolingual picture vocabulary ($r=.24, p<.01$), and conceptual picture vocabulary ($r=.25, p<.01$). Concepts of print was highly correlated

Table 1

Descriptive Statistics by Early Language and Literacy Skill by Type of Language Learner

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Min	Max
Letter knowledge							
Total	122	95.30	10.35	0.34	0.89	63	126
Monolingual	78	95.45	10.49	0.42	0.89	63	126
Dual	44	95.05	10.20	0.21	1.10	68	120
Concepts of print							
Total	122	93.01	13.48	0.33	-0.87	66	123
Monolingual	78	93.09	14.21	0.37	-0.92	66	123
Dual	44	92.86	12.22	0.21	-0.88	72	118
English vocabulary							
Total	122	85.07	14.57	0.22	1.15	44	135
Monolingual	78	86.72	13.32	0.86	1.85	53	135
Dual	44	82.14	16.31	-0.21	-0.01	44	119
Conceptual vocabulary							
Total	122	87.61	13.36	0.45	0.84	53	135
Monolingual	78	86.72	13.32	0.86	1.85	53	135
Dual	44	89.20	13.42	-0.15	-0.26	58	119
Listening comprehension							
Total	122	75.74	14.73	0.00	0.60	40	127
Monolingual	78	78.45	13.74	0.36	1.33	48	127
Dual	44	70.93	15.36	-0.25	-0.77	40	103
Language memory							
Total	122	84.78	14.52	0.23	-0.41	49	122
Monolingual	78	88.01	13.48	-0.01	-0.14	49	116
Dual	44	79.05	14.66	0.87	0.52	60	122
Broad language							
Total	122	86.25	12.77	0.42	-0.33	63	125
Monolingual	78	87.28	12.58	0.48	-0.13	67	125
Dual	44	84.41	13.05	0.38	-0.64	63	111
Conceptual broad language							
Total	122	86.97	12.46	0.43	-0.34	67	125
Monolingual	78	87.28	12.58	0.48	-0.13	67	125
Dual	44	86.41	12.38	0.32	-0.69	67	111

Note. All measures except for conceptual vocabulary and conceptual broad language were administered in English. Conceptual vocabulary scores are created based on the sum of raw scores from English and Spanish vocabulary scores while subtracting the overlapping items answered correctly, then a standard score is computed. The broad language score is a compilation of letter knowledge, concepts of print, vocabulary, and language memory. The conceptual broad language score is a compilation of letter knowledge, concepts of print, conceptual vocabulary, and language memory.

with both broad language scores, monolingual ($r=.81, p<.001$) and conceptual ($r=.83, p<.001$). Correlations including English vocabulary were mildly to moderately correlated with all skills included in the analysis. There were moderate correlations between English vocabulary and broad language ($r=.60, p<.001$) and conceptual broad language ($r=.55, p<.001$) measures. The English and Spanish vocabulary scores were moderately, negatively correlated ($r=-.46, p<.01$). The conceptual vocabulary score was significantly related to all skills except for letter knowledge. Listening comprehension was mildly to moderately correlated with measures of concepts of print ($r=.19, p<.05$), English vocabulary ($r=.65, p<.001$) and conceptual vocabulary ($r=.52, p<.001$), English broad language ($r=.44, p<.001$) and conceptual broad language ($r=.40, p<.001$). Language memory was found to be related to letter knowledge ($r=.26, p<.01$), English vocabulary ($r=.43, p<.001$), and conceptual vocabulary ($r=.33, p<.001$), listening comprehension ($r=.46, p<.001$), broad language ($r=.53, p<.001$), and conceptual broad language ($r=.50, p<.001$).

Comparisons of Monolingual and Dual Language Learners

A MANOVA was conducted to determine if there were differences between monolingual and dual language learners' performance on tasks measuring letter knowledge, concepts of print, vocabulary, listening comprehension, language memory, and broad language ability. Results from this analysis are presented in Table 3. The general linear model displayed that overall monolingual language learners differed from dual language learners on the set of six dependent variables. Following the overall multivariate tests, univariate tests were conducted. Results display that monolingual language learners' scores on measures of listening comprehension, $F(1,120)=7.73, p<.05$,

and language memory, $F(1,120)=11.68, p<.01$, were higher than scores of dual language learners on these measures. Effect sizes calculated using the formula (M performance by monolingual language learner – M performance of dual language learner)/pooled SD , were 0.52 listening comprehension and 0.64 for language memory. These effects are considered moderate. The effect sizes for the remaining four dependent variables ranged from 0.02 (concepts of print) to 0.32 (English vocabulary).

To answer the second research question a *MANOVA* was conducted where conceptual vocabulary and conceptual broad language were entered into the multivariate model in place of the English vocabulary and English broad language scores. The model included letter knowledge, concepts of print, conceptual vocabulary, listening comprehension, language memory, and conceptual broad language scores. The main effect from the multivariate analysis displayed that there were significant differences between monolingual and dual language learners on the set of six dependent variables ($T^2=0.27; p<.001$). Post hoc univariate analyses also displayed significant results. There were univariate differences in performance on measures of listening comprehension, $F(1,120)=7.73, p<.05$, and language memory ($F(1,120)=11.68, p<.001$). There were no statistically significant differences found between the performance of monolingual and dual language learners on the conceptual vocabulary and conceptual broad language measures. The effect sizes for these variables were small, -0.19 for conceptual vocabulary and 0.7 for conceptual broad language.

Table 2

Correlation Matrix of Early Language and Literacy Skills (N=122)

	1	2	3	4	5	6	7	8	9
1. Letter knowledge	1.00	.58***	.26**	-.23	.20*	.09	.26**	.72***	.72***
2. Concepts of print		1.00	.24**	-.13	.25**	.19*	.12	.81***	.83***
3. English vocabulary			1.00	-.46**	.88***	.65***	.43***	.60***	.55***
4. Spanish vocabulary				1.00	-.15	-.25	-.07	-.27	-.18
5. Conceptual vocabulary					1.00	.52***	.33***	.53***	.55***
6. Listening comprehension						1.00	.46***	.44***	.40***
7. Language memory							1.00	.53***	.50***
8. Broad language								1.00	.99***
9. Conceptual broad language									1.00

Note. All measures except for conceptual vocabulary and conceptual broad language were administered in English. Conceptual vocabulary scores are created based on the sum of raw scores from English and Spanish vocabulary scores while subtracting the overlapping items answered correctly, then a standard score is computed. The broad language score is a compilation of letter knowledge, concepts of print, vocabulary, and language memory. The conceptual broad language score is a compilation of letter knowledge, concepts of print, conceptual vocabulary, and language memory. * $p < .05$ ** $p < .01$ *** $p < .001$.

Table 3

Multivariate and Univariate Results by Type of Language Learner (N=122)

	<i>df</i>	<i>MS</i>	<i>T²/F</i>	<i>p</i>	<i>ES</i>
Multivariate Test	6/115		0.14*	.02	
<hr/>					
Univariate Tests					
Letter Knowledge	1/120	4.58	.04	.84	0.04
Concepts of Print	1/120	1.44	.01	.93	0.02
English Vocabulary	1/120	590.50	2.82	.10	0.32
Listening Comprehension	1/120	1589.52	7.73**	.01	0.52
Language Memory	1/120	2262.13	11.68**	.00	0.64
Broad Language	1/120	232.19	1.44	.23	0.23
<hr/>					
Multivariate Test	6/115		.27***	.00	
<hr/>					
Univariate Tests					
Letter Knowledge	1/120	4.58	.04	.84	0.04
Concepts of Print	1/120	1.44	.01	.93	0.02
Conceptual Vocabulary	1/120	173.94	.97	.33	-0.19
Listening Comprehension	1/120	1589.52	7.73**	.01	0.52
Language Memory	1/120	2262.13	11.68**	.00	0.64
Conceptual Broad Language	1/120	173.94	.97	.71	0.07

Note. T^2 = Hotteling's T^2 . *ES*=effect size. All measures except for conceptual vocabulary and conceptual broad language were administered in English. Conceptual vocabulary scores are created based on the sum of raw scores from English and Spanish vocabulary scores while subtracting the overlapping items answered correctly, then a standard score is computed. The broad language score is a compilation of letter knowledge, concepts of print, vocabulary, and language memory. The conceptual broad language score is a compilation of letter knowledge, concepts of print, conceptual vocabulary, and language memory. * $p < .05$ ** $p < .01$ *** $p < .001$.

CHAPTER V

Discussion

This chapter provides a discussion of the results found in this study. Results are discussed in the context of previous research conducted surrounding dual language development and early language and literacy skills, demonstrating how these findings support or contradict previous findings. Finally, the chapter provides a discussion of the implications these findings have for education and more specifically school psychologists.

Review of Findings

The descriptive analyses support the approximate normality of the distributions of early language and literacy scores for monolingual and dual language learners. In addition, the mean scores provide some very important information. English vocabulary standard scores for monolingual and dual language learners were different with a mean difference of 4.58 (effect size=0.32), whereas conceptual vocabulary standard scores displayed a reversed difference of 2.48 (effect size=-0.19), where dual language learners performed better than monolingual language learners. When assessing vocabulary knowledge, oftentimes school psychologists and speech language pathologists in the schools assess children in English only. Although it may seem to make sense considering that these students are taught in English and seem to speak English well, this snapshot of their knowledge underestimates their abilities. Genesee et al. (2004) discuss the

development of vocabulary in dual language learners. Early in development, these children often display vocabulary knowledge based on the context in which the specific words are used, and do not have the word's equal in the other language. For example, when student's are home, they develop vocabulary for objects such as the couch and rug in their home language, whereas when at school, the words desk and blackboard are developed in their school language. Although eventually, they may learn the words in both languages, for some time their vocabulary is divided by location in which they have learned it. If a student is assessed solely in one language then, they would not be provided the opportunity to truly express their capabilities. The conceptual vocabulary scoring method (Bedore et al., 2005) provides this opportunity.

Solely by looking at the differences between the means on the English vocabulary as compared to the conceptual vocabulary by type of language learner, one can see that there is a large change in scores when providing dual language learners the opportunity to provide a response in either language. This supports the idea that dual language learners do not have lower vocabulary skills than monolingual language learners, rather these skills are different and dispersed between their two languages. As vocabulary is one early language and literacy skill that does not transfer across languages (Lindsey et al., 2003; Uchikoshi, 2006), it is important to take into consideration the development of dual language learners when assessing their skills and making decisions regarding their education. Using a monolingual scoring method, or assessing the child in only one language, may lead to a decision regarding special education services for a student that does not need these services and in fact needs more vocabulary instruction.

The correlational analyses display that many of the variables included in this study are related to some degree. This is expected as the variables are all early language and literacy skills; together they create a broader category. Strong relationships are particularly noticeable when looking at the variables' correlations with overall language development, providing additional support to the comprehensive language approach (CLA; Dickinson et al., 2003). The CLA states that early literacy skills interact and codependently lead to the development of literacy. These correlations suggest that these early language and literacy skills are all closely related, as Dickenson et al. also found. By providing additional support to the CLA, these findings highlight the importance of various early skills in the premature stages of literacy. Preschool and home environments should provide supports for letter knowledge, concepts of print, phonological awareness, vocabulary and other language skills simultaneously. Research has shown that when one early literacy skill is not as strong as the others, their overall ability to predict literacy decreases; as the strength of all these skills increases, they are the best predictors of literacy (Dickinson et al., 2003).

Of additional significance, is that the only negative correlation found was between Spanish vocabulary and English vocabulary. This finding was noted in previous research (Tabors, Pérez, & López, 2003) and supports the fact that vocabulary fails to transfer across languages. Research studies have noted that vocabulary is one of the only early literacy skills that does not transfer across languages (Bedore et al., 2005; Lindsey et al., 2003; Uchikoshi, 2006). Despite the lack of transfer, this skill's importance in literacy development has been noted at great lengths (Daly et al., 2004; Dickinson et al., 2003; Metsala, 1999; Nation & Snowling, 2004; Roth et al., 2002), marking the

importance of teaching vocabulary in both languages for dual language learners. Recent discussion surrounding vocabulary instruction has led researchers to argue that teaching dual language learners vocabulary in both languages is best practice as they may lose some skills if not taught this vital language skill. Tabors et al. (2003) discuss the vulnerability of young bilingual children to language loss while acquiring a second language. Children spend the majority of their day in school, where they are being instructed in English. Slowly their vocabulary skills in that language increase within the context of school conversation and lecture. Their other language vocabulary is decreasingly reinforced and children begin to forget the vocabulary from their first language. More and more this impinges on their ability to become proficient in that language.

Results from the *MANOVAs*, comparing performance of monolingual and dual language learners on measures of early language and literacy skills, showed that there are main effects by type of language learner. This was true for both models of multivariate comparisons, the models with and without the conceptually scored variables. When post hoc analyses were conducted for both *MANOVA* procedures, comparisons of the dependent variables displayed that the two measures of listening comprehension were found to differ by type of language learner. This suggests that skills such as language memory and the cognitive understanding of orally presented information are related to type of language learner, where monolingual language learners perform better on these tasks than dual language learners. This was also found in previous research where Lesaux and Siegel (2003) found that monolingual children outperformed students whose second language was English on similar tasks measuring language memory and listening

comprehension. Again, this finding relates to previous research where skills such as comprehension are related to oral language skills, vocabulary particularly (Berninger et al., 2001; Nation & Snowling, 2004). Once more, this points to the importance of proper assessment of early language and literacy skills in young dual language learners. Dual language learners early in development will not perform well on measures of listening comprehension because of this skill's strong relationship to vocabulary development. Without vocabulary knowledge in the language of assessment, these children do not have the language skills to respond in English. Assessing these children in their home language would be more telling of whether they have deficits in comprehension.

The univariate comparisons produced no statistically significant differences for concepts of print and letter knowledge. This finding provides further evidence of cross language transfer. These two tasks are less dependent on oral language skills than the other measures of early literacy, and therefore, the skills transfer more readily to other languages (Genesee et al., 2004). When looking at the means for these measures, it is noticeable that there are small differences between the means by type of language learner when compared to the other early language and literacy tasks.

Effect sizes from the analyses indicated that there were small to moderate differences between the performance of monolingual and dual language learners on tasks measuring vocabulary, listening comprehension, and language memory. Additionally, there were moderate effect sizes for the performances on the conceptual broad language score. Together these findings suggest that overall, dual language learners are performing worse than monolingual language learners on early language tasks, but when looking at the comparisons between conceptual vocabulary scores, there are very small

differences between the groups. This further supports the idea that after controlling for split vocabulary, there is no difference in these students' performances on tasks measuring vocabulary. These findings provide evidence for the conceptual measurement of the abilities of dual language learners (Bedore et al., 2005; Pearson et al., 1993). Assessing vocabulary skills in one language underestimates the vocabulary knowledge of these students because this skill does not transfer across languages. It is of great importance to take into consideration the vocabulary development of dual language learners when assessing them for language and academic difficulties. This is one area in which students can mistakenly be identified for language or learning difficulties when in fact they have split skills.

Moreover, vocabulary skills are closely related to comprehension of spoken or written language (Daly et al., 2004; Dickinson et al., 2003). Previous discussion of the results from the current study reviewed differences found between monolingual and dual language learners' performance on tasks of listening comprehension and the moderate relationship between tasks measuring vocabulary and listening comprehension. It is possible that these differences are related to a decreased ability to understand auditorily presented information based on a lack of vocabulary knowledge. As phonological skills, vocabulary, and listening comprehension are dependent upon each other (Dickinson et al., 2003) children become less skilled overall. A lack of vocabulary decreases students' abilities to comprehend written and spoken words in that language (Whitehurst & Lonigan, 1998). Teaching these students vocabulary in both languages assists in the development of literacy in each language and leads to better understanding of text when reading in either language.

Still, differences in performance exist on other measures of early language and literacy when comparing dual language learners to monolingual language learners. Dual language learners continue to perform worse than monolingual language learners on other English measures of literacy. These findings, when discussed in the context of previous research can be explained in two ways. First, these differences may be a result of a lack of instruction for dual language learners in Spanish; if they are not instructed in their home language or do not receive reinforcement in English at home, then their skills in either language will be weak. The skills may be transferring across languages to some degree, but without proficient language skills (Tabors et al., 2003) and instructional support of both languages, proper development in either language is negatively affected. Second, the mixed results may be related to a point discussed in the literature regarding the rate at which dual language learners develop each language (Genesee et al., 2004). There is still much uncertainty regarding the rate at which literacy skills develop in dual language learners and how the development of one language affects the other. Further research in this area is needed to better understand the language and literacy development of dual language learners.

Conclusion and Implications

The results from this study point to a vital need in the education system of the United States. With the double sided coin of over (Klingner & Artiles, 2003) and under identification (Gerber et al., 2004) of these children for special education and special services, it is clear that there is a lack of appropriate assessment methods for them. The findings from this study suggest that with regard to vocabulary, assessing dual language learners in one language, regardless of language of instruction, will underestimate their

actual vocabulary skills. It is important to assess these students' vocabulary knowledge using measures in both languages or allowing the student to respond in either language.

With regard to other early language and literacy skills many dual language learners are being taught in only one language, leaving them with splintered, or broken skills that are incomplete, across languages. Although there has been continuous support for language transfer of these skills, the relationships between languages range from mild to moderate. Dual language learners are being instructed in English only, the same instruction that monolingual language learners are receiving, yet they are performing worse on skills that measure early language and literacy skills. With individualized instruction, these children should be receiving interventions and instruction that meet their needs. Interventions may come in different forms. For example, one universal intervention could include additional vocabulary instruction class-wide or in small groups that are performing lower on these measures. Another form of intervention may include instruction in Spanish for all students. Differences by type of language learner also point to a need to assess dual language learners on all early language skills in both languages to fully capture their global language ability. Although interpretation of such assessment is not clear cut, it will be the most representative sample of their skills. Some researchers point out that it will help to follow children's trajectory of growth to better understand their development (Tabors, et al., 2003). With the recent changes in the educational law and policy (IDEA, 2004; NCLB, 2001; U.S. Department of Education, 2002), this method of assessment and monitoring may be most appropriate as it provides more detailed information about the individual child's strengths, weaknesses, and changes in development.

For school psychologists this speaks to the importance of using dynamic assessments that will truly measure dual language learners' skills. Measures should include assessment of curriculum based skills, language skills, and learning skills. It is the role of the psychologist to assess children and participate in making team decisions regarding school-based services. This study suggests that one important service for dual language learners includes early interventions that will reinforce vocabulary in both languages, such as language rich environments where teachers use rich vocabulary throughout the school day. Additionally, it is important to focus on early literacy skills with dual language learners in the classroom and to reinforce these skills at home in their home language. Although this study does not specifically lead to conclusions regarding the positive effects of teaching children in two languages, the findings lead to inferences regarding the gaps between dual language learners and the possibility that teaching them in both languages will result in the proficiency of early language and literacy skills.

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