The impact of input factors on bilingual development

Quantity versus quality

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In Sorace's (this issue) discussion of factors that could explain why interfaces are vulnerable to optionality, attrition or non-convergence in bilingual speakers, she includes a subsection on input factors. Sorace proposes that input quantity and quality could be modulating factors in the reduced integration abilities in bilinguals that could cause crosslinguistic influence at the syntax–pragmatics interface between their languages. She refers to studies of young bilinguals that found differences in children's acquisition outcomes as a function of residing in a majority or minority context — differences likely rooted in input factors. (e.g., Argyi & Sorace, 2007; Serratrice, Sorace, Filiaci, & Baldo, 2009; Sorace, Serratrice, Filiaci, & Baldo, 2009). In this commentary, I elaborate on the impact of input factors on bilingual development, in minority contexts in particular.

Sorace notes that bilinguals of all ages residing in a minority context would have fewer opportunities to hear and use one of their languages. Thus, the quantity of input in that language would be reduced, and this in turn could impact an individual's processing and representation of that language. Regarding developing bilinguals in particular, several studies have shown them to have more advanced morphosyntactic acquisition in the language of greater exposure, typically labeled their "dominant" language (e.g., Gathercole, 2007; Gathercole & Môn Thomas, 2009; Paradis, 2009; Paradis, 2010; Paradis, Nicoladis, Crago, & Genesee, in press). Gathercole and colleagues examined morphosyntactic acquisition in both Spanish-English bilinguals in Miami, USA, and Welsh-English bilinguals in Wales. This research found that amount of exposure to a language at home and at school was a significant determinant of children's morphosyntactic attainment in that language, and the degree to which they approached monolingual or adult speaker performance on a task. Paradis and colleagues' work on French-English bilingual children in a French-minority context in Western Canada show parallel findings (Paradis, 2009; Paradis, 2010; Paradis et al., in press). Importantly, Gathercole and

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Môn Thomas (2009) found a discrepancy between the impact of input factors on the minority language Welsh and the majority language English. Generally-speaking, variation in home and school input in English ceased to have any impact on acquisition outcomes after the early elementary school years. These researchers argue that bilingual children's sensitivity to input factors is greater for a minority than a majority language.

Thus, the evidence that quantity of input influences the progress of bilingual development is robust and well researched. However, in the case of young bilinguals' ability to reliably separate their dual linguistic systems at the syntax–pragmatics interface, input quality might be an equal, or perhaps more relevant, factor. What does "input quality" refer to? It could refer to how much variation exists in the form and use of morphosyntactic structures in a child's linguistic environment. For example, multiple dialects, different proficiency levels due to speakers who are intermediate learners or who are experiencing attrition, can all contribute to variation in the form and use of structures in a speech community — in a minority sociolinguistic context in particular. Variation in the form and use of a structure in the input could lead to optionality in the learner's use and processing of that structure and/or influence a learner's underlying linguistic representation for that structure, leading to non-convergence with the monolingual grammar. Although Gathercole and Môn Thomas (2009) focus on quantity of input in a minority context, since Welsh is a language undergoing recent revitalization with very few (if any) monolingual speakers, variation in the form and use of morphosyntactic structures presented to Welsh-speaking children in the input might be greater than for other languages in other minority contexts. Such variation could contribute to optionality or "errorful" usage of some structures by children.

Few studies of bilingual development examine quality factors in the input children receive, but those that have support the hypothesis that quality factors could make a difference. Paradis and Navarro (2003) examined the use of null and overt subjects in a Spanish-English bilingual toddler and found that she produced more redundant overt subjects than her monolingual Spanish-speaking peers. This could have been the result of crosslinguistic influence from her English grammar, where overt subjects are obligatory, but examination of the girl's input suggested another potential explanatory factor. This girl was exposed to input with more overt and redundant subjects than her monolingual peers, mainly from her non-native speaker mother. Therefore, this study points to the possibility that the kind of input, as opposed to the amount of input, could contribute to crosslinguistic influence in a bilingual child's speech.

In a recent study of individual differences in English L2 learning children in Canada from minority L1 backgrounds, Paradis (in press) compared quantity and quality measures of input directly. Input quantity measures included how

much English children spoke at home (as opposed to their L1), and input quality measures included the richness of the English environment, determined by the amount of native-speaker contact children experienced via media, playmates and organized extra-curricular activities. Multiple linear regression analyses revealed that richness of the English environment contributed significantly to children's acquisition of English verb morphology, but use of English at home among family members contributed very little. While verb morphology is not an interface structure like null and overt subject use, this finding suggests that future research on interface structures in bilingual development might find that input quality measures contribute to crosslinguistic influence, or other kinds of vulnerability, at interfaces.

The role of input quality raises the issue of what crosslinguistic influence at the syntax–pragmatics interface in young bilinguals actually consists of. Does it consist of interactions between an individual's grammars at the processing or representational level, or does it consist of external factors such as variability in the form and use of the structures an individual is exposed to, or both? In stable bilingual contexts with a minority language, crosslinguistic effects and other outcomes of vulnerability at interfaces could be multi-generational in nature. This speculation leads to one final point: it is important to bear in mind that the word "quality" is being used here in a neutral, non-judgmental sense. Variations in the form and use of some structures are a natural and expected occurrence in a bilingual speaker and in a bilingual social context, and thus, deviations from monolingual form and use should not be automatically viewed negatively, lest we view bilingualism itself negatively.

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