

Reconceptualizing Bilingual Effect on the Development of Phonological Awareness: A Study with Children in General Education and Japanese-English Immersion Programs

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Background

In the past two decades, the number of children exposed to a second language in early childhood has escalated worldwide. Learning a second language is not only a pressing concern for immigrant children, but also for children who speak a majority language. A rapid growth in immigration, combined with an increasing awareness of the importance of passing a heritage language to the next generation and learning a foreign language in early childhood, has prompted a series of scientific investigations of the impact of early bilingualism on children's cognitive development, in particular, their metalinguistic development.

Metalinguistic awareness refers to the ability to manipulate linguistic units and reflect upon structural properties of language. Among the investigated aspects of metalinguistic awareness in bilingual literacy research, phonological awareness, the ability to manipulate and reflect upon sound units, has received the most attention because of its critical role in early literacy development. It has been well-established in first language literacy research that phonological awareness is one of the strongest predictors of early literacy achievement (for a review, see Kuo & Anderson, 2008). However, in second language reading research, despite the vigorous investigation of the relationship among bilingualism, phonological awareness and literacy development, several methodological and conceptual limitations have persisted.

Existing research has revealed a positive bilingual effect on phonological awareness in bilinguals with a wide range of bilingual proficiency, but in most cases, among bilinguals speaking two typologically related languages (e.g., Chen et al., 2004). On the other hand, when the two languages are typologically distant, null or negative bilingual effects were reported (e.g., Bialystok et al., 2005). These studies generally explain bilingual effect from a *cross-language transfer* view. Thus, it remains unanswered whether there is bilingual effect *per se* in the domain of phonological awareness, or whether the effect is simply conditioned by the relationship between the phonological structures or the orthographic depth of the language pair.

The present study extends the scope of previous research by reexamining bilingual effect on phonological awareness with a recently developed theoretical framework, *structural sensitivity theory* (Kuo & Anderson, 2010), which postulates that having access to two languages renders structural similarities and differences between languages more salient, thus allowing children to form representations of language structure at a more abstract level. Following this theory, bilingual advantage in phonological awareness would go beyond cross-language transfer and not be conditioned entirely by phonological structures or orthographic depth of the language pair.

The study was conducted with English- and Japanese-speaking children because English and Japanese are contrasted in both phonology and orthography. In terms of phonology, Japanese has a much simpler syllable structure than English. While an English syllable can have up to three consonants in the onset (e.g., *spray*) and four consonants in the offset (e.g., *adjuncts*), a Japanese syllable can have at most one consonant in the onset and at most a nasal consonant in the offset. In terms of orthography, English is alphabetic with most of the phonemes, in particular, consonants, fairly consistently corresponding to individual letters.



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Contrastively, the Japanese writing system is considered mixed logographic and syllabic. In a logographic script, each written symbol represents a morpheme instead of a sound; in a syllabic script, each written symbol represents a syllable. *Hiragana*, the script that beginning Japanese readers learn first, is syllabic. The other two scripts are *katakana*, which is also syllabic and used to represent loan words, and *kanji*, which is logographic. The distinctive contrast in phonology and orthography between Japanese and English affords an opportunity to reevaluate the *cross-language transfer theory* and the *structural sensitivity theory* and to develop a more comprehensive understanding of the development of phonological awareness among bilingual children.

Method

The study was conducted with 120 first and second graders at a Midwestern elementary school that offered both general education and Japanese-English two-way immersion programs. 40 students were monolingual English speakers attending the general education program; 40 were native Japanese speakers in the immersion program and 40 were native English speakers in the immersion program. Participants from three groups had comparable socio-economic backgrounds, home literacy experiences and non-verbal IQ.

Participants took researcher-developed onset awareness tasks that used real and pseudo English words. The items also varied in syllable structure and the presence of the sounds in both languages. Additional literacy measures included vocabulary, pseudo-word reading in Japanese and English and reading comprehension in English. The vocabulary and word reading measures were designed with consideration of the structural similarities and differences between Japanese and English.

Preliminary Findings and Future Research

Repeated measure analysis of variance shows that the three groups of children performed similarly in the real word condition of the onset awareness task. However, in the pseudo-word condition, which required phonological skills at a more abstract level, children in the immersion program, including the Japanese-speaking children, who had less exposure to English at home, outperformed children in the general education program. The findings provided preliminary empirical support for *structural sensitivity theory* and called for a need to reconceptualize bilingual effect on early literacy development. Further analysis will be conducted to examine the relationship between phonological awareness, vocabulary, word reading and reading comprehension within and across languages.

References

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