Developmental Characteristics of Young Dual Language Learners: 
Implications for Policy and Practice In Infant and Toddler Care

Dina C. Castro, Ph. D.¹ and Linda Espinosa, Ph. D.²
Arizona State University¹ and University of Missouri, Columbia²

This paper discusses the current knowledge on the developmental 
characteristics and contexts of care for infants and toddlers who are growing up in 
bilingual environments at home and in their early care settings in the United States. We highlight relevant findings from the work of the Center of Early Care and 
Education Research-Dual Language Learners (CECER-DLL), a national research 
center funded to advance the research field to improve assessment, and child care, 
and education for dual language learners (DLLs) from birth through five years of 
age. The CECER-DLL has conducted various critical reviews of the literature and secondary data analysis with nationally representative data to establish the state of knowledge on the development and care of young dual language learners from birth to five years of age (for a list of CECER-DLL researchers and resources see www.cecerdll.fpg.unc.edu). For the purpose of this paper, we will focus the discussion on findings related to infants and toddlers who are dual language learners (see also Fuligni, Hoff, Zepeda & Mangioni, 2013).

Child demographics in the United States are changing at a fast pace and are reflected in the increased linguistic, ethnic and cultural diversity among children and families served in early care and education programs. For example, in 2011 fifty nine percent of the children served in Head Start programs were from racial or ethnic minority families, 37% of them were of Hispanic/Latino origin and around 30% were dual language learners (Office of Head Start, 2011). Among the youngest DLLs, 26% of children in Early Head Start in 2009 came from homes in which a language other than English was spoken (Administration for Children and Families [ACF], 2013).
Young dual language learners come from families with many different countries of origin, representing multiple language groups, diverse cultural backgrounds, and a wide range of family circumstances, including socioeconomic and immigration characteristics. This group of children and families is very diverse (Winsler, Burchinal, Tien, Peisner-Feinberg, Espinosa, Castro, et al., under review). Despite the great diversity of language backgrounds for families speaking a language(s) other than English in the home, the vast majority of DLL infants and toddlers come from a home where Spanish is spoken. For instance, among DLL one-year olds served in Early Head Start programs in 2009, 91% were from Spanish-speaking homes (ACF, 2013). Understanding the developmental trajectories and factors that influence development for the youngest DLLs is important for the development and implementation of appropriate policies and practices that promote these children’s healthy overall optimal development, as well as their school readiness skills.

Dual Language Learners’ Context of Development

We know from developmental theory and research evidence that children’s earliest experiences shape the very architecture of their brains and have life-long consequences on their development and learning. Therefore, it is important for early care providers to better understand the unique contexts that shape the development of dual language learners and in which ways they differ from those of monolingual children, so that early care practices can be tailored to meet the characteristics and needs of these children. This is important given the particular characteristics of the societal, community, family and early care contexts they are exposed to (Castro, et al, 2012). For example, it has been found that children with immigrant parents are more likely than those with U.S.-born parents to live in a two-parent family (Hernandez and Napierala, 2012). This finding is also supported for low-income DLL infants and toddlers. The Early Head Start Family and Child Experiences Survey (Baby FACES) found that 71% of DLL children in Early Head Start lived with two parents, and 37% of those couples were married, a rate that is higher than that for monolingual children in EHS (ACF, 2013). Within the low-
income Early Head Start Research and Evaluation Study, immigrant mothers (who are more likely to speak a language other than English) were more likely to be married, less likely to be depressed, and more likely to have larger family size than non-immigrant mothers (Mistry, Biesanz, Chien, Howes, & Benner, 2008).

Also, there are important socio-cultural differences both between DLLs and non-DLLs and within the DLL population that influence development across all domains. For example, young DLLs are much more likely than monolingual English speakers to have parents without a high school education, to live in low-income families, and to be raised in cultural contexts that differ from those of mainstream norms in the United States (Hernandez, XXX). Also, individual differences, including the child’s level of development in their first language, cognitive abilities, temperament and personality, as well as previous learning experiences, can all play an important role in the dynamic processes of development and learning (Castro, et al, 2012). Thus, programs serving DLL infants and toddlers need to collect information about these children and their family backgrounds, including cultural beliefs and practices, the level of exposure to the first, second and other languages at home (e.g., households where an indigenous language, Spanish and English are spoken by more than one member of the family) as well as their general knowledge and skill levels. This information should then be used to plan program activities with DLL children and their families that build on their strengths, address their needs and are culturally and linguistically appropriate.

Some instruments have been developed to assist researchers, program administrators and/or early care and education providers in gathering relevant information about DLL children and their families. The CECER-DLL has developed parent and teacher questionnaires to be used by researchers. The purpose is to improve the collection of critical background information on DLLs, to address the current challenge of interpreting research findings, within and across studies, (Hammer, … 2013? - AERA presentation?). The full versions of the questionnaires are currently being used in a multi-state study focused on identifying the key items and constructs to be included in a shorter version appropriate for both researchers and
practitioners. Other tools focusing on this population have been developed to support providers; we are listing some of them as examples:

- *Young Dual Language Learners: Gathering Background Information* (Office of Head Start, National Center on Cultural and Linguistic Responsiveness, 2012)
- *Parenting Questionnaire* (Tabors, 2008)
- *Family Languages and Interests Interview* (Espinosa, Matera, & Magruder, 2011)

In order to apply the information gathered about DLL children and their families when designing individualized learning activities that meet the unique linguistic, cognitive, and social needs of young DLLs, providers need to have an understanding of DLLs’ developmental processes.

**The Science of Dual Language Development**

Above and beyond their diverse backgrounds and family characteristics, DLLs share a common trait; they all are learning at least two or more distinct linguistic systems during a period of rapid cognitive, conceptual, and language development. Mastering the fundamentals of one language system during the first years of life is a major developmental accomplishment---progressing in two or more is monumental---but achievable and beneficial!

*Bilingualism and brain development.* New noninvasive brain-imaging techniques are allowing researchers to study how the bilingual condition changes brain functioning. For example, magnetoencephalography (MEG) is currently being used to study language processing of infants and toddlers. This neuro-imaging technique has high operating costs, but is ideally suited to studying language processing because it yields precise data on neural responses to language stimuli, exactly *when and in what order* specific aspects of language knowledge are accessed, as well as *where* or in which parts of the brain neural activity occurs. This recent method of studying how the human brain processes language during the earliest years is providing insights on how specific experiences with more than one
language influence the organization of the language processing systems of young DLL brains (Conboy, 2013).

This line of research from developmental cognitive neuroscientists and psycholinguists on the processes and consequences of learning two languages during the early years has continued to underscore the extensive capacity of the human brain to learn multiple languages during the early childhood years; during the first months of life babies are able to sort the sounds of each language into separate categories and by the preschool years, bilinguals can interpret contextual cues to know when it is appropriate to use which language with whom (Byers-Heinlein, Burns, & Werker, 2010; Kuhl, Stevens, Hayashi, Deguchi, Kiritani, & Iverson, 2006). Many cognitive neuroscientists have concluded that the human brain is primed to learn language from birth and is actually hearing and processing the unique characteristics of different languages beginning in the last trimester of pregnancy (e.g., Polka, Rvachew, & Mattock, 2007). There is wide scientific consensus that bilingual infants develop two separate but connected linguistic systems during the first year of life. We now know that infants have the innate capacity to learn two or more languages from birth and that, if the early multiple language exposure is sufficient in quantity and quality, young children can successfully become fully proficient in multiple languages (Conboy, 2013).

Petitto and colleagues (2012) found that bilingual infants (10-12 months old) processed language input in different parts of the brain than monolingual infants. They concluded that receiving input from two languages during the first year of life increases early brain plasticity and expands linguistic processing ability. In combination with other studies (Conboy & Kuhl, 2011; Takahashi et al., 2011), these results demonstrate that “experience with two linguistic systems, no matter how short and regardless of the language pairs involved, changes the way in which language is organized in the brain. Furthermore, these functional brain changes are present very early on, after only limited bilingual experience, suggesting that setting up representations in two linguistic systems through exposure to two languages, and not only language production, drives functional plasticity in bilingual children” (Barac, Bialystok, Castro & Sanchez, under review p. 13).
**Key point:** The bilingual experience changes the organization and functioning of the brain. Thus, the brain of a bilingual child functions differently than the one of a monolingual child.

*Cognitive development of dual language learners.* The most current scientific research suggests that the development of two languages from a child’s earliest language exposure has specific impacts on a variety of cognitive abilities that are discernable as early as seven months of age (Barac, et al, under review; Sanhofer & Uchikoshi, 2013). Kovacs & Mehler, (2009) found that bilingual infants as young as seven months of age were better able to anticipate a switch in learning conditions and change their responses when compared to monolinguals, which indicates very young bilinguals’ advanced ability to inhibit previous learning when the task demands changed. Since these tasks are also associated with speech sounds (syllables), it has been suggested that there is a bilingual advantage related to bilinguals’ enhanced attention during speech processing.

In addition, advanced skills, such as executive function abilities, e.g., working memory, inhibitory control, attention to relevant vs. irrelevant task cues, as well as improved language skills, have been linked to early bilingualism. These skills have been portrayed as the biological foundation for school readiness, providing the platform upon which children’s capacities to learn educational content is based. Other research extends these findings by showing that preschool bilinguals demonstrate even more advantages in executive function; they show advantages in tasks that require selectively attending to competing options and the ability to suppress interfering information (Sandhofer & Uchikoshi, 2013).

The bilingual benefits described above have been found across cultural and socio-economic groups as well as across different language combinations. However, these cognitive advantages have been tied to the extent the child is bilingual; those who are more balanced in their bilingualism show larger advantages than children who are more
strongly dominant in one language. Thus, it is important to consider the amount and quality of DLLs exposure to each language (Barac et al, under review).

Key point: Bilingualism can positively affect cognitive abilities, and those cognitive advantages are larger in children with advanced skills in their two languages.

Language and literacy development of bilingual infants and toddlers. Young children learn language, beginning by recognizing the sounds of speech of their mothers even before birth, during the last trimester of pregnancy (Byers-Heinlein, Burns, & Werker, 2010), and will continue developing language through their exposure to it in their homes, communities and the early care settings. Infants and toddlers growing up in bilingual environments may begin their lives hearing their mothers speak in a language other than English and be simultaneously exposed to English from interactions with other adults and/or their siblings, or they may be surrounded exclusively by their non-English language at home and be exposed to English from their early care providers. Most infants and toddlers in bilingual environments have the potential to become simultaneous bilinguals (i.e., learning two languages at the same time, and developing a similar levels of proficiency in each language), (Albareda-Castellot, Pons, & Sebastián-Gallés, 2011; Pearson, Fernandez, Lewedeg, & Oller, 1997), however, the extent to which this outcome is accomplished will depend on the opportunities to learn both languages.

Research has shown that the best predictor of children’ skill in each of their languages is the amount of exposure they have to each language (Hoff et al., 2012; Marchman et al., 2004). A secondary analysis of the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B) conducted by the CECER-DLL indicated that DLL infants and toddlers are more likely to be in bilingual care when they are 9 months old, the percentage reduces at 24 months and it is even smaller once they are 52 months of age (Espinosa, Burchinal, Tien, Castro, Peisner-Feinberg & Winsler, under review). This indicates that DLL infants and toddlers have fewer opportunities to
develop proficiency in both of their languages as they grow older, which will limit the extent to which they can benefit from the cognitive advantages of bilingualism.

Regarding the rate of language development, it has been found that for young children developing two languages the rate of development in each language will be slower than that of monolingual children, in particular in their less-dominant language (e.g., Bialystok, Luk, Peets, & Yang, 2010; Gathercole & Thomas, 2009). As Conboy (2013) points out “…bilingual lexical learning leads to initially smaller vocabularies in each separate language than for monolingual learners of those same languages, but that total vocabulary sizes (the sum of what children know in both their languages) in bilingual toddlers are similar to those of monolingual toddlers.

**Key point:** Infant and toddlers in bilingual environments can successfully learn two or more languages simultaneously. Typically, the rate of language development will be slower than that of monolinguals, but when considering the child’s two languages, vocabulary looks similar.

In other areas of development young dual language learners showed either no differences or slight developmental differences. For instance, several studies have consistently shown bilingual children take longer to recall words from memory. They have slower word retrieval times in picture naming tasks and lower scores on verbal fluency tasks (Sandhofer & Uchikoshi, 2013). These findings underscore the need for early care providers to understand the complexities of the language processes experienced by a young dual language learner, the possible challenges, particularly in the non-dominant language, and the need to allow sufficient time for the child to come up with a response. Wait time is important for all children, but critical for young dual language learners.

**Importance of Supporting both Languages**

As mentioned above, very young children have the capacity and, indeed are neurologically prepared to learn more than one language—and they gain cognitively
from managing the linguistic processing required when becoming bilingual. However, frequently when very young children are exposed to English in an early care setting for significant amounts of time, they shift their dominant language to English. This outcome has been discussed by researchers as first language loss, or a subtractive language experience; in many U.S. early care settings, young dual language learners show first language loss as they become more proficient in English, given children’s limited or non-existing exposure to and use of their first language. As stated by Conboy (2013), “...it is important for practitioners to look at the long-term outcomes of those effects, and also to consider children’s experiences with both of their languages instead of only focusing on whether second language performance matches that of native speakers” (p. 36). To summarize, learning a second language should not come at the expense of continued first language development. Research highlights the importance of sufficient exposure to both languages in order to reap the benefits of bilingualism!

We also now know that learning more than one language during the early childhood years does not delay the acquisition of English or impede academic achievement in English when all languages are supported. “Young children can successfully learn two languages, and do not need to give up their home language in order to learn English if it is the formal language of the preschool setting. Practitioners can enhance the language learning of dual language learners by providing rich learning opportunities in each language. For example, they may support the first language at the same time as the school language through family involvement, bilingual materials, and activities and interactions in the home language with teachers, staff, and peers who speak that language.” (Conboy, 2013).

There are additional benefits to knowing two (or more) languages and encouraging children to maintain and develop their first language as they learn English during the early childhood years. Children who know more than one language have personal, social, cognitive, and economic advantages throughout their lives. Children who do not develop and maintain proficiency in their home language may lose their ability to communicate with parents and family members.
Dual language learners who are proficient in their first language are able “to establish a strong cultural identity, to develop and sustain strong ties with their immediate and extended families, and thrive in a global multilingual world” (Espinosa, 2006, p. 2).

**Implications for Early Care Policy and Practice**

The development of DLLs follows unique trajectories with significant implications for the planning of early care and education environments. These background and developmental characteristics of young DLLs need to be understood when making decisions about early care and judgments about individual children’s progress.

Providing high quality early care to DLL infants and toddlers will require thinking about which program policies will need to be in place and how they are reflected in provider-child and provider-family practices. In addition, the implementation of appropriate practices depends on the characteristics and professional preparation of the provider. Program policies that support the development of children’s two languages will need to be in place so that the corresponding practices will follow. The first step then will be to create a language policy that provides the framework for the program’s hiring practices (i.e., hiring bilingual / bicultural providers and specialists), professional development offered (e.g., workshops and consultants on bilingual development, strategies to promote language and literacy development in DLLs, engaging families of DLLs), and allocation of resources (e.g., availability of bilingual books, music in languages other than English).

Another important aspect relates to assessment practices for monitoring children’s progress. In order to obtain valid and reliable information about DLL infants and toddlers, assessments will need to be conducted in both of the children’s languages. As important as gathering information from families about their child’s development in the family’s preferred language, is the use of assessment instruments that have been developed considering the developmental and cultural characteristics of DLLs (not just directly translated from an English version). When
young DLLs are assessed with inappropriate instruments, providers should be cautious when interpreting assessment results, particularly vocabulary scores. Furthermore, when judging the competencies and progress of DLLs, additional sources of information should be used such as frequent direct observations and primary caregiver information. The research discussed in this article leads to the conclusion that using monolingual norms to assess developmental progression in bilingual children may provide inaccurate information. For instance, when DLLs infants and toddlers do not reach milestones in their English vocabulary development that is typical for monolingual children, they may be erroneously determined to have a language delay.

Developing strong partnerships with families is crucial particularly when serving DLL children. Making families feel welcome and showing authentic interest in learning about families’ beliefs and practices, cultural traditions, and expectations for their children’s development and learning will be very important in helping providers plan activities. Central to this partnership will be collaborating with families on strategies to support continued development of children’s first language while also learning English at home and at the early care program.

Regarding early care policy, it is important to note that learning expectations or state standards developed for monolingual English speakers may not be appropriate for DLLs. The current policy environment of increased accountability, with most states establishing Quality Rating and Improvement Systems (QRIS) offers an opportunity to focus attention to the extent to which early care and education programs are meeting the needs of our youngest DLLs. However, to date very few states have included indicators focusing on program features and provider practices related to children from culturally and linguistically diverse families (Castro & Halgunseth, in press).

Conclusions

The early childhood years are critical years for developing mastery of the sounds, structure and functions of language and thus an ideal time to expose children to the benefits of two or more languages. Current research has clearly
indicated that young dual language learners should be given opportunities to develop high levels of proficiency in both of their languages because the advantages are significant and lasting.

The discussion presented in this article leads us to the following conclusions that have implications for both, policy development and practice:

1. The young bilingual brain processes language differently from monolingual children and this neural adaptation influences specific aspects of cognitive and linguistic development.
2. The acquisition of two languages in young children has no inherent negative social, linguistic or cognitive consequences, and has been linked to advantages in specific social, linguistic and cognitive domains.
3. There is a scientific consensus that children have the capacity to learn two languages from birth and that this early dual language exposure does not confuse children or delay development in either language.
4. All young DLL children should be provided with high-quality language experiences and support to master both of their languages.
5. Bilingualism confers many cognitive and social advantages for children and adults. These advantages are strongest when children demonstrate a balanced bilingualism and are roughly equally proficient in both languages.
6. Learning more than one language during the early childhood years does not delay the acquisition of English or impede achievement in English when both languages are supported.
7. Young DLLs must be assessed in both of their languages in order to make accurate judgments about their competencies and plan effective learning activities.
8. Family engagement is pivotal to understanding and supporting the development of young DLLs.
9. Parents should be encouraged to continue to interact with and speak with their child in their first or dominant language in order to further develop proficiency in that language.

References


Conboy, B. (2013). Neuroscience Research: How Experience with One or Multiple


