Convergence: When Two Languages Meet – Part I

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Abstract

The purpose of this longitudinal study was to document the process of one child's bilingual language development where the home language is not the language of the majority community in order to a) answer if language exposure and input in each language must be equivalent for bilingual proficiency to be achieved and b) determine at what point in language development is spoken bilingual proficiency achieved as measured by vocabulary knowledge and use. Language development was assessed through three standardized measures and an ongoing expressive inventory of spontaneous words. It was determined that even with greater exposure to the majority language, at age 2 the child developed a firm base for language simultaneously in both languages, and her overall receptive and expressive language skills were above average given her age when tested in either language. Her receptive and expressive vocabulary skills were reduced by comparison but still within normal limits. These findings are consistent with the research demonstrating that children are capable of navigating two languages simultaneously and achieving strong bilingual language skills, and furthermore, they suggest that quality and consistent exposure and input in each language, even if unequal or disproportionate, place the dual language learner on the right path to simultaneous bilingualism. Additional time is needed to discern when spoken bilingual proficiency is achieved as well as when language differentiation becomes apparent. Implications for speech/language pathologists and educators are discussed pertaining to their role in the assessment of bilinguals and in providing parents training and resources to maintain quality exposure and input in the minority language at home.

Introduction

Imagine the joining of two rivers, one brown and hazy and the other one blue-green and clear, and yet little intermingling of the waters as they converge? This very thing is a peculiar attraction in Bangladesh's widest river, the Meghna River. It is formed by the merging of different rivers which converge with the Padma River and eventually flow into the Bay of Bengal. Local boatmen point out that "when the brown and hazy water of the Padma mix with the clear water of the Upper Meghna, the two streams do not mix but flow in parallel down to the sea – making half of the river clear and the other half brown" ("Meghna River," 2011).

Now imagine the joining of two languages and two distinct streams flowing in parallel down into the sea of bilingual communication. Could this be, at least in part, a picture of simultaneous bilingual language development?

Simultaneous bilingualism, also known as bilingual first language acquisition (De Houwer, 2009), refers to the exposure to and acquisition of two languages prior to age three and usually from birth. A simultaneous bilingual learner can come from a majority environment, where both the first language (L1) and the second language (L2) are spoken and supported in the community, which is the optimal environment for

bilingual proficiency, or from a minority environment, where the minority or home language is not spoken or supported in the dominant culture and community, which requires more conscious exposure and effort for bilingual proficiency to be achieved (Alvarez, 2011). Research studies support that simultaneous bilinguals acquire language at a similar rate and sequence as monolinguals, and it has been shown that early exposure to two languages is not disadvantageous and does not lead to confusion, poor language development, or language delay (Patterson, 1999; Junker & Stockman, 2002). As a matter of fact, new research shows that infants born to bilingual mothers who spoke both languages during pregnancy can already discriminate between the two languages ("Bilingual Babies," 2011). In other words, even prenatal bilingual exposure sets the stage for bilingual proficiency.

The following study attempts to shed light on simultaneous bilingual language development from a minority environment. The main question to be answered is: Does language exposure and input in L1 and L2 have to be equivalent for bilingual proficiency to be achieved or is quality and consistent input in both languages enough, even if there is greater exposure to the majority language? The secondary question is: At what age does one reach spoken bilingual proficiency, at least measured by vocabulary knowledge and usage?

Background

This study is of a female child born in the United States to a Brazilian mother and an American father. The child will be referred to as RM throughout the rest of this study.

Mother, who will be referred to as M, was born in Brazil but immigrated to the U.S. at age 10. Portuguese is her native language, and she received formal schooling in Portuguese in Brazil. Even though she was immersed into an English-only educational system at an early age, she has retained the ability to proficiently understand, speak, read and write in Portuguese. English is her second language learned prior to puberty with native proficiency. Due to primary, secondary, and post-secondary schooling in English, English is her dominant language at this point as evidenced in her use of more diverse and complex vocabulary and grammar, as well as greater ease and flow in general. Spanish, her third language, was learned with near-native proficiency through course study and a language immersion program abroad. M holds a master's degree. Because M is the author of this study, measures have been taken to reduce potential bias when obtaining and analyzing data, which will be discussed later.

Father, who will be referred to as F, was born in the United States and his native language is English. He holds an associate's degree. F is fully supportive of M's commitment and effort to speak only Portuguese when addressing RM, their firstborn, even at the expense of him not understanding. He has learned some Portuguese vocabulary which he uses at will with RM. His primary language of communication with her, however, is English. RM's other consistent exposure to English is her paternal grandmother, videos, select children's television shows, books, church and other outings in the majority community.

From birth, RM spends the majority of her time with M who primarily stays home. All mother-child interactions (i.e. talking, playing, reading, singing, eating, bathing,

etc.) are in Portuguese only. RM has limited interaction with other Portuguese-speaking relatives, some bilingual and some monolingual, either through family trips or via Skype. She has a limited number of children's videos and books in Portuguese, but books in English are translated on the spot by M when read aloud to her. At 19 months, RM gained a little brother, and M's interactions with him have also been strictly in Portuguese from birth, so she only hears M speaking in English when addressing English-speaking family members and friends. The context of RM's exposure to English has been more variable than her Portuguese exposure due to the changing dynamics of F's work schedule, grandmother visits, the variability of community outings and such.

M has been conscientiously intentional about how and how much she talks to RM from the time she was a newborn, consistently singing children's songs, reading through age-appropriate books, and talking through everyday activities such as eating, dressing, playing, etc. as opposed to just going through those activities without verbal output. Additionally, M also utilizes techniques such as language modeling and syntactic/semantic expansions. For example, if RM would say, "Cat eat," M would affirm the utterance while expanding it, "Yes, the cat is eating his food. It's yummy!" If RM would request something by stating one word with rising intonation to demonstrate a question such as, "Milk?" M would formulate the complete question while meeting that request, "Would you like to drink some milk?" The language models and expansions always occur in Portuguese, even if RM's utterance is in part or completely in English, in order to encourage use of Portuguese. Another technique used to encourage the use of Portuguese is sentence recasting, where an utterance is recast or presented in a different or changed structure while maintaining its meaning. For example, if RM would utter a phrase or sentence entirely in English, that utterance would be recast in Portuguese, modeling correct usage where any lexical or grammatical gaps were noted.

Method

Because no other Portuguese-speaking evaluators were available, M administered all measures to assess RM's language skills in Portuguese. In order to minimize bias, M employed a monolingual speech/language pathologist (SLP) to evaluate RM's English language skills. Additionally, in order to obtain a truer representation of her language skills in English only, the monolingual evaluator did not consider skills in Portuguese reported by the caregiver. RM's performance in English was considered only as demonstrated in the testing sessions.

The following measures were chosen for assessment: Preschool Language Scale, Fourth Edition (PLS-4), Preschool Language Scale, Fourth Edition, Spanish (PLS-4 Spanish) – translated into Portuguese, Receptive One-Word Picture Vocabulary Test, Second Edition (ROWPVT-2), Expressive One-Word Picture Vocabulary Test, Third Edition (EOWPVT-3), and a spontaneous expressive word inventory. M attempted to obtain the MacArthur-Bates Communicative Development Inventories (CDIs) adaptation in Portuguese that is currently being normed in Brazil, but she was unable to do so after multiple requests.

Translation of the PLS-4 Spanish instead of the PLS-4 was chosen since RM more closely compares to bilingual norms as opposed to monolingual norms.

The ROWPVT-2 and EOWPVT-3 were administered in English and in Portuguese upon translation. The Spanish editions of the ROWPVT and EOWPVT were not chosen to be translated as they are normed for children ages 4 and up.

Though the translation or adaptation of any standardized measure invalidates the norms, the results of all translated or adapted measures were cautiously used for analysis in order to obtain a general picture of RM's dual language development.

Results

Figures 1 and 2 display RM's performance in English and Portuguese shown through both single-language and conceptual scoring. Conceptual scores indicate performance counting correct responses in either language, thus accounting for her knowledge and use in both languages.

Figure 2. Results of Receptive One-Word Picture Vocabulary Test and Expressive One-Word Picture Vocabulary Test at age 2;1 (years; months).
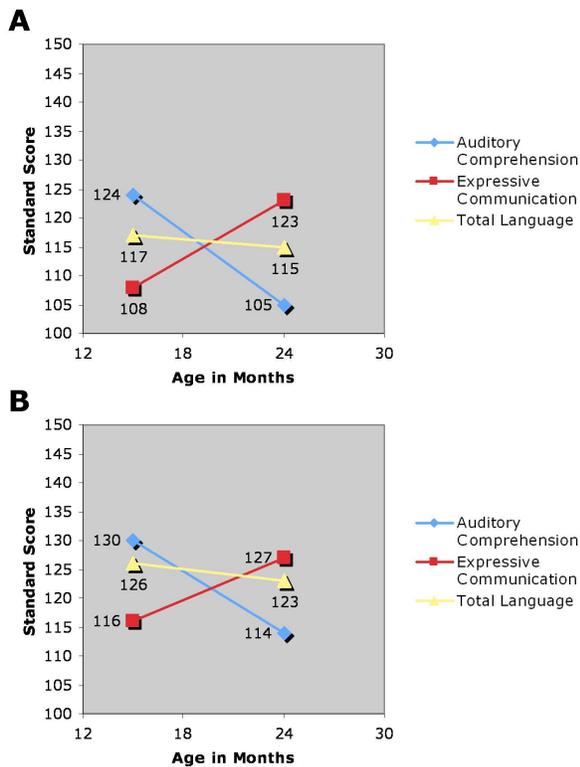
Figure 1. Results of Preschool Language Scale, Fourth Edition (A) administered in English (B) PLS-4 Spanish translated and administered in Portuguese.
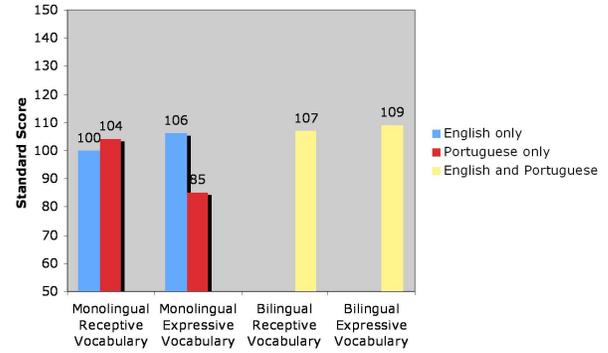
It should be noted that the PLS-4 Spanish (administered in Portuguese) allows for code mixing, or alternating between two languages, as long as using an English grammatical form that is parallel to the form being tested in Portuguese (e.g. *eating* for *comendo* – both gerunds), so the higher expressive score on that test includes correct responses in either language. This code mixing provision resembles conceptual scoring and yields more holistic scores.

The vocabulary tests were also scored using single-language and conceptual scoring. Single-language scores indicate RM's performance counting only English responses for the test administered in English and only Portuguese responses for the test administered in Portuguese. Conceptual scores indicate RM's performance counting the total number of correct responses in either language. Conceptual scoring is particularly useful to gain a more accurate picture of a child's combined vocabulary knowledge in their two languages (Bedore, Peña, Garcia, & Cortez, 2005). Analysis of correct responses in either language showed 75% of her receptive vocabulary was bilingual (also referred to as overlapping) and 35% of her expressive vocabulary was bilingual.

A spontaneous expressive word inventory was kept from the time RM was 15 months old. At 15 months, she spontaneously spoke 15 words (12 in Portuguese and 3 in English, primarily labels to persons or objects), and she demonstrated better receptive skills in Portuguese, such as identifying body parts and clothing items, or following simple two-part commands. Of these spontaneous words, she produced Consonant-Vowel (CV) and CVCV combinations, including vowels /a, o, u, ɛ, æ/ and consonants /m, b, w, d, g, k, n, v/, sometimes varying the vowel sound in a syllable string.

At 19 months, RM spontaneously spoke 37 words (21 in Portuguese, 16 in English), adding vowels /i, I, ə/, diphthongs /aI, ɔI/, and consonants /h, j, s, z/. It was also noted that though she understood the meaning of many words in both languages, she consistently would choose the expressive form that was easier to pronounce (e.g. *horse* instead of *cavalo* [horse] or *uva* [grape] instead of *grape*). RM began forming two-word utterances at 20 months, three-word utterances at 22 months, and four-word utterances at 23 months.

At the onset of RM's verbal communication, phonological processes evident in both languages were assimilation (the most prevalent initially), syllable reduction in multisyllabic words, consonant cluster reduction, gliding of /r/ and /l/, and stopping of alveolar flaps. The process of assimilation was significantly reduced by 24 months, and vowels /ɔ, ʊ/, diphthongs /ɛI, aʊ/, Portuguese triphthong /aiʊ/, and consonants /p, f, t, tʃ, ʒ, ŋ/ were added. In addition, RM was beginning to use nasal vowels and consonants which are common in Portuguese, such as nasalized diphthongs as in *mamãe* (mommy) or *pão* (bread), and /ɲ/, a nasal consonant blend as in *massinha*

(playdough). Cross-linguistic phonological interference was also evident, such as incorrectly aspirating /p/ and /t/ in Portuguese.

A more detailed inventory of spontaneous words was recorded over a five-week period just prior to RM's second birthday. Analysis of her words showed a total of 373 lexicalized concepts (one concept expressed by one word). Of those 373 concepts, 102 were verbalized in both languages (known as translational equivalents), therefore, RM demonstrated a total of 475 words at 24 months (320 in English, 155 in Portuguese). At age 2, this measure showed 27% of her expressive vocabulary was bilingual, correlating closely with the EOWPVT. It should be noted that variations of words spoken (i.e. conjugated verbs or plural markers) were not counted again if the root word was counted (e.g. *do*, *doing*, *done*, *did* were counted as one root word – *do*, and *baby/babies* were counted as one root word – *baby*). Names of people (e.g. *Silas*), places (e.g. *McDonalds*), or brands (e.g. *Froot Loops®*) were not counted. Homonyms (e.g. the verb *swing* versus the noun *swing*) were counted twice if used appropriately to show both concepts. RM's spontaneous words consisted of nouns (primarily names of foods, animals, family members, body parts, toys, clothing, and objects around the house), verbs (present and past tense, gerunds), adjectives, adverbs, pronouns, interjections, prepositions, articles, and conjunctions. She also demonstrated the use of regular plural markers, some irregular plurals, and occasionally possessive /s/. Furthermore, this ongoing inventory shows that between 19 and 24 months of age, RM experienced a sudden increase of new words, sometimes referred to as a word spurt.

Two interesting occurrences were noted close to 23 months. The first deals with translating and the second with code mixing. If M would say in Portuguese, for example, *O gato está comendo* (The cat is eating), RM might show agreement by repeating the utterance but using a combination of Portuguese and English words, *Gato eat food*. In essence, she was closely translating the utterance, most likely in order to reduce the verbal demand of the Portuguese words she could not yet pronounce in that particular instance. In her sentence, the evidence of code mixing was also seen, which again is the alternating of two languages within a phrase or sentence. The translating and code mixing instances occurred frequently in everyday interactions. A further point of interest is that RM had no model of code mixing from M. The mixing of codes only occurred as M alternated languages between individuals (i.e. F and RM) but never with the same individual.

Discussion

RM showed Portuguese dominance in the initial stages of her dual language development, likely due to greater Portuguese exposure and limited community interaction at a younger age. In essence, English was a peripheral language until RM was introduced to videos and songs in English, as well as English-speaking nursery workers and occasional babysitters, where English exposure increased significantly. As time has passed, though RM uses both languages on a daily basis, she is showing a tendency to favor English.

Even with greater exposure to the majority language within the majority culture, RM appears to be developing a firm base for language simultaneously in both languages. Her overall receptive and expressive language skills are above average given her age when tested in either language. Her receptive and expressive vocabulary skills are reduced by comparison but still within normal limits. The measures also show that 75% of her receptive vocabulary is overlapping and 27-35% of her expressive vocabulary is overlapping at 2 years of age. Though it is expected that the percentage of RM's overlapping knowledge and use will continue to increase, research has shown that bilinguals are seldom equally fluent in their two languages (Grosjean, 2011; Genesse & Nicoladis, 2005).

It is important to recall that the conceptual scoring yielded results that acknowledged her knowledge in both languages, which Bedore et al. (2005) suggest as potentially more accurate in classifying typical versus reduced skills in bilingual children. Even though RM's expressive vocabulary is currently higher and more diverse in English, her overall comprehension appears slightly higher in Portuguese. This is likely a result of the Portuguese exposure from birth, which has remained central and constant.

These preliminary data support the current research showing that dual language learning from infancy is a natural and advantageous process given sufficient exposure and input in each language. Though more normative data is needed regarding the specific amount of language exposure and input necessary in each language, this study suggests that quality and consistent exposure and input in both languages place the dual language learner on the right path to simultaneous bilingualism, even if the minority language exposure is not the same and essentially limited in the majority community. It should be noted, however, that in this study quality input signified a linguistic environment where mother-child interactions involved ongoing

verbal interactions about things, routines and events, as well as singing, book sharing and reading experiences, including purposeful modeling, expansions, and recasts. Though purposeful, these interactions were naturalistic and not forced. Consistent input in the minority language signified that mother-child interactions were constant and exclusively in Portuguese from birth, and the strict exclusion of English was intentional to clearly draw a line between the two languages in her linguistic environment.

One interesting thing to point out is the inverse relationship seen in both languages between RM's receptive and expressive language skills from 1 year to 2 years of age, where receptive scores decreased while expressive scores increased. Though it has been suggested that bilinguals receive less input per language than monolingual children do, this disparity is not showing itself in her overall expressive communication. It should be noted that the higher Expressive Communication (EC) scores should not be viewed as an atypical outcome since according to the PLS-4 examiner's manual, having a higher EC score is actually not as unusual in the normal population as one may think.

The fact RM was unconsciously compensating for her temporary verbal or phonological deficiency in Portuguese by occasionally translating utterances is also an interesting skill. Translating requires active listening, processing meaning, remembering the input, then presenting the input back in another form without changing the meaning, therefore, this skill was not anticipated this early in her development.

Though code switching and mixing have been previously viewed as an indication of language deficiency, the research

demonstrates quite the opposite. Brice & Anderson (1999) explain that "language alternation is a normal, common, and important aspect of bilingualism…for the bilingual child, the processes of code switching and code mixing require a rule-governed and sophisticated cognitive and linguistic manipulation of the two languages" (p. 18). Put another way, "code mixing reflects the developing bilingual child's use of all linguistic resources to express him or herself when mastery of each language is incomplete" (Genesse & Nicoladis, 2005). It has also been shown that code mixing can be evident as early as 2 years of age, and its frequency tends to decrease as children get older. Older children and adults learn when it is appropriate to utilize code mixing to enhance communication (i.e., when the listener is also bilingual). At 24 months, though RM was code mixing appropriately and spontaneously, she was not yet making the distinction between monolingual versus bilingual communication partners. Since RM has had no model of code mixing from M (i.e. M did not code mix as she normally would with other bilingual communication partners), it appears in this case that language alternation is not a learned behavior but potentially an innate ability. This observation is contrary to some studies cited which suggest that code mixing in children is proportionate to the amount of code mixing they hear from adults (Kohnert, Yim, Nett, Kan, & Duran, 2005).

As this study is continued, it will further investigate if and at what point RM's vocabulary knowledge and use approximate 100% translational equivalents and at what age language differentiation becomes visibly apparent, where she understands that Portuguese is not the majority language in her community and reserved for her immediate family.

Implications

The differences between monolingual versus conceptual scores seen in this study highlight the importance of conceptual scoring, where knowledge and use of both languages are considered, since it appears to better classify typical performance (Bedore et al., 2005). The results also suggest that reduced expressive vocabulary skills in very young children, particularly in the minority language, may not necessarily indicate a true expressive delay.

This study also holds implications for educators and SLPs, especially school-based SLPs who have regular contact with children of diverse backgrounds and their families. Even with all the research available pointing to the overwhelming benefits of bilingualism, there are still SLPs and educators in the majority community who discourage parents from speaking to their children in languages other than English, even when English is not their dominant language or language of preference. As this study suggests, exposure and input are extremely important so we should find ways to encourage and support rich, consistent and long-term exposure and input of minority languages through parent education, training, and accessibility to appropriate materials and resources. The home language is also crucial in the intervention process with bilingual children with language impairment, and incorporating systematic support of the home language in addition to the majority language has been shown to yield marked gains. (See Kohnert et al., 2005 for additional discussion.)

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