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Speech and Language Developmental Trends of Bilingual English-Spanish Toddlers:

Clinical Implications for Early Intervention

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Abstract

The United States has seen an increase in the Spanish-speaking population in classrooms, and according to experts, this number is expected to rise in the upcoming years. Currently, the research on bilingual language and speech acquisition is spare. Therefore, over and under identification of communication disorders among bilingual children is not uncommon. The misdiagnosing of these children can lead to schools spending money and resources in unnecessary treatment/therapy (over diagnosed children), or could further hinder the academic success of others (under diagnosed children) by not providing the necessary services. The majority of speech-language pathologists (SLPs) in the United States are monolingual and they are required, by the ASHA code of Ethics, to provide services to bilingual clients, even if the SLP does not speak the language of the client. Often, the lack of familiarity with the client’s native language can lead to over/under identification of possible communication disorders. In order to provide the best treatment to bilingual children and their families it is important to understand that their language development differs from that of their monolingual peers. Even though there are parallel developmental milestones between monolingual and bilingual toddlers there are still some differences that could affect proper identification of possible communication disorders. The purpose of this paper is to study the speech and language development of bilingual toddlers. I will also conduct a linguistic contrastive analysis to compare the speech development of bilingual toddlers to the speech development of their monolingual peers. A supplemental treatment manual is included to allow the incorporation of bilingualism to play groups and day care of toddlers.
The number of bilingual children in schools across the United States continues to grow (Core, Hoff, Rumiche, & Señor, 2011), and according to experts, this number is expected to rise in the upcoming years. Hispanics, the fastest growing minority group, are expected to account for 36% of the population by 2050 (Méndez, Crais, Castro & Kaniz, 2012). Currently, the research on bilingual language and speech acquisition is sparse; therefore, over and under identification of communication disorders among bilingual children is not uncommon. The misdiagnosing of these children leads schools to spend money and resources in unnecessary treatment/therapy (over diagnosed children), or hinder the academic success of others (under diagnosed children) by not providing the necessary services. The majority of speech-language pathologists (SLPs) in the United States are monolingual and they are required, by the ASHA code of Ethics, to provide appropriate services to bilingual clients, even if the SLP does not speak the language of the client (Chabon, Brown, Gildersleeve-Neumann, 2010). The appropriateness of services may involve securing an interpreter to help conduct treatment or evidence based strategies that a monolingual SLP can use. Often, the lack of familiarity with the normal development of the client’s native language can lead to over/under identification of possible communication disorders. In order to provide the best treatment to bilingual children and their families it is important to understand that the language development of bilingual children differs from that of their monolingual peers. Even though there are parallel developmental milestones between monolingual and bilingual toddlers there are still some differences that could affect proper identification of possible communication disorders.

Best practices advise that bilingual children should be assessed in their native language as well as English (Core, Hoff, Rumiche, & Señor, 2011). If the child’s speech is not disordered in their native language, any variations in English that could suggest a communication disorder
could be attributed to language differences, and the child’s ongoing processing and learning of two languages. On the contrary, if the child’s speech is disordered in their native language, then English will most likely also be affected in a disordered way, not simply different because of Spanish language influence. The first step in differentiating between a language difference and disordered speech is to understand the pattern of bilingual language development. Bilingual development is different than monolingual development in every domain of language. To provide an accurate diagnosis of a bilingual child, fundamental knowledge of monolingual English and Spanish language development is necessary.

*Monolingual English Development*

Compared to other languages, English noun morphology is fairly simple; however, verb morphology is more complex (Bornstein et.al, 2004). The difference in complexity attests for the higher number of nouns compared to the number of verbs in the early productive vocabulary inventory of monolingual English-speaking toddlers because nouns are easier to learn than verbs. In addition, linguistic input from the mother tends to be noun dominated (Hoff, 1997). Bornstein and colleagues (2004) studied the sentence structure of seven languages including English, and came to the conclusion that words appearing in the final position of an utterance in English are more salient in children’s word learning. English verbs commonly appear in utterance-initial positions, whereas, nouns more commonly appear in the utterance-final position. This finding correlates with the higher number of nouns compared to verbs in a toddlers productive vocabulary inventory. Because a big part of language development involves linguistic input, Goldfield (1990) studied mothers’ discourse to their infants and found that utterance-final nouns dominated mothers’ speech. Another language domain is functional use of language called “pragmatics.”
The pragmatics of linguistic input also affects the language acquisition of young monolingual English speakers. American English speaking caregivers focused on and emphasized nouns, in addition to asking more noun elicited questions in Bornstein et.al.’s (2014) study. Around the age of 20 months children were still developing verbs, adjectives, closed-class, and open-class words, but their vocabulary was still predominantly nouns. Spanish monolingual language development follows a different pattern with some parallels with monolingual English language development.

Monolingual Spanish Development

Similar to English, verb morphology in Spanish is more complex than noun morphology. In Spanish, there are several irregular verbs and the conjugations have to take into account both person and number (Bornstein et.al., 2004). The level of complexity between Spanish nouns and verbs suggests that monolingual Spanish toddlers to have more nouns in their early expressive vocabulary inventory, which is the case. However, because of the flexible word order qualities of Spanish, toddlers are also prone to add verbs to their vocabulary inventory earlier that English monolingual peers (Bornstein et. al., 2004). The grammatical structure in Spanish follows subject, verb, object (SVO) word order, yet verb, subject, object (VSO) is also common. Unlike English, Spanish word order is relatively flexible, meaning the noun phrase can occur at any point in the sentence, favoring early verb learning (Bornstein et. al., 2004). The effects of the caregiver Spanish linguistic input on the development of early expressive vocabulary has not been studied as extensively as other languages (Bornstein et. al., 2004); but it has been hypothesized that because Spanish follows SVO word order, mothers’ language input with their infants is also dense in nouns (Bornstein et. al., 2004). A linguistic contrastive analysis breaks down and describes the differences between English and Spanish.
**Linguistic Contrastive Analysis-Phonology**

Plosives (stops) are produced by the complete blockage of the airstream, followed by a small burst of sound when the articulators are separated. Both Spanish and English have three voiceless plosives (stops) /p, t, k/ and three voiced ones /b, d, g/. However, there are three major differences in the way that they are produced. First, in English the difference between voiced and voiceless plosives is established between aspirated plosives and unaspirated plosives; in English aspiration only occurs following the release of voiceless plosive (e.g. “pay” /pei/), in a spectrogram we would see frictional noise following the release of /p/. English voiced stops are unaspirated. In Spanish, voiceless plosives are those that are unaspirated and voiced plosives are those that are pre-voiced, meaning that voicing occurs before the release of the articulators for the next voiced segment. Aspirated plosives are not part of the Spanish consonant inventory. The second difference lies in the place of articulation of phonemes /d, t/; in English the place of articulation is alveolar whereas in Spanish /d, t/ are considered dental phonemes. The last difference deal with the production of the Spanish voiced plosives /d, b, g/, these phonemes are produced in the same place of articulation as voiced fricatives when they occur in an intervocalic position. Respectively, each of the voiced plosives has a voiced fricative allophone /ð, β, ɣ/ (Centeno, 2007).

Fricatives. The fricative inventory between English and Spanish is significantly different. Even though the phonemes /f, ɣ, s, h/ are found in both inventories, the phoneme /h/ is only found in some Spanish dialects, similarly with the phoneme /θ/ more often found in the English language, but also present in some Spanish dialects. Other phonemes while phonemic in English are only an allophonic variation in Spanish, for instance in Spanish /ð/ and /d/ are allophones (Centeno 2007).
Nasals. English and Spanish have three nasal consonants, /n/ and /m/ are shared by both language. The third nasal consonant is different; English has the phoneme /ŋ/ (bring → /brɪŋ/), Spanish on the other hand has /ɲ/ (niño → /ɲiɲo/). Nasal sounds in Spanish are greatly influenced other consonants within that word. The place of articulation of nasal sounds changes depending on the place of articulation of the following phoneme (Centeno, 2007).

Affricates. English and Spanish share the affricate /tʃ/. Latin American Spanish-speaking countries like Argentina and Uruguay also use the affricates /j/ and /dʒ/ and Bolivia uses /ɾ/, therefore words with /j, dʒ, ɾ/ initial sounds can be correctly transcribed using either phoneme depending on the speaker (Centeno, 2007).

Liquids. Phonemes /l/, the flap /ɾ/ and the trill /ɾ/ are the three Spanish alveolar liquids. The lateral sound /l/ occurs in any syllable position whereas /ɾ/ can only occur in intervocalic and postvocalic positions. Technically, /ɾ/ is not part of the English consonant inventory, but it sometimes occurs as a variant of /t/ in words like butter → /bʌɾər/. Lastly, the trill /ɾ/ occurs in syllable initial and intervocalic positions (Centeno 2007).

Vowels. The Spanish vowel inventory is a lot smaller than the English vowel inventory. Spanish only consist of five vowels /a, e, i, o, u/. Most of the differences between English and Spanish occur in the articulation of consonants and not so much with vowels (Centeno, 2007).

Syllable Structure. The majority of Spanish syllable structures are open-ended CV (consonant followed by a vowel) sequences. The biggest difference to note between English and Spanish is that three-consonant combinations or /s/+ consonant sequences (e.g school) do not occur in the Spanish language (Centeno, 2007).

Vocabulary development predicts future morphosyntactic development, and other essential skills for reading and writing, which in long term, will affect the academic success of a
child. In monolingual children, it is crucial that their language development is complete by the third grade. The third grade is pivotal point for children because at that point the child stops learning how to read, and begins reading to learn (Hoff, 2004). It is of utter importance to learn and understand the speech and language development of bilingual toddlers during the period of language acquisition in order to provide any necessary services, if needed, to ensure that the child English language skills are where they need to be by the third grade to optimize chances of academic success. Over diagnosing a bilingual child will cause unnecessary spending in unneeded services, interrupt the exposure to the English language in the classroom (needed to master English language skills), and will delay their learning by withholding them from their academic potential. On the contrary, the under identification of a bilingual child can lead to more severe language delays. Without early intervention (EI), a child will not have good chances of academic success; they will struggle academically, and will lag behind their peer in aspects of language development. Not only will their academic career will be tarnished by the untreated disorder, but their social and emotional health can also be put at risk. One way to illustrate the difference between bilingual development of a child with and without disorders would be through a case study of one with a delay, and comparison to the aforementioned typical bilingual development.

The language development of monolingual English-speaking toddlers and monolingual Spanish-speaking toddlers are similar in terms of language acquisition. The early expressive vocabulary inventory of English and Spanish speaking toddlers is composed primarily of nouns. In both languages the number of nouns outweighs the number of any other part of speech e.g. verbs and adjectives (Bornstein et. al., 2004) but the rate of acquisition varies. Monolingual Spanish speakers acquire verbs at a faster rate than monolingual English speakers. This typical
development can be different from monolingual development when a child is exposed to two languages during the crucial period of language acquisition. In fact, the language development of a bilingual child mimics the development of monolingual peers to some extent, but it follows its own pattern (Hoff, 2009).

**Bilingual English/Spanish Development**

Bilingual children can be described as *simultaneous bilinguals* meaning children that were exposed to both languages (English and Spanish) since birth, and *sequential bilinguals* are children who developed one language first before starting to learn a second language (Hoff, 2009). Sequential bilinguals often learn their first language (L1) at home, and then are exposed to a second language (L2) when they enter the school system. Bilingual children tend to be more advanced in one language compared to the other, but within each language their development mimics that of monolingual speakers to some extent (Hoff, 2009). However, studies have found that the rate of development in each language is slower for simultaneous bilingual children than those sequential bilingual children. Core et. al., (2013) tracked English/Spanish bilingual toddlers from the age of 22 months to 30 months using the MacArthur-Bates Communicative Development Inventory (MCDI) to assess vocabulary and grammar in English for all children; the bilingual children were also given the Spanish version of the MCDI. The findings of the study concluded that English monolingual speakers had larger English vocabularies and were more advanced in measures of utterance length and grammatical complexity than the bilingual speakers (Hoff, 2014). However, when the bilinguals’ vocabulary scores from the Spanish and the English assessments were combined into a total vocabulary score, the vocabulary gap between monolingual and bilingual speakers was almost nonexistent (Hoff, 2014). The vocabulary acquisition of bilingual children can be influenced by various environmental factors.
The language that bilingual toddlers are exposed to for the majority of the time can influence their language development; children tend to develop more rapidly the language they hear more often. Children’s English skills were stronger if English was the dominant language at home, children with strong Spanish skills came from homes where Spanish was the dominant language. Children with balanced input had relatively balanced skills in both languages (Hoff et al., 2012). The dominant language at home is also determined by environmental factors.

*Environmental Factors*

In order to correctly assess the language skills of a bilingual child, it is important to obtain information from the caregivers regarding the language use at home because that information could possible explain vocabulary skills on both of child’s languages. When working with English/Spanish bilingual speakers, with or without a communication disorder, there are additional factors that affect their English language acquisition that need to be taken into consideration. Some of those factors include initial age of exposure to English, English linguistic input, socioeconomic status (SES), and caregiver vocabulary knowledge of both English and Spanish. Some studies have suggested that Spanish and English linguistic input is mediated by SES (Buac, Gross, Kaushanskaya, 2014), where children from lower SES families tend to have smaller vocabulary inventories compared to children from higher SES families. These SES effects on quality and quantity of linguistic input that the child receives have been corroborated in monolingual English families as well (Hart & Risley, 2003). A study specific to bilinguals found that mothers with higher SES had children with higher vocabulary and story-telling skills in both English and Spanish (Buac, Gross, Kaushanskaya, 2014), possibly due to the mother being able to spend more time interacting with the child. Further, the mother’s higher level of education provides a linguistic input with more variety of words, and more complex words and
grammar for the child. However, it is important to acknowledge that level of education is only related to English vocabulary skills, not Spanish. This is due to the native-speaker status of the caregiver because even with a lower level of education a caregiver is still prone to being proficient in their native language (Buac, Gross, Kaushanskaya, 2014). In a study, it was found that caregivers with higher SES are able to provide a more correct and accurate form of English, than a caregiver from a lower SES (Bauc, 2014). Consequently, higher SES correlates with the amount of English used at home; also higher SES children were more exposed to English at home than lower SES (Bauc, 2014). The study conducted by Milijana Buac and colleagues (2014) concluded that the vocabulary development of bilingual children depends on the quality and quantity the caregiver’s vocabulary knowledge in each language. English vocabulary acquisition skills are dependent on both quality and quantity of English linguistic input, favoring children from higher SES; correspondingly Spanish vocabulary development was only dependent on quantity of linguistic input, suggesting that the native-speaker status factor influences the ability of a child to acquire a language regardless of the quality of the linguistic input (Buac, 2014). Learning another language is less challenging for children than it is for full-grown adults, therefore it is safe to suggest that age of exposure to L2 is not as significant as other factors as long as L2 acquisition takes place during early language acquisition ages (greater brain plasticity).

*Phonological Differentiation*

Among the various aspects of bilingual language development that have been studied; one of the aspects is phonological differentiation among bilingual children. Monolingual English and monolingual Spanish speakers develop a specific phonetic inventory during their first year of life (Hoff, 2009), meaning that they are be able to discriminate sounds that belong to the acoustic
inventory of their language and will lose the ability to hear acoustic differences that are irrelevant in their language. Phonological differentiation among bilinguals can be influenced by a number of factors such as phonological similarities between both languages, and the proficiency in both languages (Poulin-Dubois & Goodz, 2001). In 1998 a study of 2 year-old English/Spanish bilingual children, researchers found that the two lexicons and grammatical systems were being processed by one phonological system, and that the phonological system belonged to the dominant language (Navarro, Pearson, Cobo-Lewis, & Oller, 1998). The researchers studied the sucking behavior of infants when exposed to sounds from different phonological inventories and concluded that infants have the ability to tell one language apart from another (Byers-Heinlein, Burns, & Werker, 2010). The research on phonological differentiation in bilingual children, however, is sparse and more research is needed to identify an age range for this phenomenon.

Language Delay in Bilingual Toddlers

As previously stated, research on bilingual language development is sparse; and research on bilingual language development in toddlers with language delays is even more rare. However, some existing research on the topic suggests that bilingual development in toddlers with language and developmental delays is similar to normally developing bilinguals. Those studies also debunk the misleading theory that the parents of a child with language delays should only expose the child to one language in order to avoid confusion and further delay their language acquisition. One way to illustrate that even with a language and developmental delay a bilingual child’s language development pattern is similar to a normally developing bilingual child would be through a case study of one with a delay, and comparison to the aforementioned typical bilingual development.
Case Study of Bilingual Child with Language Delay

The Speech and Hearing clinic at Northern Illinois University provides services to a 5 year-old child with delays. Even though the child has not been officially diagnosed with a communication disorder, other than a hearing loss, she shows signs of delays across multiple disciplines such as language, motor and cognitive. The patient wears hearing aids on both ears, the hearing loss is minimal and with the hearing aids hearing is normal. At home Spanish is the dominant language. The mother reported that everyone in the family is a fluent Spanish speaker, and the father’s English skills are limited. At school the primary language is English. Although a report indicated that if the child doesn't understand a word in one language, she is given that same word in the other language, in her case Spanish. Back in November of 2014 she was assessed using the Preschool Language Scale in Spanish but no scores were reported, however, some information was obtained regarding her receptive skills in Spanish.

She responded to the following Spanish phrases:

“Dame la manzana” (“Give me the apple”)
“Dame la naranja” (“Give me the orange”)
“Dame el gatito” (“Give me the little cat”)

Patient also understood and responded to the following phrases:

“Espera” (“Wait”)
“Mi turno” (“My turn”)

And patient was also responsive to the following commands

“El oso tiene hambre, dale comida” (“The bear is hungry, give him food”)
“El oso tiene sed, dale agua” (“The bear is thirsty, give him water”)
“El ose esta cansado, ponlo a dormer” (“The bear is tired, put him to bed”)

She was also asked to point to body parts on own body and also on a doll, patient only pointed to the “ojos/eyes” correctly.

In addition, she has no pretend play, but she follows modeling fairly well. She gets attention through pointing, tapping, reaching and eye contact. When she started therapy at another location, an AC device was given with Spanish words and phrases, but a decision was made to switch it to English because the pronunciation of the words in the Spanish AC were inaccurate which could have caused confusion for the child.

Conclusion

Bilingualism affects speech and language acquisition in toddlers. Understanding the difference in speech and language development patterns between monolingual English speakers and bilingual English-Spanish speakers is crucial for proper identification of a communication disorder in a bilingual child. The majority of SLPs in the United States are monolingual and the number of bilingual children in schools is increasing, therefore, a degree of familiarity with the client’s native language can facilitate the selection of the most appropriate therapy plan for the child and the family, and lead to a prosperous intervention. The purpose of this paper was to analyze the speech and language development of bilingual toddlers; the study of monolingual Spanish speakers and bilingual English-Spanish provided an insight on how both languages influence each other in the developmental process of a bilingual toddler, and how it varies from a monolingual English speaking toddler. With the proper understanding of bilingualism the number of misdiagnosed bilingual children can decrease significantly, and bilingual children with a communication disorder can receive the optimal treatment.


