

## Bilingual Progression : The Current Sound System of a Young Learner

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**Bilingual Progression:  
The Current Sound System of a Young Learner**

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While the fields of first language acquisition has been studied in detail (Brown, 1973; deVilliers and deVilliers, 1973; Kilma and Bellugi, 1966) and second language acquisition research focuses on issues such as the critical period hypothesis (Birdsong, 1999; Robertson, 2002), interference (Dulay and Burt, 1974; Richards, 1971), interlanguage, comprehensible input (Krashen, 1981), and strategy use (Nation, 2001), far less research has been conducted on the dual acquisition of a first language – bilingualism. Most researchers agree that the acquisition of a first language is guaranteed as long as acquisition begins at a very early age (Pinker, 1994; Steinberg, 1993). Limits on this "guaranteed age for L1 acquisition" remain unspecified and are under debate in the realm of critical period research (Bialystok and Hakuta, 1994; Johnson and Newport, 1989). However, the problem with most L2 research is that it often assumes that the acquisition of a second first language (presumably what could be called the weaker of the two languages) is also guaranteed and therefore not subject to study (Bialystock, 1997). This point of view ignores an important research area that, with closer scrutiny, may reveal a great deal about the fluent use and successful integration of two or more languages. Undoubtedly even bilingual learners must deal with issues such as interference, comprehensible input (in both languages) and some manner of strategy use (in order to organize input into its constituent languages and assist in code switching).

The current case study aims at providing more data for the field of dual L1 acquisition by examining the simultaneous acquisition of English and Japanese phonemes in a young language learner, as well as offer some sight into possible issues that may be explored in further research.

**SUBJECT**

The subject, June, is a 2.5 year-old girl currently living in Japan with her Japanese mother and American father. Both parents speak English at home as much as possible, though when June's Japanese grandparents come to visit, the family often switches to Japanese to facilitate communication. Due to the large amount of contact June gets with her Japanese grandparents as well as spending all day with her mother, the input she receives has been observed to be at approximately 60-65% English and 35-40% Japanese.

June has received varying degrees of Japanese and English input over the last two and a half years. However, she was born in Japan and has heard Japanese almost exclusively for the first two

months of her life. Then she moved to the United States where she lived for the next four months (ages 2mo to 6mo) where she received mostly English input. Then, June once again moved back to Japan where she currently resides.

## METHOD

June is a talkative and outgoing little girl and therefore it was relatively easy to obtain speech samples for analysis. Approximately half of the data collected for this study was taken from a recent video recording of June playing at home. The remainder of the data used was collected by speaking and playing with June. Due to the nature of the phonetic sound system, it is believed that there is little or no possibility that June could "fake" a sound she cannot currently produce as production, in its own right, denotes the physical and mental ability to produce and employ such sounds. Therefore, the less frequently occurring sounds, such as flapping ([ɾ]) or the velar lateral consonant [ɭ], were elicited directly through a series of guessing games (e.g., "What's this?") or through direct inquiry (e.g., "Can you say ~?"). Tables 1-6 below summarize June's current phonetic production abilities for both English and Japanese.

## ANALYSIS

A preliminary glance at June's phonetic inventory shows that she has already acquired the entire English vowel system (Table 1 below) as well as most of the English phonemes (Tables 2-5 below). However, June still has difficulty with unmarked English allophones, most notably those related to the alveolar stops /t/ and /d/ as well as those related to the alveolar liquids retroflex /r/ and lateral /l/.

Table 1. *Vowels present in June's English sound system.*

iy		uw	
ɪ		ʊ	ɔw
ey	ə	ow	ay
ɛ	ɚ	ɔ	oy
æ		ɑ	

## Stops

Despite clearly favoring the unmarked allophones from each phoneme group, June did not appear to have much difficulty producing the bilabial stops /p/ and /b/ (see Table 2 below). She was easily able to produce these sounds in words such as *red pants* [rɛd<sup>o</sup>pænts], *open* [owpɒ] *button* [bət<sup>h</sup>ən], and a mispronounced *I love you* [aɪrəb<sup>o</sup>yʊw]. However, there are some hints that she may still be in the process of acquiring the aspirated and unreleased allophones [p<sup>h</sup>] and [p<sup>o</sup>] as seen in the word *stop* which was pronounced as both [stap<sup>h</sup>] and [stap<sup>o</sup>] at different times.

While June was quite adept in producing the velar stops /k/ and /g/ in words such as *big* [bɪg<sup>o</sup>], *cat* [kæt], and *together* [t<sup>h</sup>uɪwgeðəw], she had a lot of difficulty producing the alveolar stops /t/ and /d/. June was able to produce unmarked alveolar stops (e.g., *stop* [stap<sup>o</sup>] and *dada* [dædæ]), the aspirated voiceless [t<sup>h</sup>] in a mispronounced *button* [bət<sup>h</sup>ən], and the unreleased voiced [d<sup>o</sup>] as in *red pants* [rɛd<sup>o</sup>pænts], though somewhat inconsistently (e.g., *red pants* [rɛdpænts], *bird* [bət], and *goodbye* [gubay]). However, for the less marked allophones June was unable to generate them and relied heavily on simplification or substitution. For example, when faced with a flapped (or laterally released) alveolar stop /r/, June substituted it with the unmarked voiced /d/ (e.g., *little* [lɪdow] and *kitty* [kɪdiy]). She also substituted an unreleased voiceless [t<sup>o</sup>] with the unmarked voiceless /t/ in *cat* [kæt] and *feet* [fiyt], substituted a nasally released [t<sup>n</sup>] with a heavily aspirated [t<sup>h</sup>] (e.g., *button* [bət<sup>h</sup>ən]), and a laterally released [d<sup>l</sup>] with the unmarked /d/ in the mispronounced *fiddle* [fɪdow]. A dentally released alveolar stop was not elicited as June is currently unable to produce the inter-dental fricative /θ/ rendering this particular phonetic combination impossible.

Table 2. *Stops present in June's English sound system.*

Bilabial		Alveolar		Velar	
Unvoiced	Voiced	Unvoiced	Voices	Unvoiced	Voiced
p	b	t	d	k	g
p <sup>h</sup>	--	t <sup>h</sup>		k <sup>h</sup>	
p <sup>o</sup>	b <sup>o</sup>		d <sup>o</sup>	k <sup>o</sup>	g <sup>o</sup>

### *Fricatives and Affricates*

As can be seen in Table 3 below, June has little difficulty with fricatives and affricates. She easily produced the labio-dentals /f/ and /v/ in examples like *five* [fayv] and *feet* (with an unmarked /t/) [fiyt]; likewise having little trouble producing the alveolars /s/ and /z/ in *X* [ɛk<sup>o</sup>s] and *eyes* [ayz] and the glottal /h/ in *hot dog* [hat<sup>h</sup>dɔg<sup>o</sup>]. June was also able to produce the alveo-palatal affricates /tʃ/ and /dʒ/ as seen in a mispronounced *two* [tʃuɰ] and a correctly pronounced *G* [dʒiy]. The interdental and alveo-palatal fricatives, however, were not so forthcoming for June. While the voiceless inter-dental /θ/ was commonly dropped from a frontal position (e.g., *thank you* [aynkyuɰ]) and substituted with a labio-dental /f/ from a final position (e.g., *mouth* [mawf]), June was, however, able to produce the voiced interdental /ð/ as seen in *this is* [ðisiz]. She was also able to produce the voiceless alveo-palatal /ʃ/ as in *Shh!* [ʃ:], but not the voiced /ʒ/ which is likely due to its low frequency of occurrence in English.

Table 3. *Fricatives and Affricates present in June's English sound system.*

<i>Labio-dental</i>		<i>Inter-dental</i>		<i>Alveolar</i>		<i>Alveo-palatal</i>	
<i>Voiceless</i>	<i>Voiced</i>	<i>Voiceless</i>	<i>Voiced</i>	<i>Voiceless</i>	<i>Voiced</i>	<i>Voiceless</i>	<i>Voiced</i>
f	v		ð	s	z	ʃ	
						tʃ	dʒ

### *Nasals*

June was able to produce the base nasal phonemes of /m/, /n/, and /ŋ/ as seen in *mouth* [mawf], *now* [naw], and *pinky* [p<sup>h</sup>iyŋkiy] (see Table 4 below). She was also able to produce the rare labio-dental [ɱ] in the example *symphony* [sɪɱfəniy], though she placed the major stress on the second syllable and not the first. Other rarer forms of nasals such as the syllabic [m<sub>1</sub>] and [n<sub>1</sub>] and the dentally articulated [ɳ] were not produced, the latter again owing to June's lack of the fricative /θ/ in her sound system. The former may be related to difficulties in producing consonant clusters (e.g., *goodbye* [gubay] and *spaghetti* [suɰpəgɛdiy]).

Table 4. *Nasals present in June's English sound system.*

<i>Bilabial</i>	<i>Labio-Dental</i>	<i>Alveolar</i>	<i>Velar</i>
m	ɱ	n	ŋ
		n <sub>1</sub>	

### *Liquids*

June's biggest difficulty lies in producing liquids, /r/ and /l/, as can be noted in Table 5 below. June was only able to produce the retroflex /r/ in word-initial position (e.g., *red pants* [rɛdpænts] and *rain* [reɪn]). For all other instances of /r/, be it the voiceless fricative [ɹ] or voiced fricative [r̥], June either produced a Japanese-flavored [r] as seen in *I love you* [aɪrə b<sup>o</sup>yuw], substituted with the stop /d/ as with the middle-position in *raspberry* [æsbɛdiy], or simply dropped it altogether (e.g., *girl* [giyow] and *bread* [bɛd<sup>o</sup>]). Similarly, all instances of the lateral /l/ with exception of the word- initial /l/ in *little* [lɪdow], are either substituted with the vowel /ow/ (e.g., *girl* [giyow], *little* [lɪdow], and *fell* [fɛow]) or simply dropped (e.g., *please* [p<sup>h</sup>iyz]).

Table 5. *Liquids present in June's English sound system.*

<i>Retroflex</i>	<i>Lateral</i>
r	l

### *Semi-vowels*

Not too surprisingly, June has little difficulty in producing the semi-vowels /w/ and /y/ in examples such as *W* [dəbowyuw], *what* [wat<sup>o</sup>], *yeah* [yɛa], and *you* [yuw].

### *Japanese Sound System*

June's Japanese sound system closely resembles her abilities in English, her difficulties, and even some of her substitutions. As notes in Table 6 below, June is able to produce all five of the basic Japanese vowels, /a/, /ɪ/, /u/, /e/, and /o/. Likewise she is able to produce the basic Japanese consonants /k/, /s/, /t/, /n/, /h/, /m/, /y/, /r/, /w/, /ʃ/, /tʃ/, and /dʒ/ (see table 7 below).

Table 6. *Vowels present in June’s Japanese sound system.*

i		u
e		o
		a

Table 7. *Consonants present in June’s Japanese sound system.*

	<i>Bilabial</i>	<i>Labio-dental</i>	<i>Inter-dental</i>	<i>Alveolar</i>	<i>Alveo-palatal</i>	<i>Velar</i>	<i>Glottal</i>
<b>Stops</b>	p b			t d		k g	ʔ
<b>Fricatives</b>				s z	ʃ		h
<b>Affricates</b>					tʃ dʒ		
<b>Nasals</b>	m			n		ŋ	
<b>Liquid – Retroflex</b>				r			
<b>Liquid – Lateral</b>				l			
<b>Semi-vowels</b>	w				y		

Perhaps most interesting to note is some interference between June’s English and Japanese sound systems. As noted previously, June will often substitute the retroflex /r/ with a Japanese-flavored [ɾ] (e.g., *I love you* [aɪrəʔb°yʊw]). Another substitution she occasionally makes is replacing the Japanese vowel /a/ with the English [æ] as in the example, *konyaku* [koyæku].

## CONCLUSIONS

With just a superficial survey of June’s phonetic abilities in both Japanese and English it’s difficult to tell what affect dual L1 acquisition may be having on her sound system. Further details could be discovered by analyzing the development of her sound system over the last 2.5 years (with the aid of video records), by comparing her current abilities at age 2.5 with those of her younger sister when she reaches the same age (having only lived in Japan under unchanging linguistic situations), or by comparing June’s current abilities with that of native English or Japanese monolingual speakers of the same age. Such future research would not only aid in the search for examples of first L1 and second L1 interference, but may also bring to light any variations in acquisition caused by the increased cognitive load necessary to learn two languages simultaneously.

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