
Conceptualizing Variability in U.S. Latino Children’s Dual-Language Development

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Abstract

Approximately 25% of the population of children in the United States comes from Latino families, many of whom are immigrants and speak Spanish in the home, and this number is steadily growing. However, research on dual-language learning Latino children is lacking, especially in the field of language development. In order to move toward a framework of positive development of Latino children, it is important to understand the inter- and intra-individual variability that exists within language development of the DLL population in order to highlight their unique skills and advantages that extend beyond the domain of language. Moreover, a focus on variability can prevent negative biases and help researchers and practitioners better support young DLLs in their early education. Accordingly, this chapter presents two main research questions: 1) What does the early language variability of young Latino DLLs look like? 2) What factors might contribute to this variability?

Historical Overview

Approximately one in four children in the United States is Latino, and the majority of these children (71%) come from immigrant families and live in Spanish-speaking homes (García and Jensen

2009; Zong and Batalova 2015). These children are considered dual-language learners (DLLs): children 0–5 years of age who experience and learn through two distinct languages during a critical developmental period (Castro et al. 2013). Over the last decade, U.S. schools have experienced an enormous increase (105%) in the number of DLLs, 80% of who come from Spanish-speaking homes (Collins et al. 2014). Despite growing numbers, Latino DLLs are understudied and underserved in research and early education (Gutiérrez et al. 2010; Tienda and Haskins 2011). It is critical that empirical research addresses the early development and education of U.S. Latino

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DLLs to better understand the individual and contextual factors that might shape their future academic success. To do so, research must attend to the variability that exists within the U.S. Latino DLL population, as focusing on global categories of “Latino,” “immigrant,” or “DLL” children might obscure important variability in children’s development within and across these groups (Winsler et al. 2014).

Understanding variability is particularly important in moving toward a framework of positive development for young Latino DLLs. The majority of research on Latino DLL development generally compares DLL’s skills to those of monolingual, English-speaking children (Hammer et al. 2014). For example in the domain of language, Spanish-speaking DLL children tend to have fewer words in their vocabularies than do English-speaking monolingual children. Here the focus tends to be on what children are lacking, leading to misinterpretations and biased conclusions about these populations (Cabrera et al. 2013; Castro et al. 2013). However, by focusing on strengths and examining Latino DLL’s vocabulary in both languages combined, their vocabularies are at level-with, if not greater than, their monolingual peers (e.g., Oller and Jarmulowicz 2007; Oller et al. 2007), and although the variability in language development is large, it makes it possible for DLL children to “lag” behind monolinguals yet still fall within the normal range (Bialystok and Feng 2011). In effect, the positive development of U.S. Latino DLL children is often masked by inferences made for Latinos as a group. Research should thus attend to the variability that might not have been examined or identified when comparing children to monolingual, mainstream counterparts. Understanding variability in the language development of Latino DLL children will help researchers and practitioners better support young DLLs by considering a wide range of features that uniquely characterize their development (Castro et al. 2013).

Moreover, understanding the variability and positive development of Latino DLLs will highlight unique skills and advantages beyond the domain of language development. For example,

DLL children vary significantly in the extent to which they are exposed to and use both Spanish (L1) and English (L2). Consistent dual-language exposure and usage trains the brain in a way that heightens the EF system, and thus Latino DLLs are likely to develop more efficient attentional and inhibitory skills as their proficiency in both languages increases (Kroll et al. 2014). In effect, increased multilingual experience leads to a cognitive advantage (Barac et al. 2014), and this advantage serves as a developmental asset that might explain help DLL children’s academic success (Galindo and Fuller 2010).

Accordingly, there is need for research on U.S. Latino DLLs from immigrant families during the *early* years, as DLL children are exposed to varying degrees of each language from birth, and their dual language experiences are associated with the development of various academic, cognitive, and socio-emotional skills (e.g., Barac et al. 2014; Bialystok and Feng 2011). This gap in the knowledge base has created challenges for schools and communities, leaving teachers and policy makers ill-equipped to meet the needs of U.S. Latino DLL children by the time they reach the early school years (Castro et al. 2013). In this chapter, we focus on the language development of U.S. Latino DLLs during infancy, with attention to the variability of children’s language experiences, and how variability shapes children’s language development.

Theoretical Perspectives

Research on the language development of U.S. Latino DLLs requires an ecocultural approach (Bronfenbrenner 1989; Weisner 2002), which focuses on the intersecting, multiple systems in which children are embedded, and the ways children relate to and interact within those systems. We focus on the microsystem of the home setting because the early experiences of Latino DLLs begin in the home and comprise the core social influences within young children’s zone of proximal development (Vygotsky 1978). This approach attends to the values and goals that underlie parenting practices. Immigrant and

Latino parents have high hopes that their children will do well in school, master English, and excel in the future labor market (Ng et al. 2012; Yoshikawa 2011). When asked about the qualities they hope to see in their children, mothers of Dominican and Mexican descent uniformly highlighted the importance of children's learning, achievement, and personal growth (Ng et al. 2012). Many Latino immigrant parents faced extreme hardships to migrate to the United States, and given their low socioeconomic status and levels of formal schooling, educating their children is viewed as a path to children's social and economic mobility (Ng et al. 2012).

The theoretical framework of *developmental cascades* highlights the cumulative effects of early disparities and motivates our focus on language development during the first years of life (Bornstein et al. 2006; Marchman and Fernald 2008; Masten and Cicchetti 2010; Smith and Thelen 2003). According to this theory, emerging skills and experiences during infancy have cascading influences on development across domains and at later points in time. For example, children growing up in a language-rich home environment excel in their vocabulary and language development (e.g., Hart and Risley 1995), which in turn has consequences for language and literacy development years later (e.g., Marchman and Fernald 2008; Snow et al. 1998). Thus, understanding language development from birth through age 4 years is of paramount importance, as children's early skills are rapidly emerging through interactions in their daily settings, allowing them to acquire foundational competencies that will prepare them for later school experiences.

Young children who enter school with the requisite developmental abilities are at an advantage in their ability to learn language-based skills, such as reading, writing, and communicating appropriately, for two main reasons. First, "skills build on skills" such that later achievements rest on foundations that were laid down earlier (e.g., early oral language supports later storytelling; Smith and Thelen 2003). Second, young children "co-construct" their social experiences, such that their skills shape other people's

interactions with them (Sameroff and Fiese 2000). For example, children who display strong language skills elicit responsiveness and stimulation from their parents and teachers, which in turn facilitate the acquisition of new skills (Hoff 2006; Pearson 2007; Tamis-LeMonda et al. 2001). In this regard, young children's social experiences, including their own contributions to interactions with other people, provide a springboard for later learning and school success.

Current Research Questions

Children experience a great deal of variability during early language development (Hoff 2009). Although variability in monolingual children is reasonably well documented, variability in multilingual children is not. Multilingual children display greater variability than do their monolingual counterparts because they typically experience each language in different contexts and with different people throughout the life course (Conboy and Mills 2006; Marchman et al. 2010). Accordingly, two questions frame the current chapter: What does the early language variability of young U.S. Latino DLLs look like? What factors contribute to this variability? To date, these questions remain largely unanswered.

Conceptualizing Variability

Variability of language development in DLL Latino children can be conceptualized in several ways, just as is the case for the language development of children more broadly. First, we consider variability within time, that is, at a specific child age. At the *group level*, substantial differences exist in both the language development and experiences that support skill development of U.S. Latino children from different backgrounds. The adult Latino population varies on income, education, language preference, English proficiency, literacy practices, generational status, and acculturation, thereby creating vastly different home environments for children

(Zong and Batalova 2015). However, focus is typically on low-income, at-risk Latino families, which overlooks the unique cultural factors that may affect the language development of Latino children from more advantaged backgrounds. Information on Latino populations from relatively higher socio-economic strata is lacking, perhaps because they comprise a smaller proportion of the Latino population in the United States. Nonetheless, this omission paints a narrow picture of language development in the population of U.S. Latino DLLs, and also confounds socio-economic status with culture.

We also consider variability within time at the *individual level*. Children vary at any given age in their language skills (Song et al. 2012). For instance, although there tend to be mean level differences favoring high-income children, there exist substantial within-group variations. Even when researchers focus on what is considered to be a “homogenous” group of low-income, first-generation Latino children, such as infants of Mexican immigrants, they find that children’s skills span the full range seen in any other sample.

Third, we consider variability across *developmental time*, including rates of change in children’s language skill growth. For instance, children vary in how many new words they add to their lexicons each month. Rate of language growth is certainly relevant to the U.S. Latino DLLs. In one study, the vocabulary development of low-income Dominican and Mexican children showed substantial variation from 14 months to 2 years (Song et al. 2012), a finding previously observed in children from other ethnic groups (Jackson-Maldonado et al. 2003).

Notably for DLLs, the three forms of heterogeneity—between groups, across individuals, and across developmental time—must be examined in *multiple languages*. That is, Latino DLLs vary in the relative sizes of their Spanish and English vocabularies at any given age. Moreover, Latino DLLs vary in the growth of their English and Spanish across developmental time. Examples of these different forms of variability are presented later in the chapter.

What Factors Contribute to Variability?

Identifying the determinants of language variability is critical to supporting the future academic success of diverse children in the United States. We consider three parent-level variables that might influence variability: (1) parental dual-language input, (2) parents’ generational status and time in the United States, and (3) socioeconomic status. Although there are many more broad contextual factors that influence children’s dual-language development (e.g., experiences with other caregivers), we focus on these three contextual factors to highlight the prevalence of parent-level influences during the first years of life.

Research Measurement and Methodology

In general, it is difficult to directly assess children’s language skills in the laboratory during the first 2 years of life, and thus a variety of methods have been employed by researchers to measure language development in children, including direct assessments of child language as well as information gathered from parents (predominantly mothers). Some researchers have used preferential looking tasks in the laboratory to capture estimates of children’s early language processing and receptive language skills (e.g., Fernald et al. 2008; Hurtado et al. 2014), whereas others often rely on parent-report measures acquire or list of words that children currently use and understand (such as the MacArthur CDI; Fenson et al. 2004). Other types of methods include naturalistic observations of caregiver-child interactions, which provide researchers the opportunity to examine parent and child language use, as well as the temporal features of language inputs and the non-verbal exchanges between children and caregivers. These naturalistic methods are particularly valuable in studies of early child language in social context (Pan et al. 2004), especially when trying to consider sources of variability in children’s language

development. As children increase in their language skills, researchers might turn to standardized assessments to measure children's receptive and expressive skills (Duursma et al. 2008).

However, there are several factors that need to be taken into consideration when assessing the language skills of DLL children. Latino children who speak Spanish and English might not be equally proficient in both languages, and often researchers consider assessing children in their dominant language. In doing so, researchers might miss the full spectrum of children's lexical and grammatical knowledge, and thus many assessments have been translated from English to Spanish, such as the TVIP (Spanish version of the PPVT) and the IDHC (Spanish version of the MacArthur CDI). However, many translated assessments do not show as strong validity reliability as their English counterparts when used with culturally and linguistically diverse samples (Vogel et al. 2008), creating opportunities for measurement error. For this reason, researchers might consider assessments normed with Spanish-English bilingual children, such as the PLS-5 (Zimmerman et al. 2012), which aim to capture children's conceptual language skills rather than the individual lexical and grammatical skills in Spanish and in English. Decisions about language administration should depend on whether researchers want to capture children's lexical and grammatical skills in each language individually, or whether they want to capture children's total conceptual knowledge as a combination of both languages (Barrueco et al. 2012). Nevertheless, the variety of available methods provide valuable information on children's language skills and experiences.

Empirical Findings

We address the first research question by describing what is currently known about the variability in Latino DLL's early language development. Then we turn to a review of the factors found to contribute to these various forms of variability to answer the second research question.

Characterizing Variability in Language Development

As previously discussed, variability in language development for Latino children can be conceptualized in three ways: (1) within time (at the group level and individual level); (2) over developmental time; and (3) across two languages (Spanish and English).

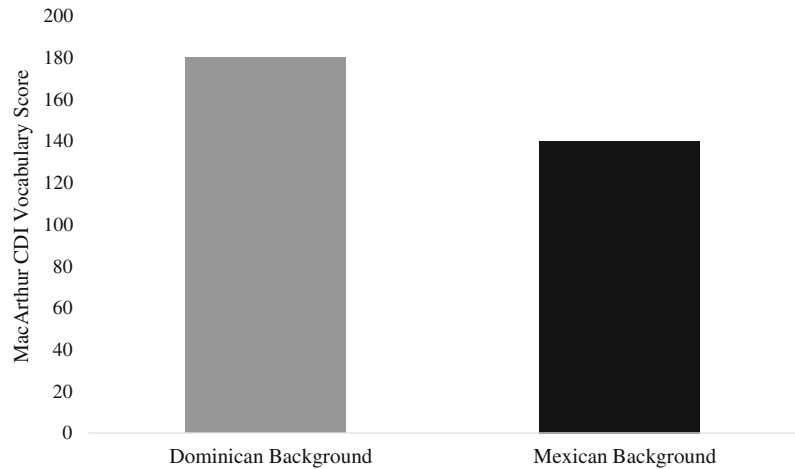
Variability Within Time

Considering variability at one point in time, there exist meaningful between-group differences in children's language skills. Data from our lab show that 2-year old children from low-income Dominican immigrant backgrounds produced more words in both L1 and L2 combined than did children from Mexican immigrant backgrounds. Specifically, the average productive vocabulary size of Dominican children was 178.79 words and the productive vocabulary size of Mexican children was 137.89 words (Fig. 1).

However, a sole emphasis on between-group differences overlooks the enormous within-group heterogeneity that exists. Infants of any given group vary in language skill, such as how many words they can produce or understand. For instance, the vocabularies of the Dominican- and Mexican-heritage 2-year olds were characterized by enormous standard deviations ($SD = 115.70$ and 106.43 , respectively). Thus, Dominican 2-year old children had productive vocabularies that ranged from 2 words to 527 total words (L1 and L2 combined), and Mexican children's productive vocabularies ranged from 15 to 446 words. Data such as these indicate the need to consider Latino DLL children's language development at the individual level. By focusing only on between-group differences, researchers emphasize language disparities but fail to recognize subgroups of children within each population who demonstrate relatively strong or weak language skills.

This large within-group, within-time variability has been documented by others (Hurtado et al. 2014). A study measuring vocabulary in Spanish and in English separately found that U.S.

Fig. 1 Expressive vocabulary scores for Dominican and Mexican children at 24 months as measured by the MacArthur MCDI



Latino children's expressive Spanish vocabulary at 30 months ranged from 4 words to 676 words, and their receptive vocabulary in Spanish ranged from 87 words to 120 words. Large variability was also observed in their English vocabularies, such that expressive vocabulary ranged from 47 to 131 words and receptive vocabulary ranged from 17 to 667 words (Hurtado et al. 2014). These findings also show the importance of considering what language looks like in each of the two languages—L1 and L2—a point we return to in sections following.

Variability Over Time

Young children—monolingual and bilingual alike—also demonstrate considerable individual differences in their growth of language as they get older (Huttenlocher et al. 2010). These findings on varying rates of change generalize to the growth trajectories of Spanish–English speaking children as well. For example, in our lab, we followed U.S.-born Latino children yearly from ages 2 to 5, and examined their growth in both L1 and L2 word usage (Tamis-LeMonda et al. 2014a, b). For each language, children varied immensely in their rates of change across the three year period in terms of how many different words they used (word types) and how many words they used (word tokens) during a book-sharing interaction with their mothers. To illustrate, consider the variability that characterizes changes in Spanish word types of children from

Dominican immigrant backgrounds (Fig. 2). Each line represents an individual child, and shows that children show growth as well as decline in the L1 usage, and rates of change, represented by the different slopes of lines, vary considerably among the sample. These results highlight the importance of moving beyond group averages to documenting individual variability in Latino children's growth in language over time.

Variability Over Time in Two Languages

The across-age findings reported above are based on changes in children's use of Spanish. However, it is important to consider profiles of developmental change over time in both L1 and L2. These over-time-two-language profiles can be presented at either the group or individual level. To illustrate, Fig. 3 shows the group function of low-income Dominican children in the sample, indicating that although as a group children averaged equal numbers of word types per minute in L1 and L2 at 2 years of age, their L2 skills continued to grow while their L1 skills began to level off, likely reflecting children's increased exposure to English during preschool and kindergarten. The growth in English vocabulary over time is similar to what is seen in monolingual children, who also expand their vocabularies over the childhood years with exposure to new words and concepts at school.

Fig. 2 Individual differences in Spanish language trajectories of Dominican children from ages 2 to 5, as measured by average number of word types produced per minute

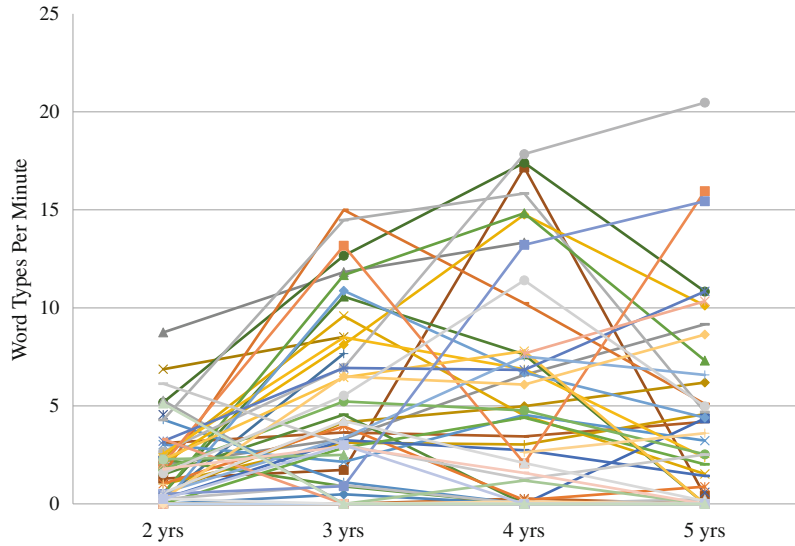
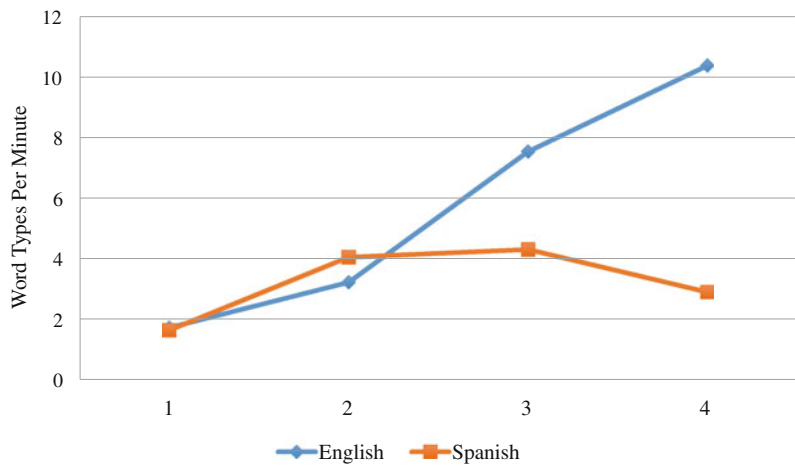


Fig. 3 Average language trajectory of Dominican heritage children from ages 2 to 5 as measured by average number of word types produced per minute



Considering variability by language in individual children, different profiles of changing language use can be identified. Some children display growth in *both* L1 and L2, perhaps reflecting emphases by families on the importance of children learning English at school while maintaining the Spanish language and culture in their homes (Worthy and Rodríguez-Galindo 2006). Strong support for each language creates a language profile that shows simultaneous growth in vocabulary and language skills in English and Spanish. Some Latino children switch from

predominantly L1 to predominantly L2 usage over time. As family members become increasingly acculturated and children enter childcare and preschool settings, there is often increased exposure to English that will prevail over the current knowledge of Spanish. Under such circumstances, if Spanish is not strongly supported in the home or school, children will begin to reduce in their Spanish use while concurrently showing growth in their English language skills.

In our own research we identified four profiles of changes in children’s English and Spanish

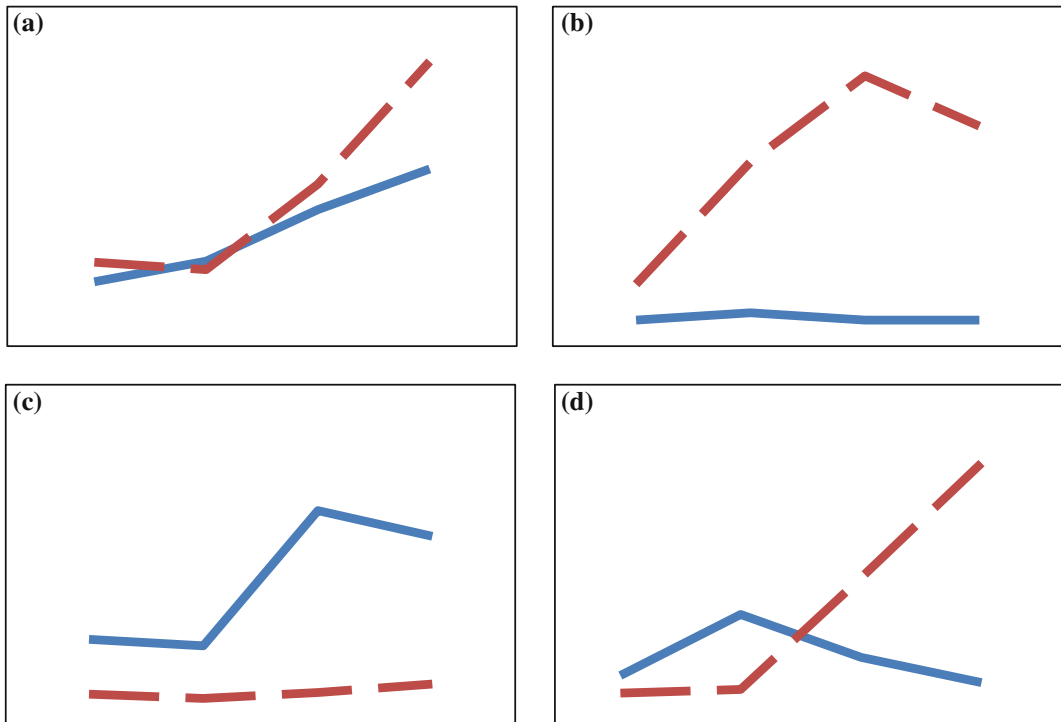


Fig. 4 Observed profiles of Latino children's language trajectories. *Solid lines* represent expressed word types per minute in English; *dashed lines* represent expressed word types per minute in Spanish. Profiles include:

a Dual-language growth; **b** Growth in English; **c** Growth in Spanish; and **d** Change from Spanish to English dominance

language use across the ages of 2–5 years. Some children showed concomitant gains in both languages (Fig. 4a), likely reflecting strong support for the use of English and Spanish in their home environments. Some children were consistent in their English-dominance across time, likely reflecting predominantly English inputs at home, despite the immigrant status of their parents (Fig. 4b). Still others were consistently Spanish-dominant and used more Spanish than English from ages 2 to 5 (Fig. 4c), most likely representing the types of language development seen in children of recently immigrated parents. Conversely, some children were initially more Spanish-dominant, and over time shifted to become more English-dominant (Fig. 4d). This profile of change is likely to be most common for many children of immigrant parents as they are increasingly exposed to English in the host country, particularly at school. Notably, we did not

observe a shift in language dominance from English to Spanish. This is not surprising, since Latino children in the United States increasingly use English as they are exposed to the host language.

Explaining Variability in Language Development

Above we presented different ways that variability can be conceptualized in the study of young Latino children's language development. A question that naturally arises is: What might explain these individual differences? Here, we consider two main contributors to individual differences in young children's language development: (1) the nature of input from parents, and (2) broader contextual factors that influence parents' child-directed language use. Children's language development is also affected by inputs from caregivers outside the home as well as siblings and peers; however, parents tend to be

the primary influences on language development in the first years of life. Moreover, U.S. Latino children, particularly those of recent immigrants, are less likely to attend nursery or preschool in the early years than are their monolingual English-speaking peers (Yoshikawa 2011). Older siblings often provide young Latino DLLs with opportunities to be exposed to and use English (Anderson 2012; Iglesias and Rojas 2012). As such, Latino DLL children with older siblings tend to become proficient in English at an earlier age than those without older siblings. However, siblings are rather understudied in any cultural group, compared to the vast majority of work done on mother-child relationships and the effect of peers and teachers on children (Barron-Hauwaert 2011). As a result, we focus on parent-level contextual factors, which only touch the surface of variability within Latino families, but can serve as a framework for thinking about variability more explicitly.

Nature of the Input

During the early years, mothers and fathers are main contributors to infants' language experiences. A recent study on Latino bilingual infants showed that parent-child interactions accounted for 77 % of the total time spent in conversations with others in the environment (Place and Hoff 2011), meaning that the majority of the time children are exposed to language, they are in the presence of their primary caregivers. Three features of parental language input largely affect the language development of DLL's: (1) amount and quality of language, (2) proficiency of language, and (3) relative use of Spanish and English. Moreover, all three features are influenced by broader contextual factors, including parent SES, which are reviewed later in the chapter.

Amount and quality of parent language are two of the strongest predictors of children's language skill. Children can only learn the words to which they are exposed, and adult caregivers offer children a multitude of language experiences during interactions that support children's growth in vocabulary. Specifically, the complexity, diversity, and frequency of parent-language use

with children predict children's vocabulary development (e.g., Hart and Risley 1995; Hoff 2003, 2006; Tamis-Lemonda et al. 2012a). In a study of children of Mexican and Dominican descent, changes in parents' language use over time predicted children's vocabulary growth in the respective language (Tamis-Lemonda et al. 2014a). In another study, Latina mothers of Spanish-learning infants were highly variable in their input to children, and these differences related to children's vocabulary size at age 2 (Hurtado et al. 2008). Specifically, infants of relatively talkative mothers heard seven times more words on average, three times more different words, and more complex sentences than those heard by infants of less talkative mothers. Additionally, positive associations were found between the percentages of words children produced in Spanish and English and estimates of input in each language (Hoff et al. 2012), such that substantial parental language input fosters a supportive environment for children to acquire any given language (Place and Hoff 2011).

Parents' proficiency of language input is also central to the development of children's language skills, such that children acquire language best when parents speak with them in the language in which parents are most comfortable (McCabe et al. 2013). Nearly $\frac{3}{4}$ (71 %) of Latino DLLs have at least one parent with limited English proficiency (LEP; Hernandez et al. 2007), and children of Mexican, Dominican, and Central American descent in particular are less likely to have parents who are proficient in English relative to other Latino children (Hernandez 2006). When parents with LEP speak English with their children, they are not necessarily improving children's skills in English, but might be sacrificing children's skills in Spanish (Hammer et al. 2009; Paradis et al. 2011).

However, exposure to fluent and native Spanish from early on can support children's development of their L2 (Brisk and Harrington 2007; Rinaldi and Páez 2008). Rich, high quality language exposure during early language development results in enhanced skills for children in the languages they are learning (McCabe et al. 2013). Children who are exposed to Spanish and

English from infancy start to learn both languages simultaneously, and their language trajectories in each language seem to follow the patterns observed for monolingual children (Conboy and Thal 2006; Parra et al. 2011). DLL children whose caregivers expose them to consistent, high quality, and proficient language input in both languages (to any degree of use in each language) before the age of 3 outperform other bilinguals who are exposed to the second language later (age 3 and on) on reading, phonological and syntactical awareness and overall language competence (Kovelman et al. 2008a, b). Children who are given opportunities to learn both languages from fluent speakers starting in infancy are unlikely to be hindered in their language development.

Parents' distribution of English and Spanish usage within and over time affects children's emerging skills in each of the two languages. Just as was observed for Latino children's language trajectories in English and Spanish, individual profiles of maternal language trajectories varied for both Mexican and Dominican mothers: Some mothers use English more than Spanish, whereas others use Spanish more than English, usually related to how long the mother has resided in the United States and how comfortable the mother is in each language. Moreover, mothers often switch their language use over time, such as by increasing the use of English and decreasing the use of Spanish. Findings from our work, however, did not show a profile of change in which mothers decreased English and increased Spanish, mirroring what was found for children's changing language use.

The profiles of parents' L1 and L2 use highlight variability in the *timing of children's exposure to different languages*. Some DLL children are referred to as simultaneous bilinguals, since they have been exposed to both languages early in life before L1 is solidified (Genesee 1989). Although their exposure to both languages is present very early on, their experiences with each of the two languages may be quantitatively and qualitatively distinct at any given time (Genesee et al. 1995). As a result, their comprehension and performance in each of

these languages will vary as a function of age of exposure and quantity and quality of the input. Sequential bilinguals, in contrast, are those who are exposed to one language (L1) in infancy and a second language (L2) a few years later, with significant variation existing in the timing and conditions under which the second language is introduced (Iglesias and Rojas 2012).

Broader Contextual Factors

As reviewed thus far, Latino parents provide dramatically different language environments to their children, and these differences powerfully influence the rates and profiles of children's vocabulary growth. However, parenting does not occur in a vacuum. Rather, several factors influence the amount of parent talk to children, the richness of their talk, and the language they use with their children on a daily basis. We discuss three characteristics that have been found to be of importance: generational status, parents' education, and family economic circumstances.

Parents' generational status and time spent in the United States are associated with parents' skills in the host language, and in turn the language development of their children. For example, the use of L2 within immigrant families increases over successive generations, such that the first generation tends to maintain the native language (Silva-Corvalan 2003; Veltman 2003), whereas subsequent generations begin to integrate L2 into their daily conversations and use L1 to varying degrees (Hurtado and Vega 2004). By the third generation, the native language is almost lost, leaving L2 as the primary spoken language used at home (Arriagada 2005). Generational status predicts DLL's vocabulary above parents' education, such that children of more educated parents have higher English vocabulary skills, but education did not play a role in children's Spanish vocabulary; rather, children's Spanish vocabularies were larger for those children whose mothers were immigrants (Hammer et al. 2012).

Consequently, it is important to consider the amount of time that family has resided in the United States rather than categorizing Latino immigrants into a homogenous group. Latino children from immigrant families (approximately

2/3 of the Latino population; Hernandez 2006) will encounter dramatically different experiences than will children whose parents are U.S. born. Latinos of different ethnicities, such as Mexican, Puerto Rican, or Peruvian, vary in nuanced aspects of culture, generation and legal status, years spent in the United States, and the degree of acculturation, which shape the daily contexts and experiences of children.

Drawing from the examples in our laboratory, low-income U.S.-born Dominican mothers showed greater increases in English language use over children's first 5 years of life than did low-income, immigrant Mexican mothers, an ethnic difference that reflects differences in mothers' time in the United States and skills with English (Tamis-LeMonda et al. 2014a, b). Specifically Dominican mothers had resided in the United States longer and were more educated than Mexican mothers.

Parents' socioeconomic status strongly relates to children's language outcomes (e.g. Fernald et al. 2013). Parent education levels are typically much lower in immigrant Latino families than they are for native-born Latinos and the U.S. adult population at large (Hernandez et al. 2007), and children from immigrant families originating in Mexico, Central America, and the Dominican Republic are likely to be among those whose parents have completed the fewest years of school (Hernandez et al. 2008). More years of schooling for immigrant parents is associated with higher levels of English proficiency, which affects children's English language skills by kindergarten (Bohman et al. 2010). Moreover, SES differences have implications for the quality and quantity of parents' language spoken to children (Hoff 2003, 2006). There exists a 6 month gap in language ability in DLL Latinos compared to monolinguals as early as 18 months (Fernald et al. 2013). Compared to low-responsive mothers, more responsive Latina mothers who talk more to their children at 18 months have children with larger vocabularies and faster language processing at 24 months (Hurtado et al. 2008).

Universal Versus Culture-Specific Mechanisms

We have provided a review of some of the contextual factors that contribute to the language development of U.S. Latino DLLs from immigrant backgrounds. Although we highlighted specific challenges and opportunities that come with learning two languages, several fundamental, universal principles of early language development based on research with monolingual children readily apply to the development of all DLL children. Consequently, many lessons learned in the language field more broadly are relevant to the language development of Latino DLL children (for a review, see McCabe et al. 2013).

First, the languages children learn, the rate at which they learn them, and thus the skill levels children display at every age reflect their everyday language experiences. Decades of research with monolingual children and more recent research with DLLs have identified properties of language experience that support children's language learning including the quantity and quality of caregiver speech, as described in this chapter.

Second, parents provide children the words of their language through both verbal and nonverbal behaviors. For example, parents' use of gestures facilitates matching words to referent objects by "narrowing the search space" and offering children a unitary language experience that allows them to perceive the word and the stimulus as "belonging together" (Rader and Zukow-Goldring 2010). Individuals from some cultural communities use gestures to a greater extent in communication than do others. Two-year old children from these cultural groups (e.g., Mexican children) display more gesture use and higher skills at sequencing and imitating actions and following commands that incorporate gestures despite lower expressive language than do children from other minority backgrounds (Tamis-LeMonda et al. 2012a, b). Moreover, language experiences that are prompt, contingent, and appropriate consistently predicts children's gains in language, especially during the first 2 years of life (e.g., Bornstein et al. 2008;

Goldstein and Schwade 2010). Contingent responses to infant behaviors promotes word learning by increasing the likelihood that infants will hear words that are the focus of their attention, thereby easing the referent-mapping task (Tamis-LeMonda et al. 2014a, b). Using both verbal and nonverbal language in integrated and meaningful contexts deepens children's conceptual knowledge and lexicons (Hirsh-Pasek et al. 2009). For example, an adult who talks about hammers, hard hats, screw drivers, and tool belts while building something with a child or reading a book about building things is providing an optimal type of context for acquiring extensive, connected vocabulary and concepts.

In the context of these universal principles, there exist several unique features of language experiences and development that are important to consider when investigating the development of DLLs. First, age of exposure to different languages is a topic of specific relevance. Children who hear two languages from infancy start to learn both languages simultaneously and the course of development in each language looks similar to that of monolingual children (Parra et al. 2011). Moreover, children who are exposed to proficient speakers in native and host languages before the age of 3 years outperform children with L2 exposure later than age 3 in language organization, such as morphology and phonology in both languages (Weber-Fox and Neville 1996, 2001; Kovelman et al. 2008a, b). Thus, if opportunities to learning more than one language from native speakers are available early on, the language development of DLL children will not be hindered.

Second, children exposed to more than one language differ in the strategies they use to map words to their referents when compared to monolingual children. Children learning multiple languages are more likely than are monolingual children to accept an additional, second label for a previously known object or action (Kovács and Mehler 2009; Yoshida 2008; but see Mervis et al. 1994). This makes sense since they soon learn

that things in the world can have at least two names, one label for each language. In contrast, monolingual children assume that novel words refer to objects or events that do not yet have a label, since most things typically have a single name. Perhaps unsurprisingly, because dual language learning infants must navigate a world of multiple labels for the same object or event, growth in the individual vocabularies in each of the DLL's languages is slower compared to children learning one language (Carlo et al. 2004; McCabe et al. 2013). However, when the total language of DLL children is considered inclusive of L1 and L2, the overall rate of lexical growth and conceptual knowledge is at least equal to, if not greater than, the rates of growth seen in monolingual children (Hoff et al. 2012).

Finally, the cognitive advantage seen in executive functioning and attentional control in children who become fluent in two or more languages (e.g. Akhtar and Menjivar 2012; Bialystok 2015; Carlson and Meltzoff 2008; Poulin-Dubois et al. 2011) is particularly relevant to U.S. Latino DLL children. Multilinguals must constantly hold in mind the relevant language and inhibit the non-relevant language depending on the environment, and thus must pay attention to abstract dimensions of language and engage executive functions that monolinguals do not regularly have to do (Bialystok 2015). Preschoolers who are able to apply these regulatory skills to general classroom learning tasks and goals show higher levels of academic achievement than do their less regulated peers in later years (Denham et al. 2011), and thus multilingual children might have opportunities to develop and employ advanced regulatory skills. Consistent activation of these executive function areas affects and restructures neural pathways and brain structures (Costa and Sebastián-Gallés 2014), which might possibly slow the decline of executive functions during adulthood (e.g. Luk et al. 2011), suggesting that multilingual use and exposure throughout the lifespan could slow down the effects of aging.

Policy Implications and Future Directions

Research and practice at the level of the family should emphasize the ways that Latino parents can promote their children's development of early foundational skills. From a strengths-based perspective, Latino parents provide their children with emotional support, place high value on children's academic achievement and also put much effort into preparing their children for school (Cabrera et al. 2013). Thus, Latino parents' goals for children can serve as a starting point for designing strategies to effectively support children's development. These strategies might include highlighting practices that foster the development of language and literacy skills, such as book-reading (Raikes et al. 2006), reciting nursery rhymes and playing rhyming games (Baker et al. 1995), and sharing oral stories (Schick and Melzi 2010; Snow and Dickinson 1990). Additionally, practitioners should work with parents to identify family routines that present meaningful opportunities for children's everyday learning. For instance, we found that the emphasis on family solidarity in Mexican families means that most Mexican children eat meals with both their mothers and fathers on a daily basis (Tamis-LeMonda et al. 2009). Conversations during mealtime or other everyday routines provide young children with opportunities to practice and build oral language skills with different partners (e.g. Pan 1995; Ochs and Capps 2001; Reese 2012; Snow and Beals 2006). In order to effectively incorporate language and literacy into children's daily lives, some researchers are calling for two-generation literacy programs in which children and their parents can learn English together without losing their home language. Interventions must target parents and young children, keeping in mind that unauthorized immigrants are often excluded from programs (Crosnoe 2009).

Notably, parents' practices to promote their children's language development would be best when using the language with which the parent is most comfortable. Often, immigrant Latino parents with limited English proficiency believe that

their children will not enter school with sufficient English skills if they do not speak English with them at home, resulting in the child being exposed to poor English that may impede development. The use of the host language in the homes of young immigrants only predicts positive development once parents have reached a certain level of proficiency in the L2 (Paradis et al. 2011). Early exposure to proficient language promotes fluent acquisition of that language (Kovelman et al. 2008a, b), which in turn has implications for the children's school readiness.

Because language experiences in the first years of life are critical to children's language development, it is important to educate and engage parents in children's language development early on, rather than wait until children are in school. One effective platform for such outreach is through pediatricians. Young children visit the doctor about fifteen times before the age of five (Hagan et al. 2008), thus the use of pediatric visits is an efficient way to reach difficult-to-reach populations, especially low-income and multilingual Latino families. The Video Interaction Project (VIP; Mendelsohn et al. 2005) is one example of a program that reached out to Latino families during child well visits. In the intervention group, mothers and newborns participated in one-on-one sessions with child development specialists who facilitated interactions during play and reading, using previously videotaped interactions from primary care visit days as guides for areas to work on. Studies of the VIP program found increased parent-child interactions from the intervention group, indicating effective engagement from multilingual families during early infancy (Mendelsohn et al. 2011).

Center-based programs provide the added opportunity to engage with caregivers from at-risk families with DLL children (McCabe et al. 2013). For example, federally funded programs such as Early Head Start work with parents directly (on site or through home visitation) to facilitate parent-child interactions. Although historically, DLL's have been underrepresented in all forms of early childhood education (García and García 2012), several federal programs have recently begun to establish learning principles

specifically for children who are DLLs (Castro et al. 2013), requiring programs to address the needs of DLLs and their families across multiple development and service areas.

As is evident from this chapter, there is a need to identify ways to support and promote Latino DLLs' skills in both Spanish and English so that they become proficient speakers of the two languages and maintain proficiency over time. For many young U.S. Latino DLLs, school is the first setting that introduces them to English, which might lead to a considerable disadvantage at the start of school (Magnuson et al. 2006). Not all Latino children develop proficiency in both English and Spanish and some children develop English at the expense of competence in Spanish (García and Jensen 2009). For many such children these early disadvantages persist into adolescence, indicating the need for continued language support.

However, U.S. Latino children who develop solid bilingual skills can reap the benefits of bilingualism with regard to both language development and executive function. Thus researchers and practitioners must work to promote the development of both languages throughout the early years. Latino children with a strong bilingual skill set may ultimately perform at level with, if not better, than their monolingual counterparts upon entrance to formal schooling. These skills can be developed in the context of the family, and continue to be supported as needed by schools or programs that are equipped to work effectively with Spanish speakers (Hernandez et al. 2007). By understanding the variability that exists within the population of U.S. Latino children, researchers and policymakers can build on the strengths of children's language abilities and develop interventions to effectively improve Latino children's academic outcomes.

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