Speech Sound Development in Children Learning English as a Second Language in a Bilingual International School in China

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Background and Objectives: This study focuses on the English speech development patterns of young children in a bilingual international school in China. It aims to study this population's unique phonetic and phonological acquisition and the impact of grade level, age of onset, and length of time in the bilingual program. Specific research questions include: 1) What are the participants' overall accuracy of consonant and vowel productions across grade levels? and 2) How do the second language learner's age, length of English exposure, quality, and quantity of language input at home affect the students' English speech accuracy?

Methods*:* Participants included 31 children (11 from grade 1, 11 from grade 2, and 9 from grade 3) attending a bilingual Mandarin-English international school in Hainan, China. Mandarin Chinese is the first language of most students except for a few students born in North America for whom English was their first language. None of the participants reported having a speech or language delay or receiving speech therapy services. Mandarin and English are the instructional languages, with half of the courses provided in English and the other half in Mandarin. Most students receive English input primarily from school, although some listen to and speak English at home. Receptive vocabulary in English was measured using the Peabody Picture Vocabulary Test (PPVT-5; Dunn, 2019). Single-word productions in English were elicited using the Goldman-Fristoe Test of Articulation (GFTA-3; Goldman, 2015). Single-word productions in Mandarin were also elicited to compare speech production patterns across the two languages. A trained speech-language pathologist (SLP) and two additional trained SLP students transcribed the speech data. The accuracy of the speech productions and error patterns were obtained by analyzing the transcriptions using the software Phon (Hedlund & Rose, 2020). A mixed effects logistic regression model was used to examine factors, such as grade levels, word positions, and mode of production (spontaneous versus imitative), that may impact the accuracy of a given speech sound.

Preliminary Results*:* The initial mixed effects analysis revealed that word positions and mode of speech production impact consonant and vowel accuracies. Students' grade levels and the time spent in the program had an insignificant impact on the accuracy of their English productions. Mixed effects and the descriptive phonological analysis revealed that unshared English sounds such as /ɬ/, /θ/, /ð/, /v/, /ɹ/, and /z/ were among the consonants with which the students struggled. Lax vowels, compound rhotic vowels, and vowels such as /æ/ and /ɔɪ/ were difficult for the students. Regression results suggest significant correlations between English speech sound accuracies and factors such as PPVT scores in English, grade levels, and age of onset.

Contributions: Most existing second language speech learning research (Flege, 1995) focuses on adult speakers and bilingual children acquiring a social majority second language (Hack et al., 2012; Holm & Dodd, 1999). This research addresses these gaps and offers insights into sequential bilingual children acquiring a social minority language.

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