

## **Bilingual Language Learners**

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### **Who Are Bilingual Language Learners?**

Throughout the world children grow up exposed to two or more languages as a result of multiple factors including immigration, official or unofficial community bilingualism, and exogamous marriage between speakers of different languages. Although exact figures are hard to come by, it has been estimated that half the world's children live in bilingual environments (Grosjean, 1982, 2010). A particular subset of these bilingual language learners is of concern to U.S. policy makers. In the United States, one fourth of children under the age of five years live in households in which a language other than English is spoken (U.S. Census Bureau, 2006), and their numbers are projected to grow in the coming decades (Garcia & Jensen, 2009). These children are of concern because, on average, they fall below norms for monolingual children on measures of English skills when they begin school (Oller & Eilers, 2002), and they underachieve throughout their school years (Garcia, McCardle, & Nixon, 2007).

In the United States, children who are bilingual language learners are, for the most part, children who have one or two immigrant parents. This fact is sometimes surprising to members of the English-speaking majority in the U.S. to whom the large and continued presence of linguistic minorities in many communities projects the appearance of a linguistically-isolated group that speaks the heritage language and passes it on to succeeding generations. To the contrary, however, heritage language maintenance in the U.S. has been described as following the “three-generation rule.” The first generation of immigrants maintains the heritage language—and may learn little English, their children born in the U.S. become bilingual, and the third generation is typically monolingual in English. Where minority language use persists in the U.S., it is supported by continuing immigration (see Eilers, Pearson, & Cobo-Lewis, 2006).

These children of immigrant parents who constitute the population of bilingual language learners in the U.S. are disproportionately poor. The poverty rate for children in immigrant families is 21 percent, compared to 14 percent in native born families (Haskins, Greenberg, & Fremstad, 2004). Thus, while poverty is not an inherent property of bilingual populations, it is statistically the case that many bilingual language learners in the U.S. suffer some degree of economic hardship and, conversely, that dual language exposure is a frequent characteristic of children from families who are poor.

Many of these children who are poor and come from homes in which a language other than English is spoken reach school age with low levels of skill in English. In the U.S., poor English skills at school entry are not easy to overcome. For example, among fourth-grade children in Florida, 92% of those categorized as English Language Learners (ELL) fall below the grade level standards for reading and language arts (Lesaux, Koda, Siegel, & Shanahan, 2006). Some of the children in the ELL category have low levels of skill in English because they are recent immigrants themselves. However, some are U.S.-born children of immigrants (Shatz & Wilkinson, 2010).

In order to support the development of English language skills among children in poverty who are bilingual language learners, it is necessary to understand what is causing those skills to be low. Low English skill levels are not surprising in children who hear very little English at home, but the reason for low English skills among children who do hear English, in addition to another language, is not clear. Many scholars have claimed that the human language acquisition capacity can handle two languages as easily as one and that bilingual children acquire both their languages on the same timetable as monolingual children acquire one (Kovács & Mehler, 2009; Petitto et al., 2001; Petitto & Kovelman, 2003). It could be that what appear to be effects of dual

language exposure among children of immigrants are actually effects of the low income and low parental education levels that are confounded with dual language exposure. Socioeconomic status has a well-established relation to language development (Hart & Risley, 1995; Hoff, 2003, 2006). Or, it could be that even in the immigrant families where the children do hear English, something about the amount or nature of their English language exposure results in low levels of language skill. There is little research addressing these questions, despite the fact that low academic achievement among children of immigrant households is a problem in many places in the world (see Scheele, Leseman, & Mayo, 2010).

The present chapter presents evidence addressing two basic questions about young bilingual language learners in the U.S.: (1) what are their early language development trajectories? and (2) what are the factors that create variability among bilingual language learners in those trajectories? The answer to the first question should provide policy makers, program designers, and classroom teachers with guidance as to what to expect in the bilingual language learners they are trying to serve. The answer to the second question will inform expectations, and, in addition, will suggest what features of supportive environments might be included in program design.

This chapter focuses on the findings of a recent research program studying children from Spanish-English bilingual homes in South Florida. We focus on children who have been exposed to both languages from birth, in order to investigate the normal course of bilingual development. Thus, the children we study are not like many of the bilingual language learners in school whose first sustained exposure to English comes with school entry. The bilingual language learners we study are also not typical of the bilingual population in that they come from high-SES homes. The Spanish-English bilingual population in South Florida is unlike most

bilingual populations in the U.S. The Spanish speakers are immigrants primarily from South America and the Caribbean. Many are highly educated, with middle class occupations and incomes and, relatedly, they have some degree of proficiency in English. Their children are exposed to Spanish at home because the parents have chosen to do so. This population thus provides a natural experiment in which language development under conditions of dual language exposure can be compared to language development under conditions of monolingual exposure, unconfounded by the socioeconomic status of the families. The results of studying this population should help to untangle the effects of dual language exposure from the effects of SES on language development in the population of low SES, bilingual children whose poor academic outcomes are a public policy concern.

### **Current Views of How Language Development Is Affected By Bilingualism**

Two contradictory views of what normative bilingual development should look like can be found in academic, educational, and lay circles. The dominant view in academic circles until the 1960s was that children who hear and acquire two languages from an early age may be confused by their language experience and may experience delays in cognitive and linguistic development as a result (Genesee & Nicoladis, 2007; Hakuta, 1986). That view still circulates in advice to parents from well-intentioned educators and pediatricians (as described in Baker, 2007; King & Fogle, 2006; Pearson, 2008). It is a source of concern and distress to many immigrant parents who would like their children to learn their heritage language but worry about whether they are doing the right thing in speaking a language other than English to their child.

In many academic circles that older view has been supplanted by the view from the discipline of generative linguistics, which was first articulated and made famous by Noam Chomsky beginning in the 1960s (Chomsky, 1965, 1991). The newer view is that children are

biologically prepared to acquire language, that language development is paced by a genetic blueprint, and that the process of language acquisition is only minimally dependent on language exposure. While their capacity lasts, children can acquire two languages as easily as one (Gleitman & Newport, 1995). This view can also cause concern and distress to parents because they observe (and our findings confirm) that their bilingually-developing children are not acquiring English as rapidly as the children of their monolingual neighbors—and then they worry that there is something wrong with their children.

The scientific literature dispels the view that children are confused by dual language input. To the contrary, children exposed to two languages can distinguish those languages from infancy, and they can learn two phonological systems, two vocabularies, and two grammars (Kovács & Mehler, 2009; Petitto et al., 2001; Petitto & Kovelman, 2003; Werker & Byers-Heinlein, 2008). On the other hand, the literature does not unequivocally support the claim that children exposed to two languages typically acquire them at the same rate as monolingual children learn one. The evidence cited in support of this claim, when it is made, consists of two sorts of findings: (1) that bilingually-developing children reach major milestones of language development on a timetable that is within the normal range of variation for monolingual children (Petitto et al., 2001), and (2) findings of no statistically significant difference between very small samples of monolingual and bilingual children (Pearson, Fernández, & Oller, 1993).

The normal range of variation in the timing of language development, and accordingly, in the language skills that are displayed by children at the same age, is large. The finding that bilingually-developing children proceed at a pace in each language that is within the normal range is not the same as finding no difference (Bialystok & Feng, in press). Recent, larger-scale studies have found that young bilingual children score below monolingual norms on a

standardized instrument in both vocabulary and grammar (Marchman, Fernald, & Hurtado, 2010; Vagh, Pan, & Mancilla-Martínez, 2009), but it is perilous to draw conclusions from much of this research because the bilingual samples tend to be lower SES than the reference groups on which the norms are based. We present here data from our study of bilingually-developing children, which suggest a third possibility: that children can simultaneously acquire two languages without confusion or impediment to the process of learning, but that learning two languages takes longer than learning one.

### **Effects of Dual Language Exposure on Language Development**

#### **Method**

We describe trajectories of bilingual development based on longitudinal data from 47 children (25 boys and 22 girls) exposed to both Spanish and English from birth and 56 children (30 boys and 26 girls) exposed only to English. All families resided in South Florida. All children were born in the U.S. All children were full term and healthy at birth, had normal hearing, and were screened for evidence of communicative delay at 22 months. The bilingual children were required to hear at least 10 percent of their total input in the less-frequently-heard language. All the bilingually-developing children were producing at least some words in both languages at 22 months. On average these families were highly educated, and there was no difference between the bilingual and monolingual households in the parents' levels of education. Among parents in bilingual households, 87% of mothers and 60% of fathers had at least a college (four-year) degree; among parents in monolingual households, 75% of mothers and 61% of fathers had at least a college (four-year) degree.

The measures of the children's English and Spanish development came from the widely-used MacArthur-Bates communicative development inventories (Fenson et al., 1993; Jackson-

Maldonado et al., 2003). These are caregiver report instruments, with parallel forms available for English and Spanish (and many other languages). The English and Spanish forms, while parallel in structure, were independently developed and normed on monolingual samples. Here we report outcomes on two measures: the raw vocabulary score, which is based on caregivers' reporting on a checklist the words their children were heard to produce, and the mean length of the longest three utterances (MLU3), also reported by caregivers. These analyses are drawn from those reported in Hoff et al. (in press).

## Results

The first finding we present is that these bilingually-developing children were acquiring language knowledge at the same rate as SES-matched monolingual children. Figure 1 plots the development of the monolingual children's English vocabulary scores and the bilingual children's total (English + Spanish) vocabulary scores from 22 to 30 months. Statistical analysis confirmed what is apparent in the figure: there is no difference between the two groups of children. This is consistent with findings from other studies of bilingual children using total vocabulary measures (e.g., Junker & Stockman, 2002; Pearson et al., 1993). To reiterate, when we count all the words on the Spanish and English checklists combined that the bilingual children use in their speech, it is not different from the number of different English words that the monolingual children use in their speech.

The bilingual children's word knowledge, however, was distributed across two languages. Figure 2a repeats the same plot of English vocabulary for the monolingual children and plots the bilingual children's English and Spanish vocabulary scores separately. Again, statistical analysis confirmed what is apparent: a three (Age) x two (Language Group) ANOVA revealed significant main effects of Age and Language Group and a significant Age x Language



Group interaction. The monolingual children had larger English vocabularies than the bilingually-developing children, and those vocabularies grew at a faster rate during this period. Although the measures in English and Spanish are not directly comparable, it is apparent that on average, English was the stronger language among the bilingually-developing children. Thus, the effect of bilingualism seen in this sample is not the result of comparing monolingual English-speaking children to bilingual children who were Spanish-dominant.

The next question we asked was whether the same pattern held for grammatical development. The Chomskyan view of language acquisition would predict that grammatical development should not be affected by bilingualism, even where vocabulary development is. Figure 2b presents data on the children's grammatical development, using the mean length of their longest three utterances as the outcome measure. (There is no obvious way to calculate a total measure across languages, although see Thordardottir [2005] for one suggestion.) The apparent similarity between the pattern of vocabulary development in Figure 2a and grammatical development in Figure 2b was confirmed by statistical analysis. There were significant main effects of Age and Language Group and a significant Age x Language Group interaction.

## **Discussion**

These findings provide a clear answer to the question of whether bilingualism affects the rate at which each language is acquired: it does. These findings do not contradict the findings from earlier studies that bilingual children acquire each language within the normal range of variation for monolingual children (Genesee, 2006; Paradis & Genesee, 1996; Petitto et al., 2001; Petitto & Kovelman, 2003); the normal range of variation in the rate of language development is large (Bialystok, 2001), and the distributions of single-language skill levels in monolingual and bilingual groups overlap. However, these findings contradict the assertion that

the simultaneous acquisition of two languages has no effect on the pace at which each is acquired.

Because these monolingual and bilingual samples were equivalent in terms of parental education levels, the size of the difference between the groups says something about the size of the effect of bilingualism independent of the effect of low SES, which frequently characterizes bilingual samples. Effect sizes were calculated on the data averaged across the three measurement points. Measured in standard deviation units (Cohen's *d*), the size of the effects were .90 for vocabulary and .75 for grammar, which are considered to be moderate to large effects. In terms of percentile scores, the monolinguals and bilinguals as groups differed 21 percentile points on the vocabulary measure and 17 percentile points on length of their longest utterances. Because these children were, on average, more advanced in English than in Spanish the size of the effect of bilingualism on their English language skills provides a conservative estimate of the size of the effect on the acquisition of one language associated with the simultaneous acquisition of another.

Visual inspection of the figures provides another way to gauge the size of the effect of bilingualism. In terms of English vocabulary size, the bilingually developing children at 25 months were at essentially the same level as the monolingual children at 22 months. In terms of MLU of the longest utterances, the bilingual children at 25 months were more advanced than the monolingual children at 22 months. Thus, one could describe these data as showing that the lag associated with bilingualism at this very early stage is less than three months. Thus, while these data show that it takes longer to acquire two languages than one, these data also show that it does not take twice as long—at least to reach the level of monolingual children at two years. The size

of the lag increases with age, however, because the rate of English language development in the monolingual group is faster than the rate of development in the bilingual group.

What causes this lag in the single-language development of bilingual language learners? The finding that the trajectories of total language development were virtually identical suggests that the bilingual children did not suffer in their ability to learn language. The fact that both groups of children came from equivalently high SES homes suggests that the bilingual children did not suffer from inadequate environments. We propose that the lag is caused by the reduced input in each language that must be characteristic of children whose language exposure is divided between two languages. That is, unless children in bilingual environments hear twice as much speech in total as children in monolingual environments, they must hear less of each language. A large body of evidence from the study of monolingual children demonstrates that the rate of language development depends on access to language input (see Hoff, 2006). In addition, previous research on bilingual populations has established that the relative amount of exposure in each language is a strong predictor of children's rates of development (De Houwer, 2009; Gathercole & Thomas, 2009; Hoff et al., in press; Oller & Eilers, 2002; Pearson, Fernández, Lewedeg, & Oller, 1997; Scheele et al., 2010).

### **Effects of the Balance of Dual Language Exposure on Language Development**

Using the present sample, we tested the hypothesis that access to input influences the rate of language development in bilingual language learners by subdividing the group of bilingual children according to the relative amount of English and Spanish they heard and looking for corresponding differences in their rates of English and Spanish development.

### **Method**

We used the estimates of the percent of English and Spanish in children's experience that were provided by their caregivers in interview at the first visit to divide the bilingually-developing children into three groups: a Spanish-dominant exposure group for whom the percent English addressed to them at home was 30% or less ( $n = 15$ ), a balanced exposure group for whom the percent English addressed to them at home was between 50% and 60% ( $n = 14$ ), and an English-dominant exposure group for whom English was 70% or more of their home input ( $n = 18$ ).

## Results

Figures 3a and b present the English vocabulary and MLU3 data for the monolingual children and the three groups of bilingually-developing children. Both vocabulary and grammatical development showed the same pattern of effects: The monolingual children were the most advanced in English, the bilingual learners with English-dominant exposure were next, followed by the children with balanced exposure and Spanish-dominant exposure, in that order. Not surprisingly—given that the size of the groups and the size of the between-group differences were reduced by subcategorizing the children according to balance—not all the between-group comparisons were significant. On both the vocabulary and grammatical measures, the Spanish-dominant group and the balanced input group differed significantly from the monolingual children; the English-dominant input group was not significantly different from the monolingual children. Although the Spanish-dominant input group had the lowest levels of English skill, they were learning some English. We also found, although we do not report these data here, that the English-dominant children were learning some Spanish. Furthermore, correlations calculated between amount of input in each language and the measures of language development showed a significant linear relation (Hoff et al., in press).

## **Discussion**

When we divided the bilingual language learners in our study according to the balance of English and Spanish in their experience, we found differences in their English and Spanish development associated with balance. The nature of these differences was entirely consistent with the argument that that the average difference between monolingual and bilingual children reflected differences in their exposure to English, and, more generally, that the rate of language acquisition is paced by access to language input (Hoff, 2006). The effects of language balance were not consistent with two other views sometimes argued: our data did not support the view that balanced input allows children to acquire two languages at the same pace as monolingual children acquire one, nor did our data support the view that a minimum threshold of input is required for language acquisition to occur. At this early point in language development, there was evidence that even small amounts of language exposure result in language learning. It may well be, however, that in the long run a minority language that is acquired at such a slow rate becomes not very useful, thus little used and little heard. As English becomes increasingly dominant, Spanish may stop developing and may even decline. Other studies of older children are suggestive of such a process (Jia & Aaronson, 2003; Kohnert, 2004).

### **Effects of Properties of Dual Language Exposure on Language Development**

Bilingual environments vary not only in the relative amount of exposure to each language they provide children, but also in properties of that language exposure. Some of these variable properties are the same as in monolingual experience: children differ in how much speech they hear in each language, in the contingency of that speech on their own actions or utterances, in the richness of the vocabulary used, and in the complexity and variety of the syntactic structures used. There are other variable properties more relevant to bilingual experience. For some

children in bilingual environments, the two languages they hear are quite separated in their experience; other children frequently experience both languages from the same people and even within the same conversation (De Houwer, 2009; Pearson, 2008). Some, but not all children exposed to two languages may hear one or both of their languages from a restricted number of different people, and children in bilingual environments may hear their languages from both native and nonnative speakers to varying degrees (Fernald, 2006). These differences in children's bilingual environments are all potential sources of variability in the rate at which children exposed to two languages acquire those languages. We examined the relation of three of these properties of bilingual language experience to the children's bilingual development. We focus here on the findings of effects on English, employing the same two outcome measures: vocabulary scores and maximum utterance length (MLU3); other analyses are reported in Place and Hoff (in press).

**Method** These analyses made use of Language Diary data recorded by 29 of the caregivers of bilingually-developing children (12 boys and 17 girls) when their children were 25 months old. Following a protocol developed by De Houwer and Bornstein (2003), the caregivers kept a log of their children's language exposure for each day of the week, recorded one day for each of seven weeks. The caregivers recorded for each 30-minute period that the child was awake, the language(s) used during that time period, the person or persons who interacted with the child, and the ongoing activity (e.g., mealtime, bedtime). From these detailed records we calculated measures of the children's relative exposure to English and Spanish (measured as the percent of 30-minute periods in which the child heard only English or only Spanish), and the children's exposure to mixed input (measured as the number of 30-minute periods in which both English and Spanish were addressed to the child). We also counted for each child, the number of

different speakers who addressed the child in each language and the percent of input in each language that was provided by native speakers of that language.

## **Results**

We replicated our finding that the relative amount of exposure to each language predicted development in each language, which we had also obtained on the full sample using caregiver-report estimates of language exposure. Using the language diary data we found that the percent of 30-minute time periods in which the children were exposed to English alone accounted for 39% of the variance in English vocabulary scores and 27% of the variance in maximum utterance length. We also found that the separation of the two languages in children's experience was unrelated to their development of either English or Spanish. The number of different speakers who were sources of English exposure and the percent of English exposure that was provided by native English speakers were also both positive predictors of children's English vocabulary, over and above the effects of the amount of English input. Together these measures of the amount and properties of English exposure accounted for 54% of the variance in English vocabulary. There were no significant effects of the properties of input on the measure of grammatical development. The null effects with respect to grammar may reflect a lesser sensitivity of grammatical development to properties of input—as other findings suggest (Hoff, 2006). They may also reflect a lack of sensitivity in the measure we employed.

## **Discussion**

Our more detailed look at properties of dual language exposure and their effects on bilingual development revealed that English vocabulary development is supported when children have access to multiple speakers of English and when their English exposure is provided by

native speakers of English. We found no evidence that separation of the languages in input benefitted acquisition.

### **Effects of Family Constellation on Dual Language Exposure and Language Development**

Most of the bilingually-developing children in our sample had at least one parent who was a native speaker of Spanish, but for some it was the mother who was the native Spanish speaker and for others it was the father. And for many children, both parents were native Spanish speakers. We asked how these family constellation variables were related to the balance of English to Spanish in the children's language exposure and to the children's English and Spanish language development. There is some evidence in previous studies that when both parents are native speakers of the heritage language, children hear it more and acquire it better than when only one parent is a native speaker (Alba, Logan, Lutz, & Stults, 2002; De Houwer, 2007).

### **Method**

We compared three family types: those with a native Spanish-speaking mother and native English-speaking father, a native Spanish-speaking father and native English-speaking mother, and two native Spanish-speaking parents. These three constellations accounted for 25 of 29 families who provided diary data. (In 3 of the other households the Spanish-speaking parent described him or herself as a native bilingual, and in 1 household both parents were native speakers of English who spoke some Spanish and they employed a Spanish-speaking nanny.) The outcomes were the measures of language exposure calculated from the diary data and the raw vocabulary and MLU3 measures of the children's vocabulary and grammatical development based on the MacArthur inventories.

### **Results**



Figure 4 plots the percent of the children's language exposure that was in English-only, Spanish-only, or English and Spanish blocks. English was the more-frequently heard language for the children with one native English-speaking parent—either the mother or the father, and Spanish was the more-frequently heard language for the children with two native Spanish-speaking parents. Another difference among these different types of families is in where and from whom the children received their exposure to English. Children with a native English-speaking mother heard 66% of their English from native speakers. Children with a native Spanish-speaking mother and native English-speaking father heard only 28% of their English from native speakers. For children with two native Spanish-speaking parents, only 12% of the speech addressed to them in English that could be coded for native speaker status came from native English speakers.

Figures 5a and b plot the children's raw vocabulary scores and their MLU3 in English and Spanish by family constellation. There was a significant effect of family constellation on both measures of English; there was no significant effect on Spanish. The bilingual language learners who had a native English-speaking mother were more advanced in English vocabulary and grammar than the bilingual language learners who had two native Spanish speaking parents.

## **Discussion**

Our data say something about the heterogeneity that characterizes bilingual environments and the language skills of children who are bilingual language learners. The constellation of native languages in children's homes affects how much each language is used in the home and also affects how much of the English that children hear is provided by native English speakers. Both these factors influence language development (Place & Hoff, in press). Other family structure variables that we did not consider also may affect young children's dual language

exposure and bilingual development. In our sample, there were very few grandparents living in the homes, but where it occurs the presence of a grandparent who is a native—and often more nearly monolingual—speaker of the heritage language will affect use of that language. In other analyses, we also have looked at the effect of older siblings in bilingual households (Bridges & Hoff, 2010). We have found that the presence of other children who attend English-language schools results in more English being used in the home, and in more rapid English development and less rapid Spanish language development, as have Duursma et al. (2007). Interestingly, toddlers' exposure to English is increased by the presence of an older sibling both because the older sibling speaks English to the toddler and also because mothers who have older, school-aged children in addition to a toddler use English more—even with the toddler. The older child's school attendance moves the household to a more English-dominant pattern of language use (Bridges & Hoff, 2010).

### **What Do Bilingual Language Learners Need From Infant/Toddler Programs?**

Infants and toddlers who are bilingual language learners have the same need for developmentally-appropriate, cognitively-stimulating experiences as other infants and toddlers. Gauging what is developmentally appropriate may be particularly challenging in the case of bilingual language learners. Adults who are used to interacting with monolingual children may unconsciously estimate children's conceptual understandings and intellectual abilities on the basis of their expressive language skills. However, when children are learning two languages simultaneously, their skill levels in each one of those languages are not the same indicator of their cognitive level and ability as they would be in monolingual children. Bilingual language learners will have smaller vocabularies and less complex grammar in their languages than monolingual children of the same age, but they are not different on nonverbal cognitive

measures, nor do they differ in their conceptual repertoires (see Scheele et al., 2010). It is a challenge to program providers to gear programs to the set of cognitive and linguistics skills that bilingual language learners present.

Like other children from families who are poor, bilingual language learners from low SES households are likely to need extra support for the development of oral language and literacy skills. The literature on the relation of language experience to language development in monolingual children provides guidance with respect to what properties of language exposure are supportive, and there is every reason to think that these equally apply to bilingual language learners (Scheele et al., 2010). Children benefit from input that is used in one-to-one conversation with an adult that engages their attention, that uses a wide range of vocabulary—including rare words, that is grammatically complex, and that uses a variety of grammatical structures (Hoff, 2006; Huttenlocher, Waterfall, Vasilyeva, Vevea, & Hedges, 2010). There is also a literature on teachers' language use in classrooms, and its relation to children's language development (Dickinson, McCabe, & Essex, 2006; Hoff, 2006; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002). The evidence here is consistent with findings on home language use: lexically rich and syntactically complex speech used in meaningful contexts supports language acquisition.

One finding from our studies which may also be relevant to infant/toddler programs is the value of language input from native speakers. We do not know what makes input from native speakers more supportive of language development than nonnative input. Research in progress is addressing that question. We do know that it is often the case that native Spanish speakers talk to their children in English because they have been told by well-intentioned teachers, pediatricians, and others that they should—so that their children will learn English. As a result,

some parents who are not highly proficient in English are nonetheless addressing their children in English. Although it may seem that high levels of proficiency ought not to be necessary for talking to small children, it may well be that the richness of vocabulary and the complexity and variety of syntax that support language acquisition in young children are affected when adults use a language in which they have modest proficiency. Pending the results of future research, it seems warranted to suggest that it is important for children's English language development that they hear English produced by speakers who are proficient English speakers. Just what level of proficiency is required to provide children with input as rich and supportive of language development as that provided by native speakers is a question for future research.

A last question for infant/toddler programs is whether they should try to support children's development in their heritage language. In many cases, this is simply not feasible. Children may come from many different heritage language backgrounds, and it may be impossible to provide input in those languages in the classroom. For Spanish it is not impossible. Spanish is the highest frequency heritage language in the U.S., and the low rates of academic success among Hispanic children are a cause for serious concern (Garcia & Jensen, 2009; Haskins et al., 2004). There are reasons to think that supporting bilingual children's Spanish skills in infant/toddler programs might benefit their English literacy and academic skills in the long run. Literacy skills acquired in one language transfer to another language—particularly if both languages share the same alphabet, as English and Spanish do (Oller & Jarmulowicz, 2007). Further, children in immigrant homes who are able to speak the heritage language enjoy better family relationships and their attendant socioemotional and academic benefits (Tseng & Fuligni, 2000). Finally, there is the argument that bilingualism itself is a desired developmental outcome. There are cognitive benefits associated with bilingualism at the

individual level (e.g. Bialystok & Feng, in press), and a bilingual workforce is an economic asset to the nation. When a second language is learned after early childhood and learned through classroom instruction, it is not learned as well as when it is acquired earlier (e.g., Abrahamsson & Hyltenstam, 2009). Children who come from homes in which a language other than English is spoken have the opportunity to become proficient bilinguals. It needs to be recognized, however, that acquiring two languages is more demanding—even for children—than acquiring one.

### **Summary and Conclusions**

A substantial number of children from families who are poor are bilingual language learners. These children have the same need for enriching infant/toddler programs as other children from families who are poor, and, in addition, they need programs that will support their English language development. Research on the course of early bilingual development can inform the design of such programs. Our research on Spanish-English bilingual toddlers in South Florida has begun to provide a description of bilingual development that should help program providers understand the unique profile of competencies that bilingual language learners present. Our research has also identified factors that can be incorporated into program design in order to promote the development of English language proficiency in bilingual language learners.

Our findings clearly indicate that learning two languages takes longer than learning one. As a result, bilingual language learners typically lag behind monolingual children in their acquisition of vocabulary and grammar when only one language is considered. This does not mean there is anything amiss with the children who are bilingual language learners or that bilingual development causes harm. The bilingual language learners who have lower language

skills than their monolingual age mates are not less advanced in their conceptual knowledge or cognitive abilities. It is a simple fact that children who are learning two things at the same time make slightly slower progress at each, compared to children who are learning only one. Program providers need to be cognizant of the different pattern of language and cognitive skills that they can expect from children who are bilingual language learners.

The results of our research also identify three factors associated with more rapid English language development among children who are bilingual language learners. The first is the quantity of their English language exposure. The more English children hear, the more rapidly they acquire English. We saw no evidence in our data of thresholds. Even 10 percent of exposure in English produced some learning, and the benefit of greater exposure did not asymptote at any point. Additional English exposure provided in the setting of infant/toddler programs that does not reduce the children's heritage language exposure should benefit bilingual language learners' English development without impeding their heritage language development. That is, children can learn more if they are provided more input. There are, no doubt, limits on how much children can process and how fast they can learn, but few children are likely to be pushing those limits.

The English exposure that programs provide to bilingual language learners can also be designed to be maximally supportive. Our results indicate that not all English exposure is equally useful. The second factor we found to influence English language development, over and above the quantity of English exposure, is the number of different speakers from whom the children hear English. Children who hear English from several different people learn English more rapidly than children who have fewer sources. The third factor that was positively associated with English language skill was the percent of children's English exposure that was

provided by native speakers of English. We are currently investigating the differences between native and nonnative child-directed speech, and we do not currently know what is more supportive about language interactions with native speakers. We do conclude from our findings, however, that programs designed to provide language-advancing input to children should include speakers with at least native-like proficiency. We also conclude that the common advice of telling parents with limited English proficiency that they should speak English to their children is probably bad advice (see Hammer et al. [2009] for a similar conclusion).

Although the study of bilingual language learners is a new field and much is still unknown, decades of research on monolingual children have made it clear that the amount and properties of children's language exposure affect their rates of language development. It should not be surprising that the same is true for bilingual language learners. Research on monolingual children has also made it clear that children's language development can be supported by their language experiences in preschool (e.g., Dickinson et al., 2006). For bilingual language learners who may not have sources of native English language exposure at home, infant/toddler programs have an especially important role to play in supporting the development of the language skills they will need to succeed in school.

### **Biographical Information**

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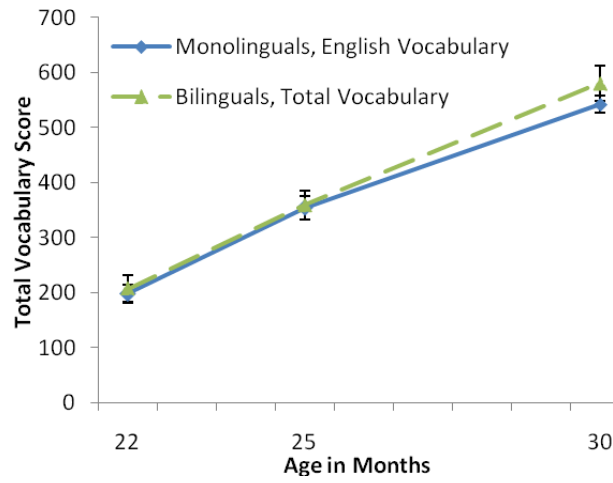
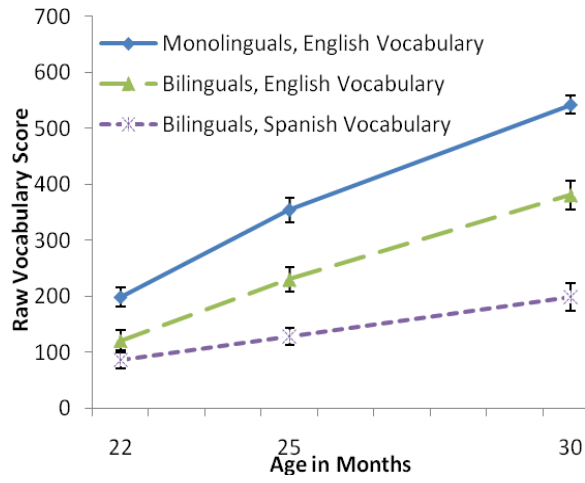


Figure 1. Total vocabulary growth in monolingual and bilingual language learners from 22 to 30 months. (Total for monolinguals = raw English CDI score; total for bilinguals = raw English CDI score + raw Spanish IDHC score)



2a



2b

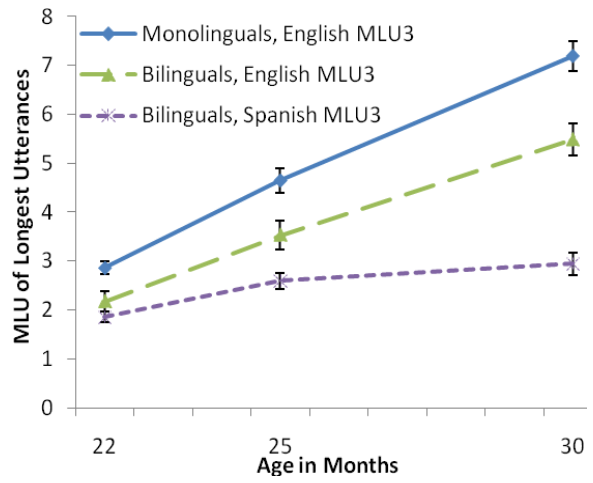
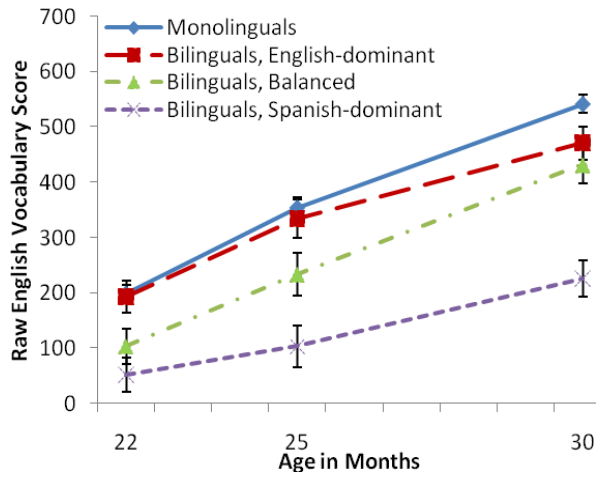


Figure 2. Growth in single language measures of vocabulary (a) and grammatical development (b) for monolingual and bilingual language learners from 22 to 30 months.

3a



3b

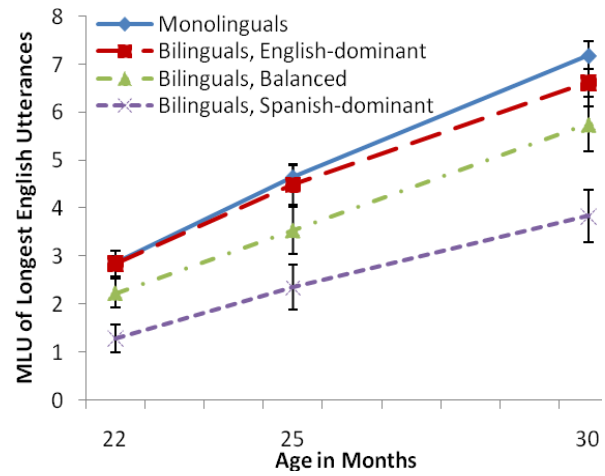


Figure 3. Growth in English vocabulary (a) and grammar (b) for monolingual and bilingual language learners from 22 to 30 months, with bilingual language learners categorized according to language dominance in input. (English dominant = English input greater than or equal to 70%, balanced = English input between 50% and 60%, Spanish dominant = English input less than or equal to 30%.)

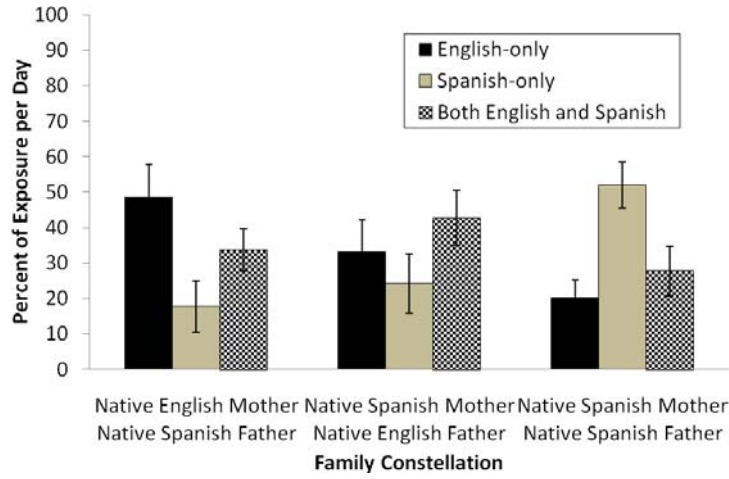


Figure 4. Percent of 30-minute time periods in which 25-month-old bilingual language learners heard only English, only Spanish, or both English and Spanish within the same period, by constellation of parents' native languages.

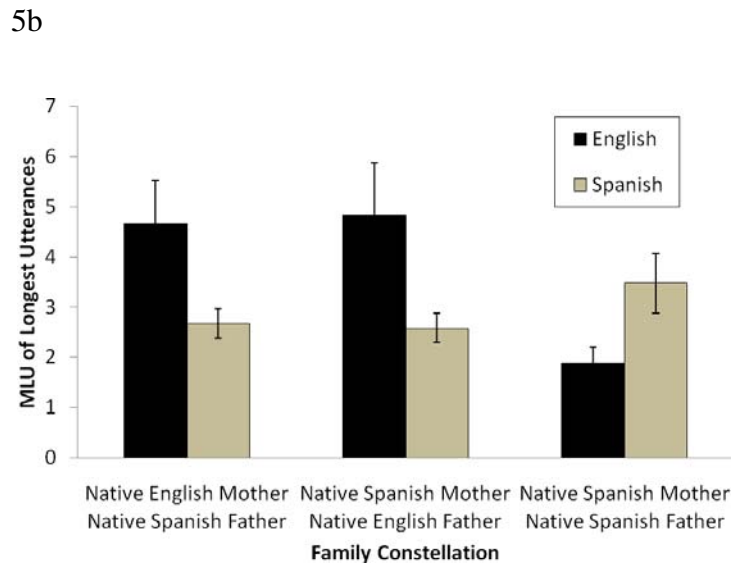
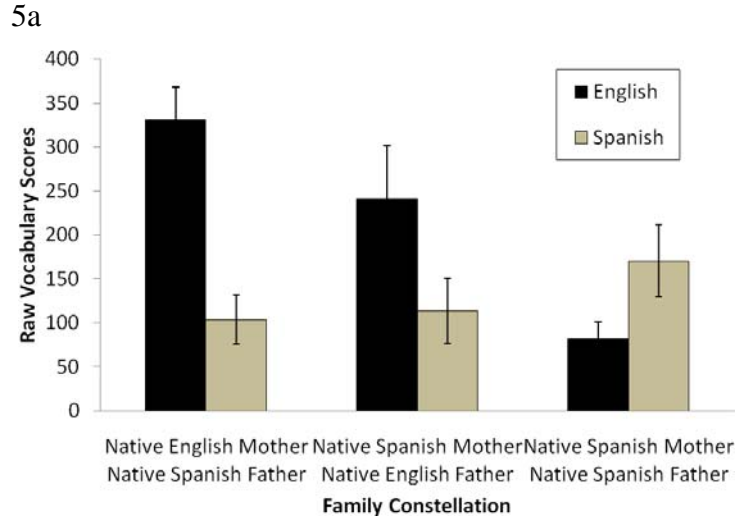


Figure 5. Twenty-five-month-old bilingual language learners' vocabulary (a) and grammatical development (b) in English and Spanish, by constellation of parents' native languages.