

Phonological Patterns of the English Language Learner

Brenda K. Gorman

and

Ellen Stubbe Kester,

Bilinguistics, Inc.

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Content Area: Basic Communication Processes

Instructional Level: Basic

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Objectives:

Participants will be able to:

- Describe basic principles of the Competition Model and its application to second language acquisition.
- Identify similarities and differences between the phonological systems of Spanish and English.
- Recognize common articulation patterns of sequential bilingual (Spanish/English) children while they are acquiring English
- Differentiate between normal articulation patterns and signs of speech impairments

Introduction

According to the National Clearinghouse for English Language Acquisition & Language Instruction Educational Programs (Kindler, 2002), more than 1 in 10 children in elementary school were classified as Limited English Proficient (LEP) during the

2000-2001 school year. Spanish was the primary language of 79% of students with limited English proficiency. With the shortage of bilingual professionals, increasing numbers of monolingual SLPs are realizing the need to learn more about bilingual speech and language development to enhance their ability to provide equitable and appropriate services to their bilingual students. In response to this need, the first purpose of this paper is to review the current data about the phonological development of children who are bilingual in Spanish and English. Because there are so little data to date, the second purpose of this paper is to present a conceptual framework of bilingual development that will help SLPs distinguish between typical and atypical phonological patterns of Spanish-speaking children learning English.

While normative information on the phonological development of monolingual English speakers is readily available, there are less data from monolingual Spanish speakers, and minimal published data from bilingual (Spanish/English) children. One reason information is lacking about bilingual speech development is that no two bilinguals are alike. There is a great deal of variation in the ages at which children learn each language, the amount of exposure to each language, and the contexts in which they learn each language (Iglesias & Goldstein, 1998). The vast number of variables involved in bilingual speech acquisition makes it difficult to identify consistent patterns of acquisition in bilinguals. One important finding, however, is that bilingual children's speech development differs from both monolingual English and monolingual Spanish-speakers (Gildersleeve, Davis, & Stubbe, 1996). Thus, it is critical that identification of a bilingual child as speech impaired should not be based entirely on monolingual English or monolingual Spanish norms.

More specific patterns of bilingual phonological development have been identified by Goldstein (2001). With a small sample of children of Puerto Rican descent, Goldstein (2001) found that by four years of age, the only sounds this group of normally developing bilingual children produced with less than 90% accuracy were fricatives and affricates. Phonological processes that were common to this group of children included cluster reduction, final consonant deletion, and unstressed syllable deletion. While this developmental information informs us about the phonological development of a group of bilingual children of Puerto Rican descent, it is unknown how generalizable these data are to bilingual children from other regions and other Spanish dialects.

Until more information about typical bilingual phonological development becomes available, we can use the knowledge we do have to create a model that will help us predict additional patterns. In this paper, we will present information about the phonological systems of English and Spanish as well as a model for how those systems may interact in bilinguals. An important tool for distinguishing between typical and atypical phonological patterns of English language learners is a solid framework for understanding the processes involved in learning two languages. We present the Competition Model as a useful tool for understanding typical bilingual speech and language development. The Competition Model was proposed by Bates and MacWhinney (1982, 1987, 1989) to explain how individuals learn language. In this model, the rules of language are learned through attention to specific cues. Different cues are salient in different languages (MacWhinney, 1997). The cues that bilingual children learn earliest are those that occur most frequently and consistently, and are most perceptually salient. Word order is commonly cited in the literature as an example of a

language-specific cue. To illustrate, consider the sentence “Juan left.” Subject-verb word order is the only option for producing this sentence in English. Subject-verb-object word order as in “Juan left Susie” is more common than the reverse, “Susie was left by Juan.” Consequently, an English language learner can use word order cues to infer which word is the subject, verb, and object. In contrast, word order is not as reliable a cue in Spanish. Either subject-verb or verb-subject word order can be used to produce “Juan salió” or “Salió Juan.” To distinguish between the subject and object in “Juan dejó a Susie,” which can also be produced as “A Susie la dejó Juan,” a Spanish language learner must attend to clitics and prepositional cues.

Although the Competition Model is generally used to explain the development of syntactic and lexical aspects of language, the model can also be used to explain the phonological patterns of children exposed to two languages. Many elementary school students who are classified as limited English proficient are sequential language learners, meaning that they began learning a first language (L1) at home before learning a second language (L2) in school. English language learners may initially use cues from L1 when expressing themselves in L2. Using terminology from the Competition Model, this pattern is called *forward cue transfer* and it occurs when language learners have not yet figured out the cue system of the second language. Children may not yet have learned L2 cues, so they do the next best thing, which is to use the L1 cues they already know. For example, in Spanish, children learn that s-clusters only occur in word initial position when preceded by “e,” as in “escuela” (school). Before children learn that s-clusters can occur in word initial position in English, as in the word “school,” children might use

forward transfer of the L1 cue (the “es” rule they know from Spanish) to pronounce “eschool” in English.

There are other types of cue transfer as well. *Backward transfer* occurs when children use a strategy learned from L2 when using L1. This typically occurs as children gain proficiency in L2. *Differentiation* is another pattern of language development that describes how bilinguals use separate strategies for each language that are identical to those used by monolinguals of each language. Children are more likely to demonstrate differentiation when they have high level of proficiency in both languages. Finally, *amalgamation* refers to the application of a single set of strategies to both languages. This is most common in communities with a large population of bilinguals in which code-switching is a prevalent mode of communication. For the purposes of this paper, we will focus on forward transfer because it is the most common type of transfer for sequential bilinguals, who make up most of the bilingual elementary school population.

Spanish and English Phonological Systems

Spanish and English share a similar alphabet, but when the phonologies of the two languages are compared, many differences are revealed. These differences will influence the speech of Spanish-speaking children learning English. We can think of this influence in terms of the Competition Model. Before English language learners have internalized the phonological system in English, they may transfer what they know about Spanish to English. Knowledge of these differences will help the practitioner understand why some sounds in English are difficult for English language learners to perceive and produce. Even the practitioner who does not speak Spanish can become familiar with normal

speech patterns for English language learners.

The alphabets of Spanish (according to the Real Academia Española) and English are presented in the following table.

Table 1: Spanish and English alphabets

Spanish	a b c ch d e f g h i j k l ll m n ñ o p q r s t u v w x y z
English	a b c d e f g h i j k l m n o p q r s t u v w x y z

Some dictionaries also classify the trilled “rr” (also known as the rolled “r”) as a single letter. The letters “k” and “w” do not occur in words native to the Spanish language, but may occur in words adopted into Spanish such as “karate,” “washateria,” and “sandwich.” Three Spanish letters that are not found in English are the “ch,” “ll,” and “ñ.” The “ch” is considered a single letter in Spanish and it represents the same sound as the two-letter combination “ch” in English. The “ll” represents a sound that a monolingual English speaker may perceive as similar to the /j/ (“y”) in English. The “ñ,” represented by the phonetic symbol /ɲ/, may be perceived as similar to the “ny” sound in “onion.”

Vowel Systems

There are major differences between the vocalic phonemes in Spanish and English. In Spanish, there are five vowels that consistently represent the single tense vowel sounds /a/, /e/, /i/, /o/, and /u/. In contrast, English vowels represent many tense and lax vowel sounds including /a/, /A/, /ə/, /ɪ/, /e/, /E/, /i/, /I/, /o/, /Y/, /u/, and /ø/.

English language learners may use forward transfer by substituting tense vowels from L1 for lax vowels in English. For example, a student might pronounce the word “man” with the tense /a/ as in “mahn” instead of the lax vowel /ə/.

The following chart illustrates several examples of this forward transfer of Spanish vowels.

Table 2: Examples of Spanish to English forward transfer of vowels

<i>Spanish phonemes</i>	<i>English phonemes</i>	<i>Result</i>
/a/	/Θ/	“hat” may sound like “hot”
/e/	/E/	“get” may sound like “gate”
/i/	/I/	“hit” may sound like “heat” “this” may sound like “these”
/o/	/□/	“ball” may sound like “bowl”
	/ϕ/	“bun” may sound like “bone”
/u/	/Y/	“put” may sound like “poot”

Consonant Systems

The following chart shows the consonantal phonemes of Spanish and English by manner of production. This list includes the primary phonemes that exist in all dialects of Spanish. Depending on the dialect of Spanish, additional allophones of these sounds exist. However, we will focus on the most common Spanish phonemes to discuss typical speech patterns that may occur when speakers use forward transfer of the Spanish phonological system to communicate in English.

Table 3: Spanish and English consonantal phonemes

	<i>Spanish</i>		<i>English</i>	
	Voiceless	Voiced	Voiceless	Voiced
<i>Stops</i>	/p/ /t/ /k/	/b/ /d/ /g/	/p/ /t/ /k/	/b/ /d/ /g/
<i>Nasals</i>		/m/ /n/ /ɲ/ /		/m/ /n/ /ŋ/
<i>Fricatives</i>	/s/ /f/ /x/	/β/	/s/ /f/ /θ/ /ç/	/z/ /v/ /ð/ /ʒ/
<i>Affricates</i>	/tʃ/		/tʃ/	/dʒ/
<i>Liquids</i>		/l/		/l/ /r/
<i>Tap/Trill</i>	/r/ /rr/			
<i>Glides</i>		/w/ /j/		/w/ /j/
<i>Glottal</i>			/h/	

Spanish and English share several consonantal phonemes including the stop sounds /p/, /t/, /k/, /b/, /d/, /g/, the nasals /m/, /n/, the fricatives /s/, /f/, the affricate /tʃ/ (“ch”), the liquid /l/, the glide /w/, /j/, and the glottal /h/. Despite these common phonetic symbols, it is important to note that there are differences in voicing, aspiration, and precise place of articulation for many of these sounds that result in acoustic differences. We will now look at some of these differences in more detail.

Stops

One prevalent difference between Spanish and English stop consonants is that Spanish stops are less plosive, meaning that they are produced with less air pressure than their English pairs. This is particularly noticeable with the Spanish voiceless consonants /p/, /t/, and /k/, which monolingual English speakers sometimes perceive as their voiced counterparts (/b/, /d/, and /g/). Another difference is in voice onset time, which refers to the duration of vocal fold vibration before the release of air pressure. When stop

consonants occur in word initial position, voiceless stops in Spanish are produced with a relatively short voice onset compared to English. In contrast, English voiceless stops are produced with long voice onset time, and voiced stops are produced with short voice onset time. This difference can also lead to the perception of voiced rather than voiceless sounds. Another difference is the exact place of articulation. While the English phonemes /t/ and /d/ are produced on the alveolar ridge above the teeth, the Spanish /t/ and /d/ are produced with the tip of the tongue placed on the back of the teeth, giving these sounds a dentalized quality (Whitley, 1986).

As a result of differences in voice onset time and place of articulation, if an English language learner uses forward transfer of sound production from Spanish into English, a monolingual English listener may have difficulty distinguishing the student's production of voiceless /p/, /t/, and /k/ sounds from their voiced pairs /b/, /d/, and /g/. A child's production of words such as “bear” and “pear” or “time” and “dime,” for example, may sound very similar.

Nasals

The nasal sounds /m/ and /n/ are produced in the same manner in Spanish and English. As singletons, these sounds do not generally cause difficulty for Spanish speakers learning English. However, when these sounds appear in clusters, such as the word “sometimes,” it is not unusual for an English language learner to substitute the /m/ with the /n/ sound (Merino, 1992), or vice versa, particularly when such a substitution facilitates coarticulation. Because the /N/ sound is not one of the primary phonemes in Spanish, although it may occur as an allophone, particularly in Caribbean dialects of

Spanish (Goldstein, 2001), an English language learner may substitute it for the next closest sound, which is /n/. Consequently, the word “long” may be pronounced as “lon.”

Fricatives

As you can see from the Table 3, the fricative class presents several phonetic contrasts between Spanish and English. Though there are some similarities in the two language systems (e.g. both contain the phonemes /s/ and /f/), there are many differences. There are two Spanish phonemes that do not occur in English. The phoneme /x/ represents a voiceless sound produced with velar frication. The phoneme /B/ represents a voiced bilabial fricative. Because the English fricatives /T/, /Σ/, /z/, /v/, /Δ/, and /Z/ are not primary phonemes in Spanish (except /T/ in Spain) and are considered later developing sounds for English speakers, it would not be uncommon for a person who is learning English to have difficulty producing these sounds.

Forward transfer may again be used to substitute Spanish phonemes for their similar English counterparts. For example, the next closest Spanish phonemes to the English voiceless /T/ and voiced /Δ/ are voiceless /t/ and the voiced /d/, respectively. As a result, an English language learner may pronounce the words “think” as “tink” and “cloth” as “clot.” Similarly, “this” may be produced as “dis.” Voiced /z/ is often substituted by its voiceless pair /s/, so the word “zipper” may be produced as “sipper.” Even though Spanish includes the orthographic “v,” both the letters “b” and “v” represent the same phoneme in most dialects of Spanish. As a result, a Spanish speaker may use forward transfer of the phoneme /b/ or /B/, thereby producing “very” as “bery.” Voiced /v/ in word final position may be substituted with /f/, and so the word “leave” may sound like “leaf.” Finally, the voiceless /Z/ sound is not a primary phoneme in Spanish. The

closest Spanish phoneme is /t̪/. A word like “shop” might be produced as “chop.”

Affricates

Now that you are becoming familiar with patterns of forward transfer, you may foresee that a Spanish speaker might substitute the voiced phoneme /dʒ/ with the /t̪/ sound. This may often be the case. However, if you listen carefully or envision the co-articulatory movements that are required to produce a word like “jump,” you will notice that the glide /j/ is a co-articulatory product of the phoneme /dʒ/. Spanish speakers often perceive these English phonemes as allophones. As a result, a Spanish speaker may also substitute the glide /j/ for the English /dʒ/ sound and say “yust” for “just.” This is a common pattern of forward transfer and is not indicative of a speech disorder.

Liquids

The written letters “l” and “r” exist in both languages. For a child of the appropriate developmental age, the /l/ should not typically cause difficulty for the English language learner. The /r/, on the other hand, is produced quite differently between the languages, as a rhotic or retroflexed /r/ in English, and as a tap or trill in Spanish. A monolingual English speaker may perceive the Spanish tap /r/ to sound like the English tap in “butter,” or perhaps like an English /d/. An example of forward transfer of the Spanish tap /r/ for the English rhotic /r/ is “boding” for “boring.”

Glides

The bilabial glide /w/ and palatal glide /j/ occur in both Spanish and English. A listener may hear subtle differences in the way an English language learner produces these sounds in English. The /w/ sound may be produced with slight velar constriction. The phoneme /j/ may be produced with varying degrees of palatalization. Also, it would

not be atypical to hear the /j/ sound pronounced more like /dʒ/, which Spanish speakers may consider to be allophones, as mentioned earlier. For example, “yesterday” could sound like “jesterday.”

Glottal

The written letter “h” is silent in Spanish. The open glottal phoneme /h/ exists in some dialects of Spanish. For speakers for whom /h/ is not a common phoneme, the next most similar sound is the velar fricative /x/. As a result, a child may produce a word such as “horse” with more initial velar constriction than a mainstream English speaker.

Phonotactic Constraints

There are also differences in phonotactic rules about which phonemes can occur in which positions in syllables and words and in what combinations. For example, whereas most consonants can occur in word final position in English words, the only consonantal phonemes that occur in word final position in Spanish are /d/, /n/, /s/, /x/ (or /h/), /l/, and the tap /r/ (which represent the written letters d, n, s, z, j, l, and r). Another phonotactic difference is that consonant clusters are common and can occur in any word position in English. In Spanish, however, consonant clusters are much less frequent and are subject to more constraints. For example, initial /s/ clusters can only occur in Spanish if preceded by the letter “e.” As a result, English language learners may use forward transfer and add a schwa to words beginning with /s/. For example, they may pronounce “store” as “estore.” Further, consonant clusters cannot occur in word final position in Spanish. Children may thus drop the final consonant in consonant clusters when producing words in English. For example, they may reduce the final cluster in “test” to “tes,” or in “sound” to “soun.” As a result of such differences in phonotactic constraints,

the fact that a child can produce a particular sound in Spanish does not necessarily mean the child will automatically produce that sound correctly in English (Merino, 1992).

Summary and Conclusions

Sequential language learners are those who have acquired a first language (L1) before learning a second language (L2). We have discussed the Competition Model in order to provide a framework for understanding sequential language learners' phonological development. Forward cue transfer is a common process in sequential bilinguals that involves using the cues learned in their L1 and applying that knowledge to L2. Now that you are familiar with this conceptual framework of bilingual speech and language development, as well as the basic features of the Spanish and English phonological systems, you will be better equipped to recognize when a child's speech errors in English may be attributed to normal forward cue transfer from Spanish. Note that in addition to speech, you may also observe these patterns of phonological transfer in children's early spelling, since children often use a phoneme-to-grapheme or sounding out strategy when they write. As we discussed earlier, bilingual learners' phonological development may differ from English or Spanish monolingual development. Thus, monolingual norms should not be used alone, and skills must be assessed in both languages with consideration of the interaction between L1 and L2.

Because of phonemic differences among various dialects of Spanish, it also will be important to know what dialect(s) the child is exposed to in the home and community. Parents, of course, are an excellent source for more insight into the child's speech skills and language history. The clinician who needs assistance communicating with the parents/caretakers can often find another family member, neighbor, or teacher who can

help translate. It is important to find out when, from whom, and in what contexts the child began learning each language, if the parents and similar peers have trouble understanding the child's speech, and what articulation errors the child produces in the home language. If intelligibility is indeed a concern, if the child's speech patterns in both languages are not developmentally appropriate, and if speech errors cannot be clearly explained by cue transfer, it is likely that speech services are warranted.

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