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RECEPTIVE VOCABULARY DEVELOPMENT OF SPANISH-ENGLISH
BILINGUAL PRESCHOOLERS

TARA ANNE O'NEILL
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Reviewed and approved* by the following:

Carol A. Miller
Associate Professor
Thesis Supervisor/ Honors Adviser

Krista Wilkinson
Professor
Faculty Reader

* Signatures are on file in the Schreyer Honors College.

ABSTRACT

This study investigated the receptive vocabulary development of bilingual children in English and Spanish through two years of Head Start preschool and one year of kindergarten. Receptive vocabulary data collected in the fall and spring of each year were available for 42 children from the beginning of Head Start through the end of kindergarten. Results revealed that the children's average raw scores in Spanish increased, while standard scores remained fairly steady throughout each measurement occasion. Both raw and standard scores in English increased from the beginning of Head Start to the end of kindergarten. On average, Spanish scores remained one standard deviation below the age appropriate mean at each measurement occasion. English scores on average came within one standard deviation of the mean by the start of kindergarten. Below average standard scores were not attributed to language impairment, and their implications will be discussed. A closer examination of a subgroup of children who performed above average relative to the sample on the Spanish receptive language measure revealed that most of them were not formally exposed to English until Head Start, they were more likely to have a father present in the home, and they were spoken to in Spanish more at home. An examination of a subgroup of children who performed below average in English relative to the sample revealed that the children were spoken to in Spanish more at home, while no other demographic variables were noticeably different among this subgroup. These findings suggest that children are experiencing a shift in language dominance from Spanish to English. Furthermore, language used at home and the age of exposure to English appear to play a critical role in receptive vocabulary development of Spanish and English, while no relationship was apparent for other demographic variables such as paternal education, maternal depression, and number of siblings. The best practices for speech-language pathologists to use in assessing receptive vocabulary development among Spanish-English bilinguals are discussed.

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Chapter 1

Introduction

According to the United States (US) Census Bureau (2006), there are 44.3 million Hispanics in the US, comprising 14.8% of the total population. The Hispanic growth rate in the US from 2000 to 2006 was more than three times the growth rate of the total population, demonstrating the dramatic growth of the Hispanic population over the last decade (US Census Bureau, 2006). With the increase in Spanish speaking individuals in the United States, it has become increasingly important to understand bilingual language development among Spanish-English speaking children. An understanding of the developmental trajectories of bilingual children's language development over time will better prepare speech-language pathologists to work with this growing population.

Defining Bilingualism

Before examining the language development of bilingual children, one must look at the concept of bilingualism in general and how it has changed over the years in the US. There is no agreed upon definition for bilingualism as explained by Edwards (2004). It has been previously defined as having a native control over two languages (Edwards, 2004). Many researchers define bilingualism more broadly as having some level of competence in two different languages, but there have been different definitions based on the *degree* of competence. Defining bilingualism is further complicated by a consideration of the specific elements of language such as listening, speaking, reading, and writing. Therefore, determining bilingual proficiency could require an assessment of several different dimensions of language. The term "balanced bilingual" has been used to describe a person who can perform equally well in all contexts in two

different languages. However, this is considered somewhat rare, placing most individuals into the category of “non-fluent” bilingualism (Edwards, 2004). Butler and Hakuta (2004) define the term bilingual as “individuals or groups of people who obtain communicative skills, with various degrees of proficiency, in oral and/or written forms, in order to interact with speakers of one or more languages in a given society” (p.115). Large numbers of individuals in the US fall somewhere along this continuum (Goldstein, 2004). While the definition of bilingualism is not clear cut, there have been strong opinions in the United States in regards to the use of languages other than English.

Orientations towards Language in the United States

Goldstein (2004) describes three different orientations towards language and its role in society, which have been observed in the US. The first is Language-as-Problem, which began in the 1950s. Bilingualism was seen as a deficit and the idea prevailed that one language should be “eradicated,” in particular the non-English language. The second orientation is the Language-as-Right movement, which began in the 1960s. The identification of language as a civil right during this period led to the emergence of materials, such as government forms and civil service exams, in languages other than English (Goldstein, 2004). Also, the Bilingual Education Act enacted by the Johnson Administration in 1968 established federally-funded education programs for students of limited English proficiency (LEP) that included instruction in their native language (Oller and Pearson, 2002). However, the implementation of these bilingual education programs generally did not coincide with an encouragement for language diversity or maintenance of non-English languages. Currently there is some support for the Language-as-Resource view, which supports the conservation of non-English language abilities (Goldstein, 2004).

Lack of support for the Language-as-Resource perspective is seen in the English immersion that characterizes many educational programs in the United States. Advocates for

English immersion claim that bilingual children suffer academically as a result of learning two languages. This claim is based on the trend of Hispanic-American children to perform below average on intelligence and academic tests when compared to their monolingual peers (Oller and Pearson, 2002). However, as indicated by Oller and Pearson (2002), this subpar performance could be a result of other factors, such as low socio-economic status. Oller and Pearson (2002) further cite investigations suggesting that bilingual children have significant advantages over monolinguals on a variety of metalinguistic and/or cognitive tasks. Furthermore, Hammer, Miccio, and Rodriguez (2004) cite several different studies which have associated bilingualism with cognitive benefits such as heightened sensitivity to semantic relationships, better phonological awareness abilities, greater awareness of linguistic rules and structures, enhanced creativity, and better academic outcomes.

Factors to Consider in Bilingual Language Development

While disagreement exists between English immersion proponents and native language maintenance supporters in regards to the best education programs for Hispanic-American children, it is well accepted that several factors in regards to language input and the environment need to be considered when working with the heterogeneous population of bilingual children.

Timing of Language Input

First of all, one factor commonly considered critical to understanding children's language acquisition is the pattern of exposure to the two languages. Traditionally, bilingual children have been classified as simultaneous or sequential bilinguals based on the timing of their exposure to English. According to Hammer et al. (2004), a simultaneous bilingual child has had equal exposure to both languages from birth, whereas a sequential bilingual learns one language from birth, and is exposed to a second language at a later time. Researchers have not agreed upon a cut off point to distinguish between simultaneous and sequential bilinguals (Hammer et al., 2004).

Patterson and Pearson (2004) suggest that simultaneous bilinguals have significant exposure to two languages before the age of three, and sequential bilinguals have major exposure to a second language after the age of three. Several other cut off points, such as the establishment of a firm foundation in one language, or the one-word stage of development have been proposed (Bhatia and Ritchie, 2004). The different authors agree that empirical support is needed to support the distinctions (Hammer et al., 2004).

When investigating differences in language development between sequential and simultaneous bilingual children, one may consider the existence of a critical period of language development. According to Meisel (2004), the Critical Period Hypothesis (CPH) suggests that there is an optimal period for language acquisition among children, after which native competence cannot be attained through language exposure alone. Meisel (2004) proposes that the critical period begins shortly before the age of two, gradually declines around the age of five, and ends from the ages of seven to ten (Meisel, 2004). This suggests that a child could achieve competence in both English and Spanish if he or she is exposed to both languages before the offset phase of the critical period. This would result in the development of two first languages (L1), rather than a first language and a second language (L2). Evidence suggests that the ability to acquire language does change with age and maturity, making the critical period hypothesis something important to consider when studying the language development of bilingual children (Meisel, 2004).

Context of Language Input

Besides the timing of exposure to languages among emerging bilingual children, it is also important to consider the context of exposure (Patterson and Pearson, 2004). Language input for bilingual children is divided between two languages. Therefore, it is important to consider the distribution of the two languages among speakers in the homes. Hammer et al. (2004) describe

various strategies used in the home for presenting two languages. The first is the “domain-allocation” strategy, in which there is a separation of the two languages. There are various approaches to achieve the separation such as one-parent/one-language, in which each parent speaks exclusively in one of the languages; one-place/one-language, in which each language is used in a specific place in the house; a language time strategy, in which each language is used exclusively during certain parts of the day; and a topic related approach, in which each language is associated with particular topics (Hammer et al., 2004).

Parents and caregivers assume that keeping the two languages separate will make it easier for the child and prevent confusion (Patterson and Pearson, 2004). However, there are drawbacks to this strategy. It is unnatural, there is no guarantee that the input in the two languages will be balanced, and other speakers in the home may change the pattern of input. Ultimately, the condition of unnatural input may alter social language use and affect the child’s pragmatic development (Hammer et al., 2004). Hammer et al. (2004) cite a study by Garcia (1983), which found that Spanish-English bilingual preschoolers who received mixed language input could easily keep the two languages separate.

The proportion of exposure to the two languages also needs to be considered. The child may receive more input in one language than the other at home, depending on the language of his or her caretakers, or in school, depending on the type of educational program (Patterson and Pearson, 2004). Because each bilingual child receives a different degree of exposure to each language, they fall at different points on a continuum. This alters their acquisition characteristics for each language and results in different developmental trajectories. For example, bilinguals may vary in their proficiency in each of the two languages. Furthermore, the exposure that a bilingual child has for each language is less than that of a monolingual, since language input is divided between two languages. Therefore, a bilingual child cannot be likened to two monolingual children in one (Hammer et al., 2004).

Demographic and Social Variables

One must also consider various demographic and social variables when considering the language development of bilingual children. When immigrants learn about the culture and values of the United States, they begin to adopt behaviors of the US into their daily lives. According to Hammer et al. (2004) the process of acculturation can happen in different ways, and it has implications for children's language development. When children learn English and American beliefs at a faster rate than their parents, dissonant acculturation occurs. This leads to a reversal in roles as children come to understand the new culture more than their parents. When parents and children learn English and American culture at the same time, consonant acculturation occurs. Selective acculturation occurs when parents and children learn the new language and customs at the same time, within a large ethnic community. Being surrounded by other individuals of the same language and culture helps to slow the cultural shift and keep the native language. Out of the three types of acculturation, selective acculturation is the best predictor of full bilingualism among children (Hammer et al., 2004).

Another factor affecting language development among children is parental education. In general, higher parental education levels are associated with higher academic achievement, better performance on academic measures, and better language outcomes. There is limited information on maternal education in Hispanic families; however, no research indicates a lack of this relationship on Latino families (Hammer et al., 2004). Also, poverty affects children's cognitive, language, and academic outcomes. A high proportion of Hispanic families live below the poverty level as compared to the rest of the population (Hammer et al., 2004). According to Proctor and Dalaker (2002), the poverty rate for Hispanic families in 2001 was 21%, more than twice the rate of the general population. Finally, maternal depression has been associated with lower cognitive, language, and academic outcomes (Hammer et al., 2004). An investigation by Hammer and Miccio (2000) of the mothers of bilingual children enrolled in Head Start revealed that 40% to

60% showed depressive symptoms, indicating chronic psychological distress among Latino mothers. Parents living in poverty are more likely to experience depression (Hammer et al., 2004).

Hammer et al. (2004) cite other several other factors that influence bilingual language acquisition. The presence of two native-born parents who speak only non-English in the home improves a child's ability to become fully bilingual. The length of time children lived in the US also affects language development, with longer stays in the US contributing to a decline in the probability of becoming bilingual. Higher parental socio-economic status is associated with successful achievement of bilingualism. Gender also affected was a predictor, with girls 6% more likely to become bilingual (Hammer et al., 2004).

First Language (L1) Loss vs. Maintenance

Along with considering the factors related to bilingual language acquisition, it is important to investigate first language loss and maintenance. Often when a child is exposed to two languages early in life, L1 skills will be affected. It is important to understand language loss in order to assess the performance of bilingual children on L1 language tasks and determine their language abilities or disabilities. There are several patterns observed that result in language loss. According to Anderson (2004), language shift is a gradual change in the use of two languages across time or generations. It results in a shift from using one language to another, and it is accompanied by a loss of expressive and receptive skill in the native language. Usually by the third generation, the minority language has been replaced with the majority language of the new country (Anderson, 2004).

L1 loss is a more rapid process in which "a person's L1 abilities are reduced or impeded from developing while his or her L2 skills become more established" (Guiberson, Barrett, Jancosek, & Itano, 2006, p.5). While some language loss is seen among adult immigrants, it is

more evident in children. It is often seen as a failure of children to fully acquire proficiency in L1 as expected before being introduced to a second language (Guiberson et al., 2006). It is also important to understand L1 attrition. According to Anderson (2004), L1 attrition “describes patterns of language use in which an individual does not lose his or her ability in the L1, but does not advance in its use either” (p. 190). Language does not develop as it does for monolingual speakers of L1. Because many of the characteristics seen in language loss or attrition are similar to language disabilities, it is critical that speech language pathologists can differentiate between a language difference and a language disability (Anderson, 2004).

On the other hand, according to Guiberson et al. (2006) language maintenance is “a process in which there is continuous L1 growth or maintained L1 proficiency and usage” (p.5). For language maintenance to occur, children must expand beyond learning the vocabulary that they use in their home environments and learn cognitive, academic language through educational experiences. Children who have true bilingual educational experiences are the ones who are able to achieve language maintenance (Guiberson et al., 2006). Hammer et al. (2004) describe another phenomenon that is often observed in emerging bilinguals. A child’s fluency in one of his or her languages may experience a temporary progression and regression when there is a change in language environment. For example, if a child travels to Mexico for several months, he or she may lose the ability to rapidly retrieve English. Upon returning to the US, English may be retrieved, and Spanish may experience a decline or loss. Being exposed to these changing linguistic environments in which the input from one language is interrupted for a period of time, will likely result in loss or attrition (Hammer et al., 2004).

In a study examining the developmental trajectories of bilingual preschoolers’ receptive language development over two years of preschool, Hammer, Lawrence, and Miccio (2008b) found a change in language abilities following a four month summer vacation. Specifically, the children showed either a gain or loss in English auditory comprehension scores after a four month

summer vacation, indicating that the change in environment and language exposure had differential effects on their receptive English skills (Hammer et al., 2008b).

Factors Contributing to L1 Loss

The primary context in which language loss occurs is when very little support is given for the use and maintenance of the L1 (Anderson, 2004). In the US, the majority language of English has a higher status than the minority language of Spanish. High status implies that English is the language of education and one must be highly proficient in it in order to obtain a well paying job and advance economically. The higher status of the majority language results in a language shift from L1 to L2. This often occurs as a result of the lack of support for L1 maintenance in school. While bilingual education programs do exist in the US, they do not have Spanish maintenance as a goal. Rather, they use Spanish in order to support English learning. The practice of English immersion educational programs results in a reduction in the occasions in which a child hears his or her first language, or has the opportunity to use the L1. This reduction in use and input impedes the advancement of skills in L1, as well as the maintenance of already acquired skills (Anderson, 2004). Often, children learn only the household vocabulary in their first language, without learning the academic vocabulary necessary to become bilingual. As a result of the minority status of Spanish in the United States, children's opportunities to become bilingual are restricted (Hammer et al., 2004).

While relative status of the minority language appears to be the main variable affecting L1 loss or attrition, it interacts with other demographic, social, and individual variables to create varying degrees of loss across communities and individuals. It is important to consider the variety of factors that influence the maintenance and loss of L1. Some examples of these factors that may contribute to L1 loss are: early immersion in English preschool programs, limited bilingual programs that foster the maintenance of L1, lack of L1 peer interactions, younger

siblings with whom English is spoken, limited contact with L1 speakers outside the home environment, parents who are bilingual, a community with a small L1 population, and lack of L1 monolingual speakers in the community (Anderson, 2004). With the myriad of different variables contributing to L1 loss, each bilingual child has a unique trajectory for bilingual language development. When working with this population, it is important to look at each child as an individual.

Bilingual Lexical Development and Manifestation of L1 Loss

According to Anderson (2004) the areas in which first language loss can be most readily observed is in the lexicon and the grammatical system, and the lexicon is primarily vulnerable to loss. Generally, a reduction in the use and input of the L1 results in a narrowing of the lexicon and loss of vocabulary across time (Anderson, 2004). It is important to understand the lexical development of bilingual preschoolers because according to Bialystok, Luk, Peets and Yang (2009), vocabulary size is a significant predictor of academic achievement and literacy acquisition. In looking at the vocabulary size of bilingual children, it is necessary to consider the specific proportions of language exposure.

According to Peña and Kester (2004) there is a strong significant correlation between language exposure and vocabulary production. Children with more exposure to English produce more words in English, while children with more exposure to Spanish produce more words in Spanish. Because bilingual children need to distribute their language learning across two languages, when looking at vocabulary development of the two languages separately, it makes sense that bilingual children would know fewer words in each language than monolingual children (Patterson and Pearson, 2004). However, studies have shown that when bilingual children's vocabulary in both languages is considered, their total vocabulary size is comparable to that of monolinguals (Patterson and Pearson, 2004). According to Patterson and Pearson (2004)

the two common measures of overall vocabulary among bilinguals are Total Vocabulary (TV; Language A + Language B) and Total Conceptual Vocabulary (TCV; Language A + Language B minus Translation equivalents [TEs] in Language B). Translation equivalents are words that have the same meaning in two languages (Patterson and Pearson, 2004). Peña and Kester (2004) report a study of Spanish-English bilingual children, which found that 68.4% of words were unique items, while 31.6% were TEs.

When considering the use of TEs, it is important to understand the interaction of L1 and L2 in lexical development. According to Peña and Kester (2004) there are two models of lexical representation in bilinguals. The Word Association Model suggests that individuals gain access to concepts by way of the L1 lexicon, making L2 vocabulary mediated through the L1. The Concept Mediation Model suggests that there is a direct link between each lexical form and its concept. Therefore, there is not a need to mediate through L1 (Peña and Kester, 2004). These two models relate to the interdependence of the two languages. While previous studies have suggested that the level of attainment in the first language is a reflection of the first, vocabulary knowledge does not always appear to transfer from one language to another. Patterson and Pearson (2004) concluded that the learning of vocabulary in Spanish does not have a significant relationship, either positive or negative, to learning vocabulary in English, and vice versa.

While interdependence does not appear to play a role in lexical acquisition among bilinguals, it is important to study the development of both the L1 and L2 and how they may influence each other in the process of acquisition. It is accepted that the total vocabulary of a bilingual child may be equivalent to monolinguals; however, having a small vocabulary in English, the language of schooling, could affect the success of the bilingual children in academic assessments (Bialystok et al., 2009).

Bialystok et al. (2009) examined the differences between English receptive language in monolingual and bilingual children by administering the Peabody Picture Vocabulary Test

(PPVT-III; Dunn and Dunn, 1997) to a group of 1738 children between the ages of three and ten years. In administering the PPVT-III, children are asked to point to one of four pictures that best represents a word spoken by the examiner. It was found that the mean standard score on the PPVT-III was significantly lower for bilinguals than for monolinguals in each age group (Bialystok, 2009). This reflects the general pattern of bilingual children knowing less words in one of their languages than their monolingual peers of that language. The difference in vocabulary was mostly in home vocabulary, suggesting that bilingual children were not shown to be at a disadvantage in terms of academic use of English spoken language (Bialystok, 2009).

Research Questions

This study will examine the developmental trajectories of 42 children enrolled in Head Start, from the beginning of their time there until the end of kindergarten. Hammer, Lawrence and Miccio (2008a) previously examined the receptive language growth in Spanish and English of some of the same bilingual children through two years of this language immersion preschool program, separating the children based on their timing of exposure to English. Receptive vocabulary was measured with the PPVT-III previously mentioned (Dunn and Dunn, 1997) and the Test de Vocabulario Imagenes Peabody-III (TVIP; Dunn et al. 1986). It was found that overall, the children experienced positive growth in English receptive vocabulary as evidenced by raw and standardized scores. The increase in standard scores indicated that they were making gains on monolingual peers in English. An increase in raw scores on the TVIP indicated a positive growth in Spanish abilities; however the growth in Spanish standard scores was not as positive as in English (Hammer et al., 2008a). Wide variations existed in the receptive language development of the children, indicating that environmental variables were contributing to individual variation (Hammer et al., 2008a). The tremendous amount of variability in the language development of bilingual children is well documented (Guiberson et al., 2006; Hammer

et al., 2008a). Therefore, it is important to understand the specific variables that contribute to the individual differences in language development among Spanish-English emerging bilinguals in the United States.

The purpose of this study is to examine the trajectory of raw and standardized test scores on receptive language tests among bilingual children from the first year of Head Start to the end of kindergarten, and to investigate the individual differences of children who do not follow the general trajectories of the group by examining factors that may have caused differences. It was predicted that the children would show an increase in raw and standardized test scores in English after two years in an English immersion program and kindergarten, indicating an increase in English receptive vocabulary abilities. Furthermore, it was predicted that raw scores in Spanish would increase or remain steady, while standardized scores would decrease, indicating that children were maintaining their Spanish without advancing relative to their monolingual peers. Environmental factors such as siblings who communicate primarily in English, bilingual parents, and use of mostly English in the home are expected to result in a decrease in Spanish receptive vocabulary and an increase in English receptive vocabulary as shown by raw and standardized test scores. Use of Spanish in the home and lack of exposure to English until Head Start are expected to relate to maintenance or increase in Spanish vocabulary, as well as an increase in English receptive vocabulary.

Chapter 2

Method

Participants

A longitudinal study of Spanish-English bilingual children in Head Start, an English-immersion preschool program, has been conducted by Hammer & Miccio (2000). The participants all came from urban areas in Central Pennsylvania and qualified for Head Start services for two years based on financial situation. Neither parents nor school teachers had any concerns about the children's development. All children scored typically on the Denver II (Frankenburg et al., 1990), a developmental screening instrument, and passed a hearing screening. All mothers spoke a Puerto Rican dialect of Spanish. Children who came to Head Start knowing minimal English were placed in classrooms where either the teacher or assistant spoke Spanish. However, it is important to note that only three of the 20 teachers and half of the classroom assistants were bilingual. The children investigated in this study were enrolled with White and African American children, and the curriculum was directed towards meeting their needs. Therefore, English was the language of instruction, and informal observations of the classrooms indicated that Spanish usage occurred infrequently. Promoting English language skills was the goal of the Head Start program.

Receptive vocabulary data were available in both Spanish and English for 42 children from the beginning of Head Start through the end of kindergarten. Demographic information about these children is provided in Table 2-1. These data were collected from the mothers by trained bilingual home visitors. Children who were exposed to both Spanish and English from birth were classified to have Home English Communication (HEC, $n=24$). Children who were not expected to speak in English until entry into Head Start were classified to have School

English Communication (SEC, $n= 18$). Twenty of the children were males and twenty-two of the children were females.

Table 2-1. Demographic Information.

Characteristic	Mean(SD) or %
Children's age (years)	3.8(.30)
Children's gender (male)	47.60%
Language exposure (HEC)	57.10%
Maternal education (years)	11.4(1.6)
Number of siblings	2.2(1.5)

Materials and Procedures

Children's language abilities were tested in the fall and spring of their two years in Head Start and their one year in kindergarten. The Peabody Picture Vocabulary Test-III (PPVT-III: Dunn & Dunn, 1997) was administered by native speakers of English to test receptive knowledge of English vocabulary. To test receptive knowledge of Spanish vocabulary the Test de Vocabulario Imágenes Peabody (TVIP: Dunn, Padilla, & Dunn, 1986) was administered by native speakers of Puerto Rican Spanish. The PPVT-III was designed to be used with monolingual English speakers and the TVIP's norming sample contained data from Puerto Rican children.

Chapter 3

Results

Children's Spanish receptive vocabulary

The means and standard deviations for raw and standard scores on the TVIP were calculated at each of the six time points when the test was administered. Descriptive statistics are provided in table 3-1. The average raw score on the TVIP increased by 18.6 points from the beginning of Head Start to the end of kindergarten, while the standard score remained fairly steady through each measurement occasion, increasing by only 2.3 from time 1 to time 6. The mean standard score was more than 1 SD (i.e., 15) below the age-appropriate mean (i.e., 100) at each time point. It ranged from 72.62 in the end of the second year of Head Start to 83.67 in the spring of kindergarten. Note that standard deviations for the raw scores were large in comparison to means. Some raw scores were too low for standard scores to be calculated. These cases were excluded time-point by time-point. The sample sizes for TVIP standard score ranged from 27 at time 6 to 42 at time 3 (see table 3-1).

Table 3-1.Descriptive Statistics for TVIP Raw and Standard Scores

Time of Testing	Raw			Standard	
	Mean	SD	N	Mean	SD
Fall Year 1	6.14	5.9	37	81.57	8.42
Spring Year 1	7.88	8.61	40	78.55	12.61
Fall Year 2	10.79	10.11	42	73.12	13.78
Spring Year 2	12.31	12.17	34	72.62	15.78
Fall Kindergarten	26.9	15.23	36	82.5	15.5
Spring Kindergarten	24.71	17.05	27	83.67	13.89

The averages for the TVIP were plotted to examine the general trend over time. Figure 3-1 demonstrates the general trend for the average raw score on the TVIP to increase from the beginning of Head Start to the end of kindergarten, while the standard scores remained fairly steady.

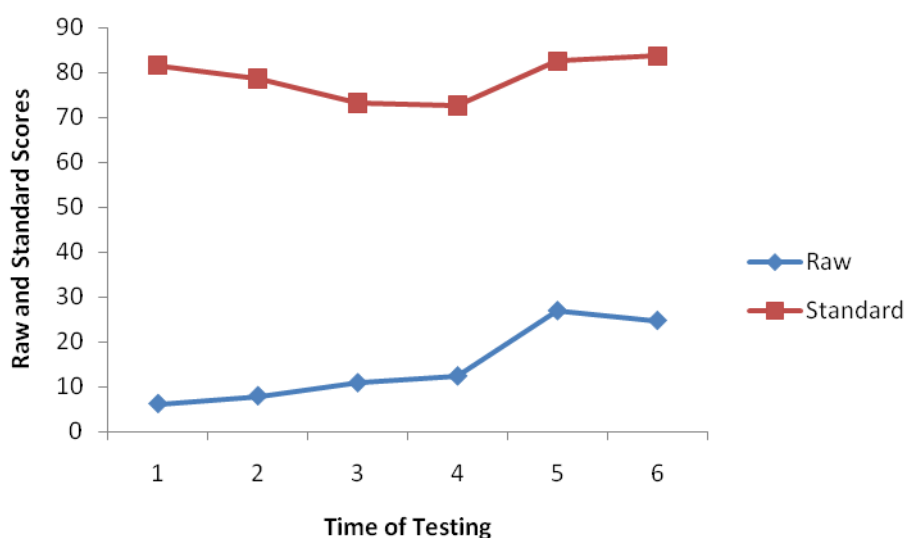


Figure 3-1. TVIP Raw and Standard Scores

Investigation of Demographic Variables among TVIP Subgroup

Children who did not follow the general trend were examined more closely to determine if certain demographic variables predicted this deviation from the pattern. Since the general trend was for the mean TVIP score to fall more than one standard deviation from the mean at each measurement occasion (see Table 3-1), it was of interest to investigate the children more closely whose standard score fell closer to the mean. Demographic variables were investigated for children whose standardized score on the TVIP fell within one standard deviation from the mean on four out of six measurement occasions ($n=10$). Table 3-2 shows the descriptive statistics for standard scores among the subgroup. Standard scores were available on all occasions among the subgroup. The mean score ranged from 89.9 in the fall of year 1 to 95.9 in the fall of kindergarten.

Table 3-2. Descriptive Statistics for Standard Scores of TVIP Subgroup

Time of Testing	Mean	SD
Fall Year 1	89.9	10.5
Spring Year 1	92.2	14.8
Fall Year 2	91.8	10.5
Spring Year 2	92.3	12.3
Fall Kindergarten	95.9	9.6
Spring Kindergarten	91.9	10.7

Figure 3-2 compares the standard scores of the subgroup to the remaining children on each measurement occasion. It shows the general trend for the average scores of the subgroup to fall above the remaining scores at each measurement occasion.

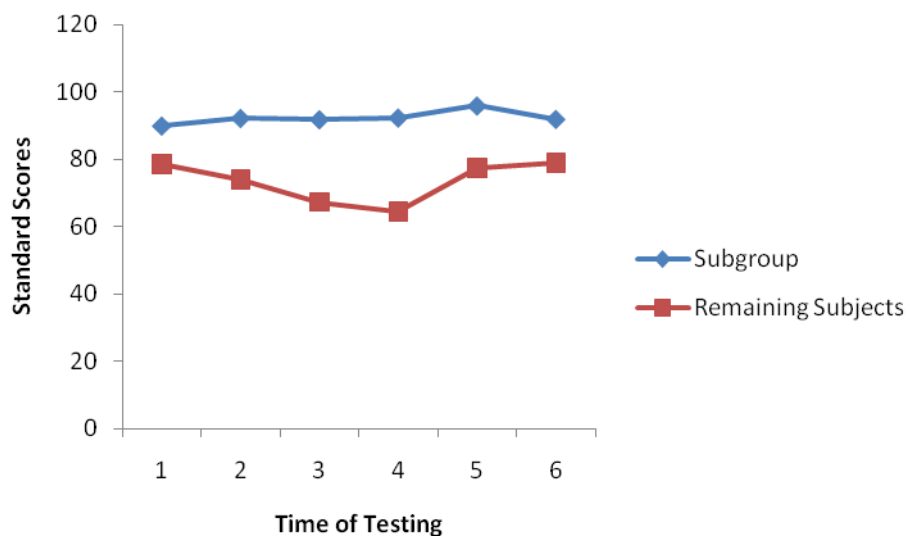


Figure 3-2. Standard Scores among TVIP Subgroup and Remaining Subjects

Several demographic variables such as biligual status (HEC or SEC), maternal depression, number of younger and older siblings, maternal education, presence of a father in the home, and language used at home were investigated for these children and subsequently compared to the the same variables for the remaining children. A visual inspection of tabulated data was performed to compare the demographic variables, and statistical tests were performed for several variables. Table 3-3 shows two variables for which differences were observed between the subgroup and the remaining children. There was a significant difference in the frequencies for bilingual status (HEC or SEC) between the subgroup and the remainder of the sample ($\chi^2 = 5.54$, $p < .02$, $df=1$). Eighty percent of children in the subgroup were considered to have School English Communication, compared to 31% of children in the remaining group. There was also a slight difference in the frequencies for the presence of a father in the home. Seventy percent of children in the subgroup had a father who lived at home, compared to 53% of the remaining children. This difference was not significant ($\chi^2 = .228$, $p > .10$, $df=1$).

Table 3-3. Comparison of Variables between TVIP Subgroup and Remaining Subjects

Variable		Subgroup		Remaining subjects	
		Frequency	%	Frequency	%
Bilingual status	HEC	2	20%	22	69%
	SEC	8	80%	10	31%
Father lives at home	Yes	7	70%	17	53.10%
	No	3	30%	14	43.80%

The language which the parents used at home with the children also differed noticeably between the two groups (see Table 3-4). In the subgroup, 60% of parents spoke to their children in all Spanish, while only 18.8% of the remaining children were spoken to in all Spanish. Furthermore, none of the parents in the subgroup spoke to their children in all English or more English, while 31.3% the remaining children received this language input.

Table 3-4. Language Input in TVIP Subgroup and Remaining Subjects

Subjects		Frequency	Percent
Subgroup	Equal	2	20
	More Spanish	1	10
	All Spanish	6	60
Remaining Subjects	All English	4	12.5
	More English	6	18.8
	Equal	10	31.3
	More Spanish	3	9.4
	All Spanish	6	18.8

Other variables such as parental education, maternal depression, and number siblings in the home were not noticeably different between the entire group and the subgroup. In general, the length of parental education was less than 12 years among both groups, maternal depression was present approximately 50% of the time, and the number of older and younger siblings was comparable.

Children's English Receptive Vocabulary

The means and standard deviations for raw and standardized scores on the PPVT-III were calculated at each of the six time points when the test was administered. Descriptive statistics are provided in Table 3-5. The average raw score increased by 48.81 points from the beginning of Head Start to the end of kindergarten, and the average standard score increased by 17.45 points. The mean standard score in the fall of the first year was more than two standard deviations below the mean. By time 5, the fall of kindergarten, the mean score came within one standard deviation of the mean, and it remained within 1 SD at time 6. As with the TVIP, note that standard deviations for the raw scores are large relative to means. Standard scores were available in all cases.

Table 3-5. Descriptive Statistics for PPVT-III Raw and Standard Scores

Time of Testing	Raw		Standard	
	Mean	SD	Mean	SD
Fall Year 1	18.36	12.35	68.86	15.72
Spring Year 1	24.29	14.83	73.02	16.24
Fall Year 2	34.02	15.42	76.38	15.22
Spring Year 2	46.57	15.41	83.19	13.2
Fall Kindergarten	59.5	16.48	85.38	14.51
Spring Kindergarten	67.17	12.45	86.31	10.9

The averages for the PPVT-III were plotted to examine the general trend over time.

Figure 3-3 demonstrates the general trend was for both raw and standard scores on the PPVT-III to increase from the beginning of Head Start to the end of kindergarten.

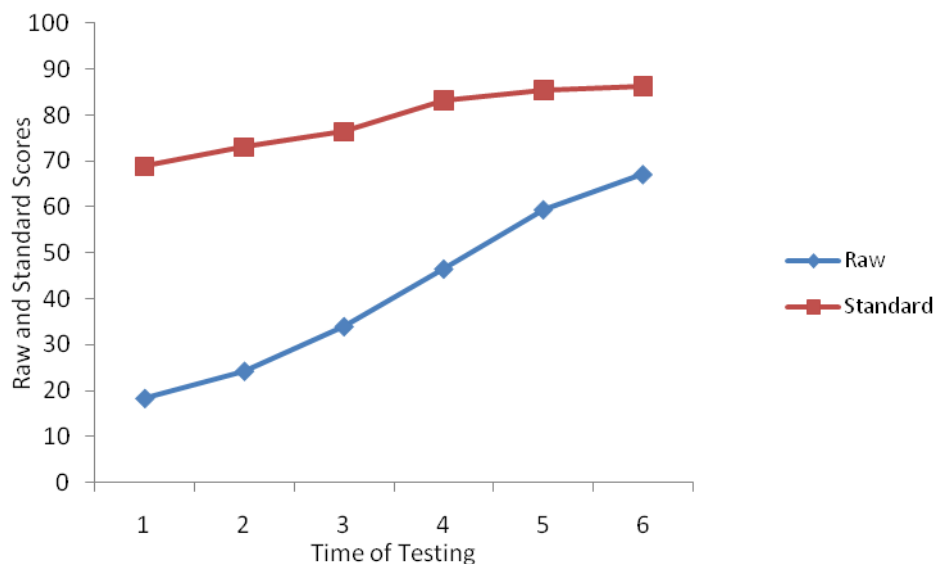


Figure 3-3. PPVT-III Raw and Standard Scores

Investigation of Demographic Variables among a Subgroup

As with the TVIP, children who did not follow the general trend were examined more closely to determine if certain demographic variables predicted a deviation from the pattern. Since the general trend was for the mean standard score on the PPVT-III to fall within one standard deviation of the mean during kindergarten, it was of interest to investigate more closely the children whose score fell more than one standard deviation from the mean. Demographic variables were examined for the children ($n=12$) whose standard score was more than one standard deviation from the mean in both the fall and spring of kindergarten, to determine if certain factors may have contributed to their below average performance on the PPVT-III. Table

3-6 shows the descriptive statistics for standard scores among children in this subgroup during kindergarten. The range of scores was from 61 to 83 at time 5, and from 68 to 80 at time 6.

Table 3-6. Descriptive Statistics for Standard Scores among PPVT-III Subgroup

Time of testing	Mean	SD
Fall Kindergarten	72.83	7.47
Spring Kindergarten	74.33	3.9

The children in this subgroup had standard scores at each measurement occasion that were on average noticeably below those of the remaining sample (see figure 3-4).

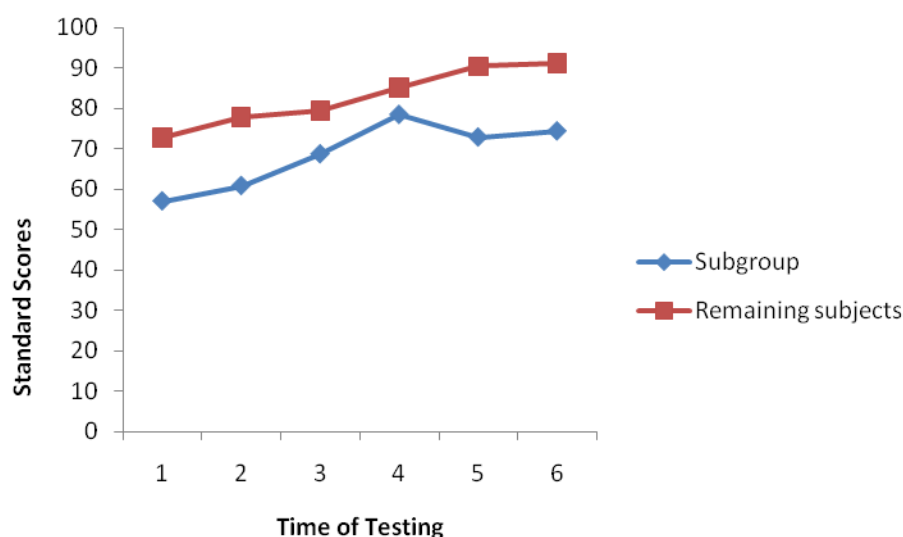


Figure 3-4. Standard Scores among PPVT-III Subgroup and Remaining Subjects

The same demographic variables that were measured when examining the subgroup for the TVIP were investigated for this subgroup. A difference between the two groups was only apparent for one variable, language input in the home (see Table 3-7). Forty-seven percent of parents in the subgroup spoke to their children in all Spanish, compared to 23% in the remaining sample. Furthermore, while none of the parents in the subgroup spoke to their children in all

English, 13% of the remaining sample did. There were no noticeable differences among other variables between the two groups.

Table 3-7. Language Input in PPVT-III Subgroup and Remaining Subjects

Subjects		Frequency	Percent
Subgroup	More English	1	8.3
	Equal	4	33.3
	More Spanish	2	16.7
	All Spanish	5	41.7
Remaining Subjects	All English	4	13.3
	More English	5	16.7
	Equal	8	26.7
	More Spanish	2	6.7
	All Spanish	7	23.3

Comparison of Spanish and English Receptive Vocabulary Abilities

While the general trend was for the PPVT-III scores to increase over time and the TVIP scores to remain steady, it was of interest to compare the scores on the TVIP and PPVT-III to each other (see Figure 3-5). In the fall and spring of the first year of Head Start, the standard score on the TVIP was higher by 14.71 and 5.53 points respectively. At measuring time 3, the fall of the second year of Head Start, the standard score on the PPVT-III increased over the TVIP and remained above it through the last three measurement occasions. While the scores on the PPVT-III increased steadily over time and the scores on the TVIP remained steady, at the end of this study the standard scores on both tests are within 2.6 points of each other. The TVIP ended

slightly more than one SD from the mean, while the PPVT-III ended slightly within one SD from the mean.

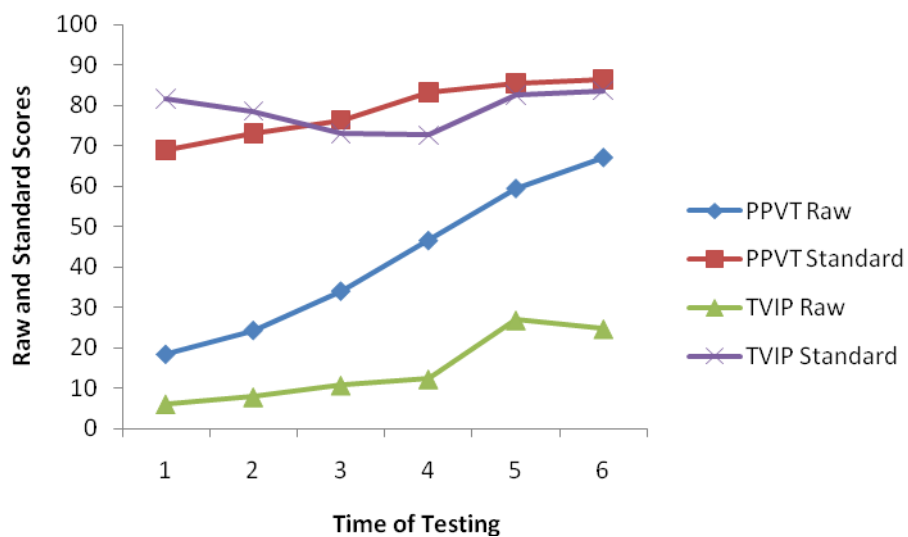


Figure 3-5. TVIP and PPVT-III Raw and Standard Scores

In comparing the children in the TVIP and PPVT-III subgroups, only one child performed above average on the TVIP and below average on the PPVT-II to be considered in both subgroups.

Chapter 4

Discussion

Studies have found that bilingual children consistently perform below average on standardized vocabulary measures in relation to monolingual peers. Furthermore, it is well accepted that a large variety of factors contribute to this performance due to the heterogeneity that exists among the population of bilingual Spanish-English children in the United States. This study examined the general trends of performance on Spanish and English receptive vocabulary measures of preschoolers through two years in Head Start and one year of kindergarten by looking at raw and standardized test scores. In addition, we examined specific demographic variables that have been related to bilingual language maintenance and loss among children who diverged from the general trend.

Development of Spanish receptive vocabulary

Results confirm the hypothesis that raw scores on the Spanish test would increase. This increase indicates that the children understood more Spanish vocabulary at each testing occasion. Rather than decreasing as had been hypothesized, the standard score remained steady over time. This indicated that the children maintained their Spanish abilities without improving in relation to their monolingual peers; instead, they remained one standard deviation from the age-appropriate mean at each measurement occasion. The large standard deviations for raw scores indicated that there was a lot of individual variability between the children. This variability exists due to the wide array of demographic, social, and individual variables that influence bilingual language development.

The inability of the children to keep up with monolingual peers as indicated by standard test scores could be related to several factors. First of all, the children were placed in an English immersion preschool program at a young age that did not facilitate the maintenance of Spanish. According to Anderson (2004), early immersion in English immersion programs contribute to more dramatic L1 loss. Since the children had almost no exposure to Spanish in preschool and kindergarten, it is possible that they learned only the household vernacular of Spanish and never learned the academic language. Furthermore, since the children were being exposed to two languages, a below average standardized score in Spanish may not be an indicator of their total receptive vocabulary. The use of a test that measures total vocabulary between the two languages may be a more effective way to compare bilinguals to monolingual peers. It is also important to consider the appropriateness of using standard scores to assess bilingual language abilities, since they cannot be compared to two monolingual children in one. Later, there will be a discussion of other methods of assessment for bilingual children.

It is also important to note that standard scores were excluded in some cases. It appears that younger children were not able to receive standard scores below a particular level. Because those scores may not have reflected actual performance, the investigators chose to not use standard scores in those cases. As many as 15 children at one measurement occasion were excluded, somewhat altering the trajectory of the TVIP from the beginning of Head Start to the end of kindergarten. Therefore, the TVIP does not seem to make fine discriminations among children at the younger end of its age range.

TVIP Subgroup

Several demographic variables differed among the subgroup of children who performed above average on the TVIP. First of all, a noticeably higher percentage of children in the subgroup had a father who lived at home. As previously mentioned, the proportion of exposure to

each language contributes to vocabulary development. It is possible that the presence of a father who spoke Spanish at home among this subgroup allowed the child to have more exposure to Spanish, through both interactions with the fathers and hearing conversations in Spanish between parents. However, it is important to note that children who did not have a father present in the home were often exposed to other Spanish speakers in the home besides their mothers, such as a grandparent. This could explain why no significant correlation was found between the presence of a father in the home and above average performance on the TVIP.

Bilingual status was significantly different among the subgroup. A higher percentage of children in the subgroup were SEC children. Since SEC children were not formally exposed to English before they enrolled in Head Start, they had a better opportunity to develop their Spanish skills before being expected to use English. Therefore, it is not unusual that children who performed above average on the TVIP were more likely to be SEC children when compared to the rest of the sample. Finally, the language that parents used at home with the children differed between the TVIP subgroup and the remaining children. Specifically, children in the subgroup were more likely to be spoken to in Spanish in the home. The greater Spanish exposure for children in the subgroup most likely led to an increased maintenance of Spanish receptive vocabulary skills when compared to the remaining subjects.

While the variables noted above differed between the subgroup and the remaining subjects, other demographic variables were examined that did not appear to relate to the above average performance on the TVIP. These variables were paternal education, maternal depression, and number of siblings. One explanation for the lack of variability for these factors between the two groups is that the shared factor of low SES between the group and the subgroup contributes to the lack of differentiation. For example, since SES is a predictor of paternal education, it would be expected that the children in both groups would have parents with a similar level of education. The same is true for depression. Since living in poverty has been associated with

higher levels of physiological stress (Hammer et al., 2004), a similar distribution of mothers exhibiting depression would be expected throughout the entire group.

In regards to the number of siblings, it had been hypothesized that the presence of younger siblings who spoke in English would lead to a decrease in Spanish scores, while the presence of older siblings who may speak more in Spanish would lead to maintenance or increase in Spanish scores. Since both groups had about the same number of younger and older siblings, this could have accounted for the lack of differentiation. Also, since the children were young in this study, it was less likely to have younger siblings present who were speaking in English or being spoken to in English. Finally, it is also important to note that while the children in the subgroup had Spanish scores that were noticeably different from “typical” developmental trajectory for this sample, the term “typical” has to be used loosely due to the wide individual variation present among bilingual children.

Development of English Receptive Vocabulary

Results confirm the prediction that both raw and standard scores would increase in English. Standard scores on the PPVT-III increased continually over time, coming within one standard deviation of the mean in the spring of kindergarten. This indicates that the children are approaching the age-appropriate mean for standard receptive vocabulary measures in English, and their English receptive vocabulary is experiencing positive growth. Further studies would be necessary to determine if this increase would continue until the mean reached the age appropriate norm (i.e. 100). The same factors which have been attributed to the lack of increase in Spanish standard scores could be related to the continual increase in English receptive vocabulary scores. The children were placed in an English immersion preschool program at a young age leading to an increase in exposure to English. Also, many parents reported speaking to the children in English at home. In the entire sample, 51% of parents reported speaking in all English, more

English, or equal English and Spanish in the home. The exposure that the children received to English in both the home and school environments contributed to the increase in standard scores over time. It is also important to consider that English is a majority language in the US, so it has a higher status as the language of education and one that must be mastered to eventually obtain a well paying job.

PPVT-III Subgroup

The language that parents used to speak to their children in the home differed noticeably among the children who performed below average on the PPVT-III. Specifically, the parents in this subgroup were less likely to speak to their children in English compared to the remaining sample. The below average performance among the subgroup could be related to this difference in language input because the children were not exposed to as much English at home, and it is possible that they did not develop a “home” vocabulary in English.

It had been hypothesized that a higher percentage of children in the PPVT-III subgroup would be SEC children, who were not exposed formally to English until Head Start. However, the distributions of HEC and SEC children among the both the subgroup and the remaining subjects were about even. This suggests that lack of formal exposure to English prior to Head Start did not contribute to below average performance on the PPVT-III, implying that children who speak in all Spanish before entering an English immersion program are not at a greater risk for falling behind in English receptive vocabulary abilities. The lack of differentiation among the other variables between the subgroup and the remaining sample could be a result of the same factors that were considered for the TVIP subgroup, such as the shared characteristic of low SES among the entire sample and difficulty with specifying a “typical” trajectory.

It is also important to note that the children who performed above average on the TVIP were not the same children who performed below average on the PPVT-III. Only one child was

the same between the subgroups. This suggests that above average performance in Spanish is not related to below average performance in English. Therefore, the children who were closer to age appropriate norms in terms of Spanish receptive language development were not at a disadvantage for developing English receptive vocabulary. This could have implications when considering education programs for bilingual children. As previously mentioned, educational programs in the US are typically English immersion programs, or “bilingual” programs that focus on the use of L1 only to support learning of English. However, this finding could lend support to the use of truly bilingual education programs for Spanish-English speaking children. These education programs could produce children who were bilingual, rather than children who were experiencing the language shift from Spanish to English often observed among this population.

Language Shift

Results suggest that the children from this study are in the process of a language shift from Spanish to English. As previously mentioned, language shift is a gradual change in the prominence or use of two languages over time and generations. Anderson (2004) describes the process of language shift. Typically, members of an immigrant population are fluent in their native language and have limited abilities in the language of their host country. Subsequently, the second generation learns both languages, and becomes more proficient in the second language (English). Finally, the third generation becomes fluent in the host country’s language (English), replacing the minority language (Spanish) as the first language (Anderson, 2004).

In this study, the parents are typically among the first generation mentioned above, while the children are part of the second generation. This is apparent from the raw and standard scores. While the TVIP raw score does increase over time indicating a gain in Spanish abilities, it is below the raw score for the PPVT-III on each measurement occasion and it does not increase as dramatically as the English receptive vocabulary scores. This suggests that the children are

becoming proficient in both languages, but they are more proficient in English. It is important to note of course that there is a lot of individual variability, and not every child falls neatly into one of the generations mentioned above. However, when examining overall trends, it appears that the children are in some stage of experiencing a language shift.

It is important for speech language pathologists to understand the process of language shift that typically occurs among bilingual children and how they can best assess language development among this population, while considering the factors that influence their language development in both languages. Anderson (2004) notes that patterns observed in language shift situations may be similar to those of children with true language disabilities. Therefore, it is critical that speech language pathologists can differentiate between language difference and language disability, and having information about the patterns of L1 loss will help in this process. In order to correctly identify language disorders among Spanish-English bilinguals, it is essential to use appropriate tools. However, the limited availability of assessment tools makes vocabulary assessment a challenge.

Implications for Vocabulary Assessment

It is common for speech language pathologists to use standardized tests to assess the vocabulary development of bilinguals. The use of separate standardized tests in Spanish and English to assess the vocabulary development of bilingual children rely on monolingual norms because no test has been developed with bilingual norms. Because a bilingual child has varying degrees of exposure to English and Spanish, using a test normed on monolinguals creates bias and may not be a true measure of vocabulary development. Peña and Kester (2004) provide several suggestions for assessment procedures. First of all, vocabulary should be assessed in both languages together using conceptual scoring. A conceptual score is calculated as the total number of concepts produced, accounting for translation equivalents. Studies have found that raw scores

are similar between monolinguals and bilinguals when assessing the two languages together. Therefore, a conceptual score can be compared to monolinguals norms to estimate development (Peña and Kester, 2004). Vocabulary testing in only the dominant language may underestimate vocabulary knowledge. Also, it is important to assess vocabulary across contexts to account for lack of familiarity (Peña and Kester, 2004).

There are several assessment procedures to use with bilingual children such as dynamic assessment, clinical interviewing, and language sampling. According to Peña and Kester (2004) dynamic assessment uses test-teach-retest procedures to investigate how quickly children can learn and apply concepts. Graduated prompting is another form of dynamic assessment that can help determine which language forms and structures to target and the amount of progress a child may make towards a specific goal. A scoring system can be used to chart progress that considers the number of prompts incorporated. Norm referenced language tests may be modified to include graduate prompts (Laing & Kamhi, 2003). According to Peña and Kester (2004) clinical interviewing involves probing a child's answers to provide information about how the child arrived at an answer. Language sampling could include an investigation of the number of different words used (NDW), the total number of words (TNW), and a type-token ratio (TTR). Laing and Kamhi (2002) describe one other method of alternative assessment called processing-dependent measures. These measures emphasize processing abilities rather than language knowledge and experience. Examples include memory tasks, perceptual tasks, and competing stimuli tasks. Performance on working memory measures has been highly correlated with language impairment and second-language vocabulary acquisition among children. Therefore, it is likely that children who perform poorly on these tasks will have language learning difficulty. This is an ideal way to assess language development among bilingual children without bias (Laing and Kamhi, 2002).

Conclusion

This study has examined the developmental trajectories for the receptive vocabulary development among low SES Spanish-English bilingual children through two years of Head Start and one year of kindergarten. Several limitations of the study include the inability of the TVIP to make fine discriminations among children at the younger end of its age range, the small sample size, and the lack of investigation of other dialects of Spanish besides Puerto Rican. These factors limit how much the results can be generalized. Growth in raw scores in both Spanish and English upon each measurement occasion revealed that the children were experiencing positive growth in both Spanish and English, while English growth was noticeably more positive suggesting a generational language shift from Spanish to English. Standard scores revealed that children were performing below the age appropriate norms in both Spanish and English at each testing occasion. Standard scores in Spanish remained steady at more than one SD from the mean at each testing occasion, while English scores increased steadily, coming within one SD of the mean in the fall of kindergarten. An investigation of demographic variables revealed that language input in the home and age of exposure to English related to bilingual language development, while no relationship was found with other variables such as paternal education, maternal depression, and number of siblings. Further studies should examine how child characteristics such as motivation, learning style, and personality; parental beliefs about bilingualism; and length of time in the US influence bilingual language development. While standardized tests can be used with bilingual children to assess their vocabulary development in relation to monolingual peers, they should not be the only method used by speech-language pathologists to determine if a bilingual child has a language impairment. Methods such as conceptual scoring, dynamic assessment, clinical interviewing, language sampling, and processing-dependent measures should be used to supplement standardized tests and attain a more accurate measure of bilingual language development.

References

- Anderson, R.T. (2004). First language loss in Spanish-speaking children: patterns of loss and implications for clinical practice. In B.A. Goldstein (Ed.), *Bilingual language development & disorders in Spanish-English speakers* (pp. 187-211). Baltimore, MD: Paul H. Brookes Publishing Co.
- Bhatia, T.K. & Ritchie, W.C. (2004). *The handbook of bilingualism*. Malden, MA: Blackwell Publishing Ltd.
- Bialystok, E., Luk, G. Peets, K. & Yang, S. (2009). Receptive vocabulary differences in monolingual and bilingual children. *Bilingualism: Language and Cognition*, 1-7.
- Butler, Y.G. & Hakuta, K. Bilingualism and second language acquisition (2004). In T.K. Bhatia & W.C. Ritchie (Eds.), *The handbook of bilingualism* (pp 114-144). Malden, MA: Blackwell Publishing Ltd.
- Dunn, L.W. & Dunn, L.M. (1997). *Peabody Picture Vocabulary Test-III*. Circle Pines, MN: American Guidance Service.
- Dunn, L.W., Padilla, L. & Dunn, L.M. (1986). *Test de vocabulario en imágenes Peabody*. Circle Pines, MN: American Guidance Service.
- Edwards, J.V. (2004). Foundations of bilingualism. In T.K. Bhatia & W.C. Ritchie (Eds.), *The handbook of bilingualism* (pp. 7-31). Malden, MA: Blackwell Publishing.
- Frakenburg, W.K., Dodds, J., Archer, P., Bresnick, B., Maschka, P., Edelman, N., & Shapiro, H. (1990). *Denver-II: Screening Manual*. Denver, CO: Denver Developmental Materials. 1990.
- Garcia, E. (1983). *Early childhood bilingualism*. Albuquerque, NM : University of New Mexico Press.

- Goldstein, B.A. (2004). Bilingual language development and disorders: Introduction and overview. In B.A. Goldstein (Ed.), *Bilingual language development & disorders in Spanish-English speakers* (pp. 3-50). Baltimore, MD: Paul H. Brookes Publishing Co.
- Guiberson, M.M., Barrett, K.C., Jancosek, E.G., & Itano, C.Y. (2006). Language maintenance and loss in preschool-aged children of Mexican immigrants: Longitudinal study. *Communication Disorders Quarterly*, 28(1), 4-17.
- Hammer, C.S., Lawrence, F.R. & Miccio, A.W. (2008a). Exposure to English before and after entry into Head Start: Bilingual children's receptive language growth in Spanish and English. *International Journal of Bilingual Education and Bilingualism*, 11(1), 30-56.
- Hammer, C.S., Lawrence, F.R. & Miccio, A.W. (2008b). The effect of summer vacation on bilingual preschoolers' language development. *Clinical Linguistics and Phonetics*, 22(9), 686-702.
- Hammer, C.S., Miccio, A.W., & Rodriguez, B.L. (2004). Bilingual language acquisition and the child socialization process. In B.A. Goldstein (Ed.), *Bilingual language development & disorders in Spanish-English speakers* (pp. 21-50). Baltimore, MD: Paul H. Brookes Publishing Co.
- Hammer, C.S., & Miccio, A.W. (2000). Bilingual Preschoolers: Precursors to Literacy. Grant funded by NIH-NICHD.
- Laing, S.L. & Kamhi, A. Alternative assessment of language and literacy in culturally and linguistically diverse populations. *Language, Speech & Hearing Sciences in Schools*, 34(1), 44-53.
- Meisel, J.M. (2004). The bilingual child. In T.K. Bhatia & W.C. Ritchie (Eds.), *The Handbook of Bilingualism* (pp. 7-31). Malden, MA: Blackwell Publishing.
- Oller, K.D. & Pearson, B.Z. (2002). Assessing the effects of bilingualism. In D.K. Oller & R.E. Eilers (Eds.), *Language and Literacy in Bilingual Children* (3-21). Multilingual Matters

Ltd.

Peña, E.D. & Kester, E.S. (2004). Semantic development in Spanish-English bilinguals: Theory, assessment, and intervention. In B.A. Goldstein (Ed.), *Bilingual language development and disorders in Spanish-English speakers* (pp. 105-128). Baltimore, MD: Paul H. Brookes Publishing Co.

Patterson, J.L. & Pearson, B.Z. (2004). Bilingual Lexical Development: influences, contexts, and processes. In B.A. Goldstein (Ed.), *Bilingual language development & disorders in Spanish-English speakers* (pp. 77-104). Baltimore, MD: Paul H. Brookes Publishing Co.

Proctor, B. & Dalaker, J. (2002) *Poverty in the United States: 2001, Current Population Reports*, 60-219. Washington, DC: U.S. Government Printing Office.

US Census Bureau: Hispanics in United States. Retrieved from:

http://www.census.gov/population/www/socdemo/hispanic/files/Internet_Hispanic_in_US_2006.pdf

VITA

Tara Anne O'Neill

tao5012@psu.edu

Education

The Pennsylvania State University

Bachelor of Science in Communication Sciences and Disorders, May 2010

Schreyer Honors College

Thesis

Title: Receptive Vocabulary Development of Spanish-English Bilingual Preschoolers

Supervisor: Carol A. Miller, Associate Professor of Communication Sciences and Disorders

Work Experience

Account Manager

Bank of America, State College, PA

Fall 2006- Present

Grants Received

Schreyer Ambassador Travel Grant

Professional Memberships

National Student Speech Language Hearing Association

Community Service

Participated in Penn State Dance MaraTHON

Organized and participated in literacy events at the children's library

International Education

Universidad de Sevilla

Seville, Spain

Summer 2009