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A STUDY OF RECEPTIVE VOCABULARY DEVELOPMENT OF SPANISH-
ENGLISH BILINGUALS AND FACTORS AFFECTING THAT TRAJECTORY

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ABSTRACT

This study examined the receptive vocabulary growth of Spanish-English bilingual children from their first year of Head Start through the end of kindergarten. The participants consisted of 42 children who came from homes where the mother spoke a Puerto Rican dialect of Spanish. To test their Spanish and English receptive vocabulary, the Test de Vocabulario en Imágenes Peabody (TVIP) and the Peabody Picture Vocabulary Test-III (PPVT-III) were administered at six time points over a 3 year span. On the TVIP the children's raw scores increased from test time 1 (T1) to test time 6 (T6), and the standardized scores remained steady. On the PPVT-III, the children's raw scores and standardized scores increased from T1 to T6. To examine the sample's receptive vocabulary abilities relative to each other, a bivariate display of raw scores at T1 was developed which plotted the TVIP raw scores against the PPVT-III raw scores. A median split produced four quadrants based on their Spanish and English performance revealing the following categories: (1) high English and high Spanish (HE-HS) (2) high English and low Spanish (HE-LS) (3) low English and high Spanish (LE-HS) (4) low English and low Spanish (LE-LS). In general the children who began above the median or below the median in Spanish at T1 remained there at T6, and the children who began above or below the median in English at T1 remained there at T6. This study also inspected the effects that the certain factors have on receptive vocabulary developmental trajectories. It was concluded that language input had the most direct effect on receptive vocabulary abilities in both Spanish and English.

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Chapter 1

Introduction

According to the United States Census Bureau (2006), there are 44.3 million Hispanics in the United States, comprising 14.8% of the total population. As of 2007 the Hispanic population had grown over 58% from the previous ten years and is the fastest growing racial/ethnic group in the U.S. (Roseberry-McKibbin, 2007). Of the 4.6 million English language learners in the public schools, 79% or 3.6 million speak Spanish (Goldstein, 2004). A detailed description of typical Spanish-English bilingual language development does not exist as it does for monolingual speakers. Without knowing what is “typical,” it has been difficult to identify the approximately 870,000 Spanish-speaking children who have a communication disorder in their native language (Goldstein, 2004). After all, a bilingual child is not simply two monolingual children in one (Hammer, Miccio, & Rodriguez, 2004) and linguistic differences can often be confused with signs of a disorder (Guiberson, Barrett, Jancosek, & Yoshinaga Itano, 2006).

One aspect of bilingual language development that everyone can agree on is the fact that bilingual children, even those who are learning the same two languages such as Spanish and English, make up a heterogeneous group. These children have different paths of language development and skill levels that continuously change (Guiberson et al., 2006). This is especially true in the United States where the majority of the population considers themselves monolingual and the language of instruction in the public schools is English. Therefore, some children who are exposed to Spanish from birth may experience first language loss upon entry to school, a real problem that deprives children of the advantages of being bilingual and makes assessment

difficult (Hammer et al., 2004; Anderson, 2004). Therefore, speech-language pathologists have to know how to assess children at different points in their language development.

A future goal of the field is to develop standardized tests normed on a Spanish-English bilingual population for assessment, but this goal becomes difficult with such a heterogeneous group. Therefore, it is important to understand not only for current practice but also for future developments how various factors known to affect monolingual language development also influence bilingual language development and the role that individual differences among bilingual children play in their language development.

The current study chose to examine developmental paths of bilingual children's Spanish and English receptive vocabulary knowledge from the beginning of Head Start, a preschool program, to the end of kindergarten as well as several factors that could have affected their development. Vocabulary development in general is an important aspect of assessment and identification of children with language impairments as it has been shown to be a good indicator of general language growth (Umbel & Oller, 1994). Furthermore, knowledge about semantic development will allow for the development of intervention practices that take into consideration children who have knowledge of Spanish and English (Peña & Kester, 2004). Factors that have been shown to affect monolingual and bilingual language development are maternal depression, gender, presence of siblings, and parental education which is a part of the larger factor of socioeconomic status. Factors specific to bilingual language development that could provide an influence are bilingual status (knowledge of English prior to or upon entering school), adult to adult language preference, and parent to child language preference.

Simultaneous versus sequential second language acquisition

One distinguishing marker that differentiates bilingual children from one another is the point at which the second language is introduced. Two broad categories have been established. Simultaneous language acquisition means that the children were exposed to two languages from birth or shortly thereafter. Sequential language acquisition indicates that children learned one language from birth and then were introduced to another language later. Generally, children who are introduced to another language after the age of 3 are considered sequential language learners (Roseberry-McKibbin, 2007; Umbel & Oller, 1994). However, the age is arbitrary, and it generally depends on whether the second language is introduced before or after the children have developed a strong foundation in one language. This differentiation becomes important when you consider Cummins' (1979) interdependence hypothesis which asserts that if children have a good knowledge base in one language, they can use that information to assist them in learning a second language.

A sequential language learner can follow two paths of development, additive bilingualism or subtractive bilingualism. A child who has developed additive bilingualism will use both languages proficiently. Subtractive bilingualism occurs when the dominance of the first language is replaced by the second language. This generally occurs when the language learner is in an environment where their first language maintains a lower status and is not as widely used in the greater community (Roseberry-McKibbin, 2007). When learning a second language results in subtractive bilingualism, negative feelings may result. On the other hand, an additive learning experience may bring about positive feelings leading to better overall social adjustment and psychological well-being (Umbel & Oller, 1994).

Processes of second language acquisition

Children who add English as their second language often go through processes that can look similar to symptoms of a specific language impairment (Roseberry-McKibbin, 2007). It is important to understand these normal processes and take them into consideration when assessing a child. The most common ones are the silent period, language loss, language transfer, interlanguage, and codeswitching. Sometimes, when exposed to a new language, a child goes through a silent period during which they produce little language, a symptom of an expressive language delay. During this period, children put all their energy into comprehension and learning the rules of the language. Typically, this process lasts anywhere from 3-6 months, and for some children it could be much longer. Generally, the younger the age at which the second language is introduced the longer the silent period.

Children can lose skills in their first language as they begin to learn a second language. This is especially common for children who learn English as they enter the public school system where bilingual programs are scarce and English immersion is the most prevalent program model. As these children enter school, English surrounds them, and as they spend less time at home, their English abilities take over. Therefore, in a language testing situation, it may appear as though a child has low abilities in both their first language and English which would normally indicate a problem. However, the child may just be in a position where they are losing skills in their first language but have not yet become fluent in their second language. Specific aspects of language loss will be discussed later.

Language transfer occurs when “a communicative behavior from the first language is carried over into the second language” (Roseberry-McKibbin, 2007, p. 88). A speech language pathologist can observe this process in the form, content, and use of the language. The clinician

should gather as much information about a child's first language, and then assess errors made in English, taking into consideration rules of the first language that the child may be applying.

Roseberry-McKibbin (2007) defines interlanguage as "the period in second language development when the learner starts to use language productively until she achieves competence similar to that of a native speaker" (p. 91). During this period the language learner is testing hypotheses formed about how he/she can use the language and forming set rules of the language. It is common for people in this stage to make inconsistent errors, and this should be viewed as a part of the process rather than an indication of a language disorder.

Codeswitching as defined by Roseberry-McKibbin (2007) is "the alternation of two languages within a single constituent, sentence, or discourse" (p.92). When a child begins to learn a second language, he may substitute structures, forms, or lexical items that he does not know in his second language with those that he does know from his first language. In this stage children use codeswitching as a means to get their message across until their knowledge of the second language grows. During later periods of language learning, bilinguals use codeswitching on purpose and not because of a lack of knowledge. This process is common among bilinguals around the world and should not be viewed as an error.

Factors that influence second language acquisition

Language input

As previously discussed one important aspect of language input is the time at which languages are introduced resulting in sequential or simultaneous bilingualism. However, any age used to set a boundary where one begins and the other ends is arbitrary, and the timing of language exposure can be thought of as a continuum unique to each child (Hammer et al., 2004).

Simultaneous language learners are expected to carry on conversations, answer questions, and follow directions in both languages from the time they are born; whereas, most sequential language learners are not expected to utilize English until they begin school. A child who has learned both Spanish and English from birth may be at an advantage at the start of school. Since these children already have a base knowledge of English, they may benefit more fully from the teacher's instruction as suggested by research on vocabulary acquisition (Umbel & Oller, 1994). Additional research has supported the idea that in addition to timing, the amount of language input is strongly related to the size of a child's vocabulary for monolinguals (Uchikoshi, 2006). The difference is monolinguals are exposed to many different types of input in one language and a bilingual is receiving divided input split between two languages over time. It cannot be expected that they will have the same language skills as monolinguals who are receiving input in the same language throughout all of their experiences.

Hammer, Lawrence, & Miccio (2008) conducted a study examining bilingual children's receptive language growth in Spanish and English. The study was composed of 83 children enrolled in Head Start programs in urban centers in central Pennsylvania. Research has shown the need to more closely examine the effect that entry to school has on bilingual children's language development. Therefore, this study split children into two groups defined as those who had Home English Communication (HEC) and School English Communication (SEC). It was found that at the beginning of the study children who communicated in both English and Spanish at home prior to school (HEC) displayed abilities in English receptive vocabulary and language comprehension that were much higher than children who did not have to communicate in English until entry into Head Start (SEC). On measures of Spanish abilities, the children in the SEC group scored much higher than the HEC children at the beginning of Head Start. The children followed these patterns during their two years in preschool.

When examining growth trajectories, it was found that all the children's English and Spanish language development was linear. However, it should be mentioned that children's English rate of receptive vocabulary growth increased over time as evidenced by raw scores, but the standardized scores did not exhibit this type of growth. Also, children's standard scores on Spanish language comprehension did not display a linear growth throughout the two years. Hammer et al. (2008) drew the conclusion that possibly "children's exposure to Spanish at home is insufficient to support children's development of Spanish that is commensurate with monolingual children" (p.51).

Probability of bilingualism

Portes and Rumbaut (2001) conducted a series of data analyses to find predictors of fluent bilingualism of immigrant children during their junior high and high school years. One predictor that they examined was family composition which included whether each parent was foreign-born or not and "frequent use of a foreign language by intact families" (p. 138). It was found that having one parent who was born in the United States caused the probability of fluent bilingualism to go down significantly. Another predictive factor indicated that the longer a child lived in the United States the less likely he/she was to be bilingual. Specifically, it was found that "with other factors controlled, U.S. residence leads to a net decline in the probability of bilingualism of about 1% per additional year in the country" (Portes & Rumbaut, 2001, p. 140). On the contrary, however, it has also been found that the longer parents are in the United States, the higher socioeconomic status they hold. With a higher socioeconomic status the parents would have more resources to help preserve their child's knowledge of their parent's native language, so this could partially reverse that probability. Gender also appeared to play a role, and it was found that girls were "6% more likely to be bilingual than boys when coming from similar backgrounds

in regards to class, family, and ethnicity” (Portes & Rumbaut, 2001, p. 140). Portes and Rumbaut (2001) reasoned that this finding follows the “differential patterns of socialization of both sexes” (p. 140). Parents also tend to be overprotective of girls, so they spend more time in the home which gives them more opportunity to listen to and practice the native language of their parents. Additionally, simply being of Latino origin made one likely to maintain his/her language skills when compared with second-generation children from other immigrant populations. This could be due to the fact that Latinos in America have a strong community presence and the children’s resources to learn and use the language extend beyond the home.

The influence of community

The community plays a role in bilingual language development as discussed by Hammer, Miccio, & Rodriguez (2004). A community in which bilingualism is considered normal and is supported by the educational system will produce bilingual children. Unfortunately, the majority of people in the United States only speak English and educational policies do little or nothing to support the maintenance of a first language. Therefore, children will not become bilingual unless the families and their communities find alternative means to maintain their native language. For Hispanics living in the United States, it becomes obvious early on that English is valued more than Spanish and that there is little reason to work hard to maintain their Spanish skills. Even when parents try to promote the maintenance of the native language, their children often feel more comfortable and prefer speaking English.

Parental views

Parents exert a large influence on child language development, and the beliefs that parents hold in regards to language development and bilingualism will impact how they interact with and what expectations they have for their children (Hammer et al., 2004). Few studies have been conducted on Latino parental beliefs about language development. However, Hammer et al. (2004) reported that a study by Super and Harkness (1986) showed the power that maternal beliefs have on language development, and the researchers also “noted the relationship between maternal views about how children acquire speech and the amount of language input, topics of conversation, and frequency of verbal interactions provide by the mothers” (p. 28). It was also found that the language behavior of the mothers demonstrated cultural goals and values.

Whether parents view bilingualism as positive or negative will influence their interactions with their children. Parents who worry that bilingualism will hinder their child’s English abilities may limit the use of Spanish in the home. In studies reviewed by Hammer et al. (2004), it was found that parents who use Spanish in the home believed that knowledge of two languages would help their children academically and in the job market. It has also been found that parents who see the value of Spanish and speak it in the home help their children to maintain a Latino identity.

Environmental considerations

Hammer et al. (2004) discusses environmental factors that could affect a child’s language development including “immigration and acculturation, parental education, parental economic resources, income/socioeconomic status, and parental psychological status” (p. 35). A recent immigrant living in the United States faces many changes and differences, and moving into a

community that shares his ethnic background can provide support and ease the transition. The degree to which immigrants assimilate depends largely on “history of the first generation, such as reasons for leaving their native country, the pace of acculturation of the parents and children, cultural and economic barriers that impede adaptation to the new culture, and family and community resources that assist in confronting the barriers” (Hammer et al., 2004, p. 36).

Portes and Rumbaut (2001) explain three different trajectories of acculturation. Dissonant acculturation occurs when children learn English and acquire American culture at a faster rate than their parents. Consonant acculturation occurs when children and parents assimilate into the mainstream at approximately the same time. Selective acculturation results when the parents and children are living in a supportive ethnic community while still learning the language and customs of the greater American culture at the same rate as one another. The latter situation typically results in less discord between generations and promotes bilingualism for the children. Problems can arise when children adapt to the mainstream culture sooner than their parents or even when the nuclear family as a unit adapts but forgets their native culture.

The relationship between parental education, a predictor of socioeconomic status, and children’s development has been well researched. It has been shown that children of parents who have higher education levels will have better outcomes in academic achievement, cognition, and language skills (Hammer et al., 2004). In addition to education, greater economic resources also correlate with greater outcomes. And conversely research has shown that “poverty negatively affects children’s cognitive, language and academic outcomes” (Hammer et al., 2004, p. 38.). This becomes especially important considering that in 2001, 10% of the population in the U.S. was living in poverty and 21% of the Hispanic population in particular (Hammer et al., 2004). While the range of SES among Hispanics ranges widely, the parents tend to have spent less time in school and work at lower status jobs (Umbel & Oller, 1994). Immigrants have a lot of stress put on them as they adjust to a new way of life and in some cases learn a new language. The

higher rate of poverty for this section of the population adds additional burdens to a family dynamic, so it is also worthwhile to look at parental psychological status. Studies have shown that maternal depression correlates with negative outcomes in cognition, language, and academics. Specifically, Hammer et al. (2008) cites a study by Pan et al. (2001) that examined the vocabulary development of monolingual children. The study concluded that the variety of vocabulary that was used when conversing with children, the mother's language and literacy skills, and their emotional states, and not necessarily the amount of conversation, best foretold the language outcomes of the children. Additionally, children may experience emotional problems as a result.

First language loss

With all of the factors that can affect language development and all of the struggles that immigrant families can face, children are at a risk for losing their first language as they learn the language of the host country. It is important to be sensitive to this process especially when it comes to diagnosing language abilities and disabilities. As mentioned previously, children in this "limbo" period could receive low scores on language tests in both languages.

Not only does loss occur for the individual, but it has been shown to be a natural process for the dominant language within a family to shift over time and across generations (Anderson, 2004). Normally by the third generation the language of the host country has become the dominant language. When a more sudden shift occurs and a person loses their abilities in their first language, this results in a language loss. Language attrition happens when an individual's language skills do not diminish but do not advance either. It becomes difficult to differentiate between a child who is in the midst of a language shift/loss and a child who has a disorder since both can exhibit similar characteristics. Therefore, when assessing a child whose first language is

Spanish and is learning English, it may be inappropriate to compare him/her to monolingual Spanish norms.

Many factors can affect first language skills. The sociolinguistic environment as previously touched upon plays a significant role. In general, a language loss occurs in an environment where the majority language holds more importance and prominence than the minority language. In the United States English has a higher status because it is the language of education and the professional world. For Latino children, only 16% of those who are eligible to attend bilingual school programs actually do (Anderson, 2004). Therefore, children will be limited in the linguistic forms and concepts they can learn in each language since much of their knowledge of English will be tied to school situations and Spanish will only be used outside of the school day.

Anderson (2004) explains other factors that foster first language (L1) loss: gender (females tend to experience L1 loss more than males), early immersion in English preschool programs, low status of the minority language for vocational advancement and educational advancement, limited bilingual programs that foster maintenance of L1, lack of L1 peer interactions, younger siblings with whom English is spoken, perception (and reality) that general status of the L1 is low relative to the L2, limited contact with L1 speakers outside the home environment, parents who are bilingual, community has small minority population, lack of L1 monolingual speakers in the community, diminished use of the L1 across domains.

According to research reviewed by Anderson (2004), the areas of language most affected by L1 loss tend to be the lexicon and the grammatical system, and people are particularly susceptible to losing lexical knowledge. The loss of the lexicon is due to the limited environments in which the language is used and with a lower frequency, and this affects people's word finding abilities. The studies that Anderson (2004) reviewed reveal certain patterns. The loss of the lexicon tends to appear in the beginning of L1 loss and begins first with noun production and then

verb lexemes. Language mixing is another indicator as children will use more vocabulary items from their second language within L1 utterances. Another behavior that may indicate language loss is when children use words in their L1 differently from the way most people who speak that language would use them. Lexical borrowing or assimilation takes place when “an individual incorporates a word into the L1 with a change in the phonology, and sometimes the morphology, that is in consonance with the rules of the L1” (Anderson, 2004, p. 197).

Semantic development in Spanish-English bilinguals

A bilingual child has a lexicon that is spread across two languages, and how she acquires that lexicon can be different than the way a monolingual acquires a lexicon. Research has proposed various models for bilingual lexicon acquisition (Peña & Kester, 2004). The Competition Model bases itself on the idea that children build their lexicons through cues in the input that help them to learn the rules of the language. Different languages, however, have cues that are used more often than others. If two languages have similar cues such as word order then this information can be used to help gather information in both languages and positive transfer can occur. However, if a cue in one language does not apply to the other language, then negative transfer, the process of incorrectly applying a valid cue of one language to another language, occurs. Thus, a child who is acquiring a lexicon may learn categories of words that have high cue validity in both languages sooner than categories that only have high cue validity in one language. This provides an example of how their semantic development may differ from monolingual peers.

Two other important models that explain aspects of semantic development in bilinguals are the Word Association Model and the Concept Mediation Model, described by Peña & Kester (2004). Both of these models make “the assumption that there are independent levels of representation for word form (lexicon) and word meaning (concepts)” (Peña & Kester, 2004, p.

107-108). In the Word Association Model in order to access concepts, a bilingual must first go through the L1. However, in the Concept Mediation Model each lexicon and concepts are directly connected. These models are not competing, but rather each model has its place depending on whether the bilingual is learning two languages simultaneously (Concept Mediation Model) or sequentially (Word Association Model). Depending on the strategy used the bilingual may perform differently on language tasks.

While no currently agreed upon model exists, research has shown that the outcome, vocabulary growth, for Spanish and English monolinguals is similar to that of bilinguals as long as both languages are considered (Peña & Kester, 2004). Generally, bilinguals reach the same milestones as monolinguals in regards to number of words in their lexicon, and they “demonstrate similarities in vocabulary learning and performance in comparison with their monolingual counterparts, with some differing patterns” (Peña & Kester, 2004, p. 111). Peña & Kester (2004) reviewed a study conducted by Pearson, Fernandez, Lewedeg, and Oller (1997) that examined simultaneous Spanish-English language learners from the age of 9-30 months. A strong correlation between language exposure and vocabulary production was found. Studies have shown that vocabulary grows in both languages as age increases. However, several studies reviewed by Peña & Kester (2004) showed that as children enter the school years and beyond, there is a language dominance shift from the first language to the second language. This could be due to many of the factors previously discussed.

Purpose

Since the vocabulary development of a bilingual child will not necessarily follow the same path of a monolingual, their knowledge needs to be assessed in both languages. It was of interest to see how their receptive vocabulary in Spanish and English changed over time as

indicated by standardized tests, a commonly used assessment tool. It was predicted that by the end of kindergarten children's raw scores in both Spanish and English would have increased. The average standardized score in Spanish would have decreased, and the average standardized score in English would have increased. This investigation fulfilled the first purpose of this study: to examine the receptive vocabulary developmental trajectories of Spanish-English bilingual children from their first year of Head Start to the end of kindergarten.

With all of the factors that could influence language development, it is important to identify the most salient ones and find out how they affect development. In order to examine individual differences, subgroups of children who display the most common trajectories in English and Spanish were identified. Demographic variables of each subgroup were compared to the overall trends of the entire sample to identify any similarities and differences. This descriptive analysis fulfilled the second purpose of this study: to examine the factors of maternal depression, gender, presence of siblings, parental education, presence of the father in the home, bilingual status, adult to adult language use in the home, and parent to child language use that influenced individual variations relative to the sample.

While keeping in mind previous research, a few predictions were made considering these factors. It was expected that rates of maternal depression would be lower for children who were displaying higher abilities in either language relative to the sample. It was unclear how gender would influence vocabulary knowledge. Anderson (2004) found that females tended to experience first language loss more than boys, but Portes & Rumbaut (2001) reported that females were more likely than males to become bilingual. For children with lower Spanish abilities, they would have more younger siblings since this was identified as a predictor of L1 loss (Anderson, 2004). It was unclear how parental education would affect language abilities. On the one hand children whose parents have received less education but speak only Spanish could display high Spanish abilities relative to the sample, but children whose parents have received

more education but believe in the importance of teaching their child Spanish may also exhibit high Spanish abilities. It was expected that children whose fathers lived with family would have higher language abilities since this could provide the children with another language model and perhaps more familial stability. Bilingual status, adult to adult language use, and parent to child language use are all related to language input. It was predicted then that children who received more input in Spanish would display higher abilities in Spanish and the same pattern would be seen for English abilities. However, it is unclear how ability in one language may affect language ability in the other language.

Chapter 2

Method

Participants

A longitudinal study investigating children's Spanish-English bilingual language development was 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 the parents nor school teachers had any concerns about the children's development. All children scored typically on the Denver II, a developmental screening instrument (Frankenburg et al., 1990), and passed a hearing screening. All mothers spoke a Puerto Rican dialect of Spanish.

Data on Spanish and English language abilities was collected on 124 children. Since this study examined receptive vocabulary developmental trajectories over three years it was important that data be available at all time points over that period. Therefore, only the 42 children whose receptive vocabulary abilities in Spanish and English could be charted from the beginning of Head Start through the end of kindergarten were considered. Children who came to Head Start, an English-immersion preschool program, knowing minimal English were placed in classrooms where either the teacher or assistant spoke Spanish. However, English remained the language of instruction and Spanish was used minimally.

The average age of the children at the beginning of the study was 3.83 years and 47.6% were male. The children were divided into two groups based on information provided by their mothers as to when their children were spoken to in English and Spanish. One group was labeled

as having Home English Communication (HEC), and these children were expected to converse in both Spanish and English in the home prior to school. The other group was labeled as having School English Communication (SEC), and these children were only expected to communicate in Spanish at home and were not expected to communicate in English until they began their first year of Head Start. That is not to say that these children were not exposed to English before they began school. Since they were raised in the United States and the greater English-speaking community, it is very likely that they were exposed to English through television and interactions with English-speakers. However, they were not expected to answer questions or follow directions in English until Head Start. The percentage of HEC children at 57.10% was slightly larger than that of SEC children. Considering the entire group, the average years of education for the mothers was 11.47 years and the average number of siblings that each child had was 2.17.

Table 2-1

Demographic information for entire sample

Characteristic	Mean(SD) or %
Children's age (years)	3.83(.30)
Children's gender (male)	47.60%
Language exposure (HEC)	57.10%
Maternal education (years)	11.47(1.58)
Number of siblings	2.17(1.48)

Materials and procedure

Children's receptive vocabulary abilities were tested in the fall and spring of their two years in Head Start and in the fall and spring of kindergarten. The people administering the test

were trained by a certified speech-language pathologist (SLP) and were supervised by this SLP and an on-site coordinator who was fluent in both Spanish and English. 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 en Imágenes Peabody (TVIP: Dunn, Lugo, Padilla, & Dunn, 1999) was administered by fluent, native speakers of both English and Puerto Rican Spanish.

Although the PPVT-III and the TVIP were both normed on monolingual populations, the original collectors of this data used these tests for several reasons (Hammer et al., 2008). When the data were collected, a receptive vocabulary test normed on a bilingual population was not available. The TVIP was chosen to test Spanish abilities because the norming sample included Puerto Rican children. Additionally, the reliability rating for both tests is high, and they are well established tests of receptive vocabulary abilities. The PPVT-III showed a split-half reliability of 0.83-0.97 and a test-retest reliability of 0.77-0.90. The TVIP displayed a median internal consistency coefficient of 0.93 (Hammer et al., 2008).

Chapter 3

Results

General trends of raw and standardized scores

The mean raw and standardized scores on the TVIP and PPVT-III were calculated at every point when the test was administered. This resulted in six averages that were examined to determine the general trend over time. The times of measurement are listed in Tables 3-1 and 3-2, and are hereafter referred to as T1, T2, and so on. The mean raw score on the TVIP increased from T1 (fall of the first year of Head Start) to T6 (spring of kindergarten) while the standardized scores stayed consistent. On the PPVT-III both the raw and standardized scores increased from T1 to T6. By T6, the end of kindergarten, the average score on the PPVT-III was within 1 standard deviation of the norming sample's mean, and the average score on the TVIP was more than 1 standard deviation below the mean. It should be mentioned that the standard deviations for the raw scores were large in relation to the means, for the TVIP in particular. Also, for some of the children at different time points the raw scores on the TVIP were too low to calculate a standardized score, so they were excluded time-point by time-point. The number of children in the sample for calculating the standard scores on the TVIP ranged from 27 at T6 to 42 at T3. See Table 3-1 and Table 3-2 for descriptive statistics of the raw and standard scores for both the TVIP and PPVT-III.

Table 3-1

Descriptive statistics for TVIP raw and standard scores

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

Table 3-2

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

Because standardized tests were comparing the children to monolingual peers, it was of interest to see how the children performed in comparison to each other. A bivariate display of test scores from the fall of the first year of Head Start (T1) was developed which plotted the TVIP

raw scores against the PPVT-III raw scores. A median split produced four quadrants based on their Spanish and English performance displaying the following categories: (1) high English and high Spanish (HE-HS) (2) high English and low Spanish (HE-LS) (3) low English and high Spanish (LE-HS) (4) low English and low Spanish abilities (LE-LS). The median TVIP raw score was 4.0 and the median PPVT-III raw score was 15.0 (see Figure 3-1). In order to examine the trajectories, a similar bivariate display was created using the raw scores from the TVIP and the PPVT-III at T6, the spring of kindergarten. Again, a median split produced the same four quadrants as explained previously, as shown in Figure 3-2. At this time the median TVIP raw score was 26.0 and the median PPVT-III raw score was 68.0. For both analyses, if children fell on the median line, they were placed in the higher quadrant.

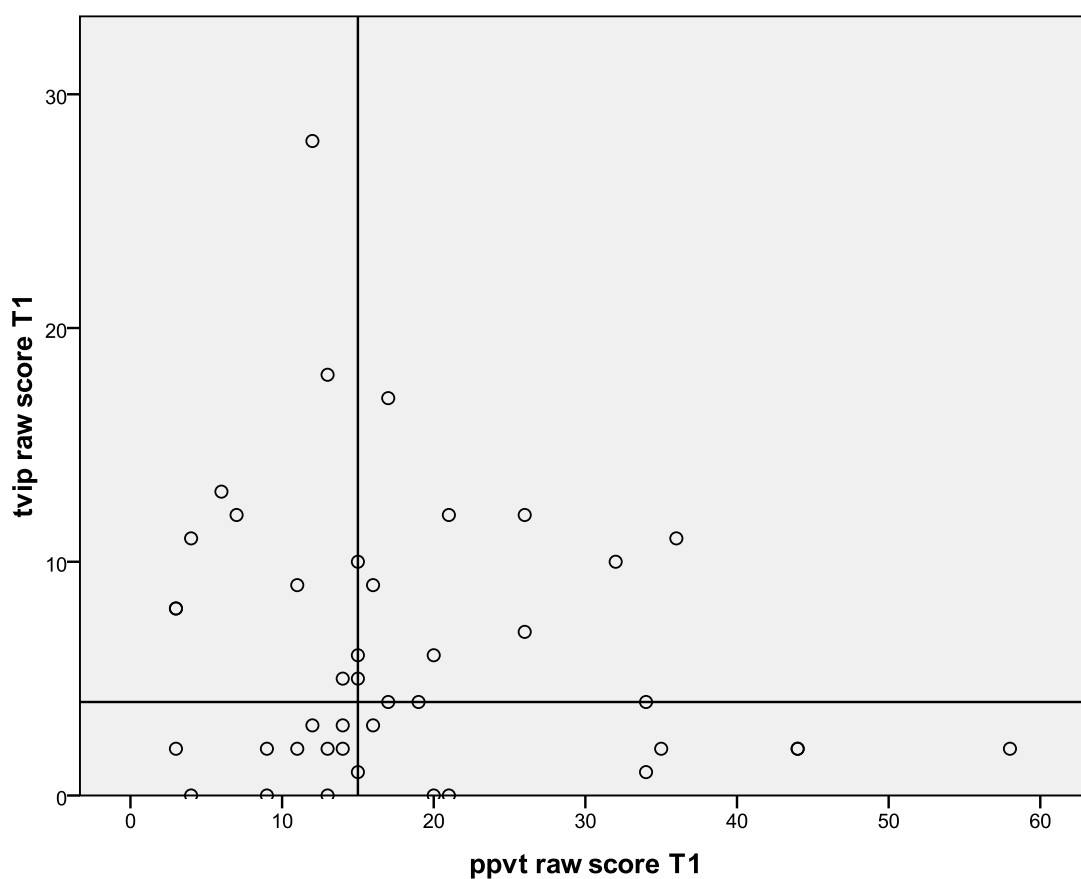


Figure 3-1. Raw scores of the TVIP compared to the PPVT-III at time 1.

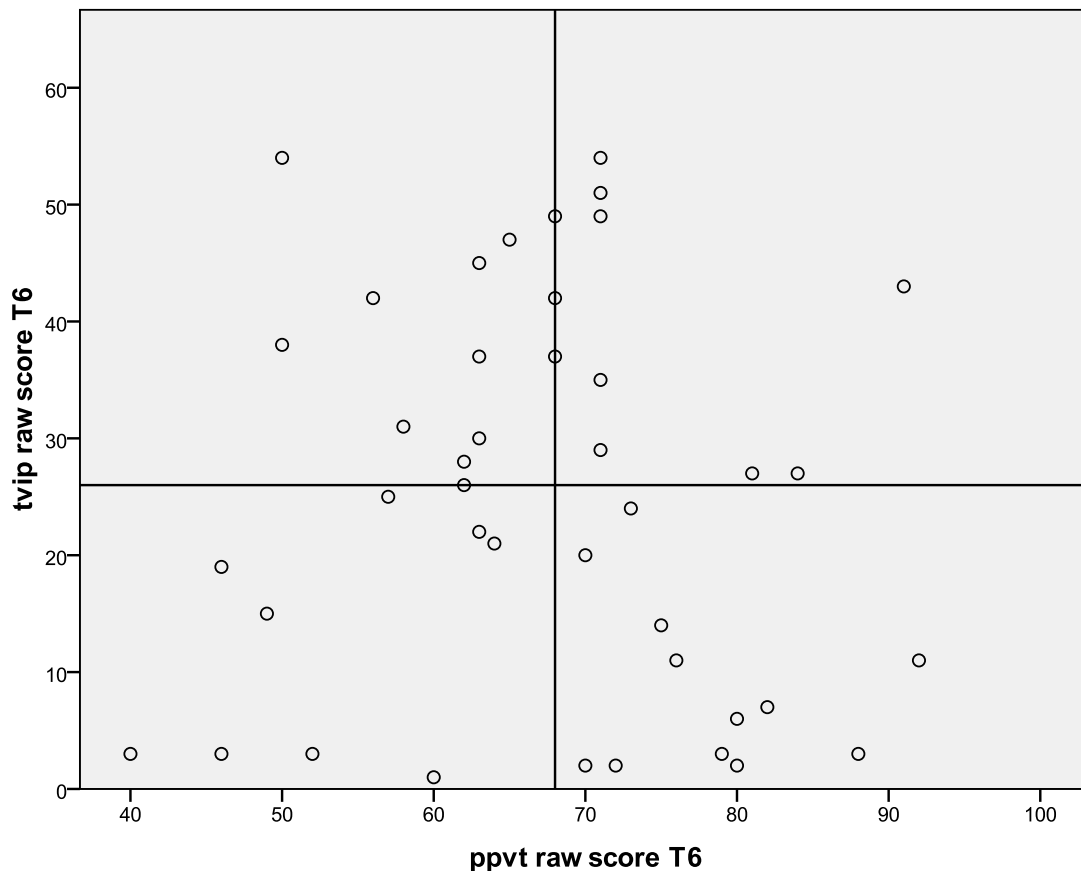


Figure 3-2. Raw scores of the TVIP compared to the PPVT-III at time 6.

Table 3-3 displays the change in children's Spanish and English raw vocabulary scores from T1 to T6. The children's trajectories displayed variation, and there was no single overall pattern that prevailed. For the children in the HE-HS group at T1, most ended in the LE-HS group, and no child in the HE-HS group at T1 ended in the LE-LS group at T6. Most children who at T1 were in the HE-LS group ended in the HE-LS group as well at T6, and none of them ended in the LE-HS group. Most children in the LE-HS group at T1 were in the HE-HS group at T6, and none of the children ended in the HE-LS group. Most children in the LE-LS group at T1 remained in that group at T6.

Table 3-3

Change in children's Spanish and English raw vocabulary scores from time 1 to time 6

		Time 6			
		High E, High S	High E, Low S	Low E, High S	Low E, Low S
Time 1	High E, High S	3	4	7	0
	High E, Low S	2	6	0	1
	Low E, High S	5	0	1	3
	Low E, Low S	1	2	2	5

Note. Time 1 is the beginning of the first year of Head Start. Time 6 is the Spring of kindergarten.

Spanish vocabulary is measured by the TVIP and English vocabulary is measured by the PPVT-III.

Since no distinct patterns were found when examining receptive vocabulary developmental trajectories considering both Spanish and English abilities, it was of interest to see if a general trend could be identified when looking at Spanish and English abilities separately. A chi square for the pattern of Spanish abilities over time, as shown in Table 3-4, revealed that the pattern significantly differed from chance ($\chi^2=7.79$, $p=.0053$, $df=1$). Most children who at T1 were in the high Spanish (HS) group remained in the HS group at T6, and those who were in the low Spanish (LS) group remained in the LS group at T6. A chi square was performed to assess the pattern of English abilities over time, as shown in Table 3-5, and the pattern did not significantly differ from chance ($\chi^2=2.24$, $p=.134$, $df=1$). However, visual inspection did suggest a small difference. In general, those who started in the high English (HE) group remained in that category at T6, and children in the low English (LE) quadrant remained in the LE quadrant at T6.

Table 3-4

Spanish abilities over time

		T6	
		HS	LS
T1	HS	16	7
	LS	5	14

Table 3-5

English abilities over time

		T6	
		HE	LE
T1	HE	15	8
	LE	8	11

Demographic variables

The general trend was for the children to maintain either high or low abilities in Spanish and English relative to their peers. These findings established four groups for consideration: children who maintained higher abilities in Spanish from T1 to T6 (HS/HS), lower abilities in Spanish from T1 to T6 (LS/LS), higher abilities in English from T1 to T6 (HE/HE), and lower abilities in English (LE/LE) from T1 to T6. For these four groups of children demographic variables (bilingual status, depression, gender, presence of siblings, parental education, father living with family, adult to adult language use, and parent to child language use) were examined to determine if any factor differentiated one of those groups from the general trends of the entire

sample. The remaining conclusions were drawn from visual inspection of the data and no further statistical analyses were done.

Table 3-6 shows that the majority of children who remained in the LS/LS group were HEC, and in the HE/HE group there was a ratio of 2:1 for HEC versus SEC. Table 3-7 shows that, overall, there was a fairly even balance between children whose mothers were experiencing depression at T1 and those whose mothers were not. However, more than half of the mothers of children in the HE/HE group were experiencing depression at T1. The majority of the HS/HS group consisted of females (a ratio of 3:1), and there was a slight majority of males for the LS/LS and HE/HE groups, see Table 3-8. Most of the children had 2 or fewer siblings, see Table 3-9, and the amount of older and younger siblings did not vary significantly among the groups. Additionally, the majority of people in the entire sample had mothers and fathers who completed 12 years or less of education, and all the subgroups followed that trend. Table 3-10 shows how many of the children's fathers lived in the home. Overall, slightly more fathers were reported to live with the family, except for children in the HE/HE group. Table 3-11 table shows the distribution of adult to adult language use in the home. None of the mothers in the HS/HS group answered that all English or more English than Spanish was used in the home. Only 2 of the mothers in the LS/LS group answered that more or all Spanish was used in adult to adult conversation. Table 3-12 shows the distribution of parent to child language use. No mothers in the HS/HS group answered that all English or more English than Spanish was used in the home. Only one mother in the LS/LS group answered that Spanish was used more than English, and none reported that communication was all in Spanish.

Table 3-6

Bilingual status: Home English communication (HEC) versus school English communication (SEC)

	N=42	Spanish time 1 and time 6		English time 1 and time 6	
		HS _{T1} /HS _{t6}	LS _{T1} /LS _{t6}	HE _{T1} /HE _{t6}	LE _{T1} /LE _{t6}
HEC	24	7	13	10	5
SEC	18	9	1	5	6

Table 3-7

Frequency of maternal depression during year 1 of Head Start

	N=42	Spanish time 1 and time 6		English time 1 and time 6	
		HS _{T1} /HS _{t6}	LS _{T1} /LS _{t6}	HE _{T1} /HE _{t6}	LE _{T1} /LE _{t6}
No	19	8	5	4	5
Yes	20	7	8	11	4
Missing	3	1	1	0	2

Table 3-8

Gender by group

	N=42	Spanish time 1 and time 6		English time 1 and time 6	
		HS _{T1} /HS _{t6}	LS _{T1} /LS _{t6}	HE _{T1} /HE _{t6}	LE _{T1} /LE _{t6}
Male	20	4	9	9	5
Female	22	12	5	6	6

Table 3-9

The total number of siblings during year 1 of Head Start

	N=42	Spanish time 1 and time 6		English time 1 and time 6	
		HS _{T1} /HS _{t6}	LS _{T1} /LS _{t6}	HE _{T1} /HE _{t6}	LE _{T1} /LE _{t6}
0-2	27	10	10	10	7
3-5	14	6	3	4	4
Missing	1	0	1	1	0

Table 3-10

Frequency of father living with the family during year 1 of Head Start

	N=42	Spanish time 1 and time 6		English time 1 and time 6	
		HS _{T1} /HS _{t6}	LS _{T1} /LS _{t6}	HE _{T1} /HE _{t6}	LE _{T1} /LE _{t6}
No	17	7	6	9	3
Yes	24	9	8	5	8
Missing	16	0	0	1	0

Table 3-11

Language used to communicate between adults in the home

	Spanish time 1 and time 6			English time 1 and time 6	
	N=42	HS _{T1} /HS _{t6}	LS _{T1} /LS _{t6}	HE _{T1} /HE _{t6}	LE _{T1} /LE _{t6}
All English	6	0	3	4	2
More English	4	0	4	3	0
Equal	11	6	4	3	2
More Spanish	5	3	0	1	2
All Spanish	15	7	2	3	5
Missing	1	0	1	1	0

Table 3-12

Language used by mothers to communicate with their child

	Spanish time 1 and time 6			English time 1 and time 6	
	N=42	HS _{T1} /HS _{t6}	LS _{T1} /LS _{t6}	HE _{T1} /HE _{t6}	LE _{T1} /LE _{t6}
All English	4	0	3	2	2
More English	6	0	6	4	1
Equal	12	6	2	3	2
More Spanish	4	2	1	1	2
All Spanish	12	7	0	3	3
Missing	4	1	2	2	1

Chapter 4

Discussion

Receptive vocabulary development

The first purpose of this study was to examine the receptive vocabulary developmental trajectories of Spanish-English bilingual children from their first year of Head Start to the end of kindergarten. It was predicted that that by the end of kindergarten children's TVIP raw scores on average would have increased from their first year in Head Start and that the average standardized score would have decreased. The predicted trend for the raw scores held true. It shows that the children's Spanish receptive vocabulary had grown over the three years even with intense English instruction in school.

The average standardized test score on the TVIP remained steady instead of decreasing which indicates that the children's receptive vocabulary development was growing at a steady rate in comparison to monolingual Spanish-speaking peers. On the other hand, this does not mean that their receptive vocabulary was at the level of normative sample because the average score was more than 1 standard deviation from the mean. Of course, an accurate picture of average standardized scores may not have been presented. Some of the children's raw scores were too low to be converted into standard scores because some of the children taking the test were at the lower age limit of the test. It appears then that the TVIP is not very sensitive to the receptive vocabulary skills of the children at the younger end of their age range (Hammer et al., 2008). And in fact, if these scores would have been included, the general trend may have been for the standardized test scores to decrease.

It was also predicted that the children's PPVT-III raw scores on average would have increased from test time 1 and that the average standardized score would have increased due to their English-immersion pre-school and kindergarten experience. These predictions held true. Since the children's scores were within 1 standard deviation of the mean, it would indicate that on average the children were catching up to the receptive vocabulary skill of their monolingual English-speaking peers.

The children's trajectories displayed variation, and there was no single overall pattern that prevailed. This is in keeping with the statement that bilingual children are a heterogeneous group, and even though all the children were considered to be Spanish-English bilinguals in the beginning of kindergarten and were placed in an English-immersion preschool and kindergarten setting, their receptive vocabulary abilities in Spanish and English did not follow the same path.

It was unexpected that the most prevalent pattern for the children in the HE-HS group at time 1 was to end up in the LE-HS group at time 6 because of the large amount of English input they received during school. Although they still showed improvement in their receptive English vocabulary knowledge over time, they fell below the median of the sample's raw scores. This could be due to the nature of the test. The PPVT-III is a test that looks at breadth of knowledge of vocabulary, and this is highly dependent upon individual experience (Kohnert & Bates, 2002). If the words tested on the PPVT-III were not something that the children encountered in school, then perhaps they only knew the equivalents in Spanish. Umbel & Oller (2001) also mentioned that these tests may be underestimating a child's receptive vocabulary knowledge since many bilingual children know words without knowing their translations in the other language.

Most children who at time 1 were in the HE-LS group ended in the HE-LS group as well at time 6, and none of them ended in the LE-HS group. This pattern is logical since the children were not receiving any support in Spanish during school, and they maintained their high receptive vocabulary knowledge when compared to the sample because they were receiving English

instruction in school. Following that same reasoning most children in the LE-HS group at time 1 were in the HE-HS group at time 6, and none of the children ended in the HE-LS group.

Factors affecting language trajectories

The previous analyses explained the receptive vocabulary developmental trajectories when considering Spanish and English abilities together at the beginning of Head Start and the end of kindergarten. However, in order to examine factors that could cause individual differences, Spanish and English abilities were considered separately. Since the most prevalent trend was for children to remain in the high or low categories of English or Spanish abilities from time 1 to time 6, there were four groups that were compared to each other and the entire sample: high Spanish T1-high Spanish T6 (HS/HS), low Spanish T1-Low Spanish T6 (LS/LS), high English T1-high English T6 (HE/HE), and low English T1-low English T6 (LE/LE).

It was expected that rates of maternal depression would be lower for children who were displaying higher abilities in either language relative to the sample. For the mothers of the children in the HS/HS group, there was a fairly even split, and more than half of the mothers in the HE/HE group said that they were experiencing depression at time 1. Although maternal depression is normally associated with poorer outcomes, Hammer et al. (2004) states that the negative effects of maternal depression can be offset with social support which may be the experience of the mothers of the children in the HE/HE group. Additionally, these children were receiving formal instruction in English during school hours which could have offset the effects of their mother's depression.

Prior to this study, it was unclear what effect gender would have on the receptive vocabulary knowledge for these children. However, it was found that there was a ratio of 3:1 girls to boys in the HS/HS group. This finding matched the research by Portes & Rumbaut (2001)

which stated that girls had a higher chance of becoming bilingual and maintaining their first language than boys. More studies need to be done to determine exactly what role gender truly plays, if any.

For children with lower Spanish abilities, it was predicted that they would have more younger siblings since this was identified as a factor of L1 loss (Anderson, 2004). This was not the case for the subgroup with low Spanish receptive vocabulary knowledge relative to the sample at both time 1 and time 6. A different pattern may have been identified if children who had low Spanish receptive vocabulary knowledge at time 1 or time 6 were considered.

The factor of parental education did not seem to affect the outcomes in either language. This could be due to the fact that all the children came from families that qualified financially for Head Start services, and normally low SES is associated with a lower status job because of a lack of education (Umbel & Oller, 2001). Umbel & Oller's (2001) study also found that neither mother's educational level nor parental occupational level predicted children's vocabulary performance in their study. They concluded that this may have been due to the homogeneity of their sample. Although their sample was from mostly mid-SES backgrounds, the sample from the current study was generally from low-SES backgrounds.

It was expected that children whose fathers lived with the family would have higher language abilities since this could provide the children with another language model and perhaps more familial stability. The subgroups were fairly balanced on this variable. For the majority of the HE/HE group, the father was reported not to live in the home. It could be that simply the presence of the father in the home does not affect language abilities as much as knowledge of the kind of input received from the father. For this study the monolingual or bilingual status of the father was not considered.

Bilingual status of the child, adult to adult language use, and parent to child language use all appeared to be related to language input. When considering factors of bilingual status, adult to

adult language use in the home, and parent to child language use, it was predicted then that children who received more input in Spanish would display higher abilities in Spanish and the same pattern would be seen for English abilities. In general, this prediction was supported. In further studies of this sample, it would be of interest to see how input in one language affects the abilities of the other language.

Limitations of the study

This study had certain limitations which should be addressed. One, because children had to have scores at every test time point between the beginning of Head Start to the end of kindergarten, the study had a small sample. Findings that were found to be insignificant may become significant in a larger sample. Two, the sample only consisted of mothers and children who spoke a Puerto Rican dialect of Spanish. It is possible that a child who speaks a different dialect of Spanish would have performed differently on the TVIP and PPVT-III. Three, this study was only looking at trajectories over a three-year period. Other receptive vocabulary developmental trajectories may arise if the time period was extended.

Implications for assessment

Conclusions from this study

Two main conclusions can be drawn from this study. One, bilingual children are indeed a heterogeneous group. Even children who appear to have similar language abilities do not always follow the same developmental trajectory. Many extraneous variables affect language development and may not affect every child in the same way. Although some general conclusions

can be drawn, it is important to keep in mind that every bilingual child is unique. Two, language input, including timing, amount, and type of input, directly impacts children's language abilities. Therefore a bilingual child, even if he is said to have a "dominant" language, should always be tested in both languages (Peña & Kester, 2004). Both of these conclusions highlight two of the obstacles that stand in the way of developing standardized language tests normed on a Spanish-English bilingual population and a few of the major problems with using standardized measures normed on monolingual populations.

Bilingual semantic test development

When developing a valid semantic test, factors that add to semantic development in each language and understanding how frequency of occurrence of vocabulary items in each language should be taken into consideration. Peña & Kester (2004) mention that children perform better on certain tasks in one language than the other language. Therefore, when developing an appropriate measure, one should focus less on balancing items by type across the two languages but rather choose items for the information that they can supply when calculating an overall score. These tests could evaluate skills on semantic concepts such as similarities and differences in objects, functions of objects, categorization, physical descriptors, and associations between words (Peña & Kester, 2004). It is equally important when developing tests that evaluate vocabulary knowledge in two languages to consider the degree of difficulty of words in each language. This can be evaluated by identifying the frequency of occurrence of a given word in a language. Since multiple aspects of semantic development vary across languages, clinicians should bear in mind that vocabulary measures that are available in English cannot be directly translated into Spanish to provide an accurate measurement. Additionally, even though a population speaks the same

language, the vocabulary can vary from region to region. Therefore, in Mexico and Puerto Rico, they may use different words to express the same concept.

Problems with standardized tests

Most clinicians know that using standardized measures to assess both written and spoken language skills of bilingual children does not provide a complete profile of the child's abilities. In fact, test-taking by nature of the task is biased towards cultures where children are accustomed to answering test-like questions in out-of-context situations (Laing & Kamhi, 2003). Laing & Kamhi (2003) cite three major problems with using standardized tests for culturally and linguistically diverse populations, content bias, linguistic bias, and disproportionate representation in normative samples. The content of most standardized measures including the test stimuli, methods or procedures assumes that children have been exposed to the same words and concepts and have had comparable experiences. This may not be true for bilingual children. For example, a Spanish-English bilingual child who is considered a simultaneous language learner is more likely to have more vocabulary translation equivalents than a sequential language learner who perhaps is learning two languages in two separate settings (Peña & Kester, 2004). Additionally, when a child answers a question incorrectly, it may not be that they do not understand the concept, but perhaps they are not familiar with how to answer the question. Linguistic bias refers to "a discrepancy between (1) the language or dialect used by the examiner, (2) the language or dialect used by the child, and (3) the language or dialect that is expected in the child's responses" (Laing & Kamhi, 2003, p. 45). In the past normative samples have failed to include children from culturally and linguistically diverse populations although some current tests are working to combat that problem. According to Laing & Kamhi (2003), Pena, Gutierrez-Clellen, and Iglesias are in the

process of developing a standardized test for Hispanic children who are learning English as a second language.

Alternatives to norm-referenced testing

Since most clinicians recognize the shortcomings of norm-referenced tests, criterion-referenced measures are also used (Laing & Kamhi, 2003). Criterion-referenced measures give clinicians the freedom to assess children's abilities on specific skills and in a situation which would eliminate content and linguistic bias. These types of measures are useful for monolingual English speakers because adequate information is known about appropriate and typical language development for these children. Unfortunately, there is not a solid knowledge base about the typical language development of children from culturally and linguistically diverse populations, so the usefulness of this method is limited.

Another way to gather more information about a child's true speech and language abilities is through language samples. These allow the clinician to draw an accurate picture of a child's language abilities because they can be obtained "in natural settings using language, communication partners, and interaction patterns that are familiar to the family and child" (Laing & Kamhi, 2003, p. 46). In general people perform better on tasks when they feel comfortable with the situation and a child who is being tested for speech and language problems is no different (Peña & Kester, 2004). For English-speaking monolinguals, numerous measures have been utilized to evaluate language samples including the number of different words used (NDW), the total number of words (TNW), and the type-token ratio (TTR) which is the number of different words divided by the total number of words. In general, a higher TTR has been associated with higher level semantic skills. Although shortcomings of using the TTR measurement have been identified (see Peña & Kester, 2004 for a detailed explanation), it is still a valuable measurement

to identify general word knowledge, organization, and use. These measures can be used to evaluate semantic complexity in Spanish as well. However, when using these measures with bilingual children, it is important to avoid making comparisons across the two languages because the structures of English and Spanish are so different (Peña & Kester, 2004).

Although a language sample is a valuable tool, it only provides a snapshot of the child's normal language use and communication style. Interviewing family members and/or caregivers can fill in some of the gaps. Westby (1990) emphasizes the importance of using ethnographic interviewing techniques. She highlights the fact that children do not live in a vacuum, and if clinicians hope to help children with disorders, they need to gain an understanding of that family's culture, their values, beliefs, and social interactions. When conducting an interview, especially with a family who shares a different culture than the interviewer and/or speaks English as a second language, it is important to remember that the family's as well as the clinician's culture will affect the interactions and results of the interview.

Westby recommends using a less structured, more fluid interviewing style and outlines three aspects of a good interview to focus on: 1) developing rapport 2) using descriptive questions 3) careful wording of questions. Through developing good rapport the clinician lays the foundation for a trusting relationship. Descriptive questions ask people to describe social interactions so that the clinician can develop a sense of what the family values in their world and how they view their world. These questions can be as broad as, "Tell me about a usual day," to narrow questions such as, "What behaviors does your child exhibit when you say she is being 'disobedient'?" It is good practice to use open-ended instead of closed-ended questions to give the interviewee a chance to express what they wish to convey in their own words. Also, the interviewer should only ask one question at a time, make obvious transitions between topics, and stay in control of the interview.

For the purpose of interviewing parents of bilingual children it is important to gather as much information about the language input their child receives as well as several other factors that have been shown throughout the literature to have an affect on language outcomes such as the factors explored in this study and even those that were not. Although the parents can provide useful information, it also helpful to ask the child questions during assessment about their thought processes or answers. This helps the clinician understand why a child picked a certain answer and why they did not choose other answers. It could be that although the child's answer was incorrect according to the test, the concept was actually understood and the answer valid (Peña & Kester, 2004).

Processing-dependent measures are another option to explore. These measures include “various memory tasks (e.g., digit span, working memory, nonword repetition), certain perceptual tasks (e.g., discrimination of rapidly presented tones, sequencing tones presented in rapid sequence), and competing stimulus tasks (e.g., filtered words, auditory figure ground, competing words) (Laing & Kamhi, 2003, p. 46). These tests might provide a good alternative for bilingual children since they do not rely on shared prior knowledge and experience but rather directly assess language learning processes. Paul (2007) reviewed several studies which all found that children who did not perform well on these types of tasks were likely to have some kind of language learning problem.

Rodekohr and Haynes (2001) conducted a study comparing normally developing children without a language impairment who spoke standard American English (SAE) or African American English (AAE) and children with a language impairment who spoke SAE or AAE. The children were assessed using two different types of processing-dependent measures and one standardized measure. The study concluded that all three measures were able to differentiate those with a language impairment from those without a language impairment. The normally developing AAE-speaking children received comparable scores to the SAE-speaking children on

the processing-dependent measures, but they scored significantly below the SAE-speaking children on the standardized measures. This shows that tests of prior knowledge may not represent the true abilities of children with normally developing language who speak a dialect other than SAE and that processing tasks could prove to be a useful tool for assessment.

Campbell, Dollaghan, Needleman, & Janosky (1997) conducted a similar study which examined performance differences between a group of white (majority) children and a group of African American, Asian, and Native American (minority) children. The findings were in line with the results of Rodekohr & Haynes' (2001) study.

It has been established that processing-dependent measures hold promise for assessing culturally and linguistically children. Another plus of using these tests is that they are relatively quick and easy to administer and many nonword repetition and working memory tests are available in established standardized measures. Paul (2007) provides the *Non-word Repetition Test* from Campbell et al. (1997) and the *Comprehensive Test of Phonological Processing* as two examples.

Another alternative to norm-referenced measures is dynamic assessment. Dynamic assessment comes from the Vygotskian concept of a zone of proximal development. This zone of proximal development shows the difference between the child's current skill level when performed independently and the child's skill level when performed with assistance (Laing & Kamhi, 2003). Once a child's skill level has been identified, then the goal of dynamic assessment is to find the best way to change and mold the context in order to find out what the child is capable of doing with support (Paul, 2007). Therefore, at the end of assessment the clinician does not simply have a score. Instead, the clinician has gathered important information on "how the child approaches tasks, the degree to which the client's behavior is modifiable in response to interventions, and intervention styles and methods that will have the greatest potential to promote change" (Paul, 2007, p. 53). For a review of several studies that have looked at the positive

outcomes of using various approaches to dynamic assessment, test-teach-retest, task/stimulus variability, and graduated prompting, for culturally and linguistically diverse populations see Laing & Kamhi (2003).

Future studies

Currently, there is no single best method to assess a bilingual child. Even though currently available standardized measures do not give a complete view of all Spanish-English bilingual children's speech and language abilities, these tests will still need to be utilized. And until a complete view of typical Spanish-English bilingual language development can be established, clinicians will have to rely on alternative measures to gain an accurate and valid assessment. This study reviewed potential effects that the factors of maternal depression, gender, presence of siblings, parental education, presence of the father in the home, bilingual status, adult to adult language use, and parent to child language use have on bilingual receptive vocabulary development. However, many other factors could affect development. Guiberson et al.(2006) in her discussion of language maintenance and loss suggested that future studies look at child characteristics such as "motivation, language aptitude, learning style, personality" and "parental beliefs about bilingualism, and L1 maintenance; and detailed information about preschool programming, including language of instruction and teacher beliefs about bilingualism" (p. 14). Understanding how all of these factors affect individual differences in bilingual language development will provide speech-language pathologists with one more piece to put together the puzzle of bilingual language assessment

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Thesis

Title: The Role of Initial Spanish-English Receptive Language Proficiency in Bilingual Language Development.
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Work Experience

February 2007-Present
Supervisor, Tele-fundraiser: Maintain administrative paperwork, counsel employees in order to improve their tele-fundraising skills, resolve problems related to prospect maintenance and pledges.
Penn State Lion Line, Office of Annual Giving
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Grant/Fellowship

Schreyer Ambassador Travel Grant, Spring 2009
John W. White Graduate Fellowship, Spring 2010

Awards

Penn State Evan Pugh Scholar Award, Spring 2010
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Penn State President Sparks Award, Spring 2008
Penn State President's Freshman Award, Spring 2007

Community Service Involvement

-IES Ramón De Valle Inclán de Sevilla, English language classroom volunteer, Spring 2009.
-Brookline Assisted Living Facility, recreation volunteer for patients with Alzheimer's disease and dementia, Fall 2009.
The Oaks Assisted Living Facility, recreation volunteer for the elderly, Fall 2006, Spring 2007

International Education

CIEE: Liberal Arts, Seville, Spain, Spring 2009