

## **The effect of age of L2 acquisition and total amount of language exposure on verbal fluency in bilingual third-graders**

Recent studies have contributed to a greater understanding of how bilingual lexical development is influenced by age of language acquisition (AoA) as well as amount of language exposure; however, these two factors prove difficult to disentangle. Verbal fluency is a lexical measure that has shown differences between monolingual and bilingual individuals (Bialystok, 2009). Semantic fluency, a measure of semantic richness, requires timed word generation under a semantic category condition. Phonological fluency is word generation under a phonological constraint and is related to phonological associations and executive functioning. Bilingual adults have shown equal performance with monolinguals on semantic fluency when matched on proficiency, while scoring higher than monolinguals on phonological fluency (Bialystok, 2009). In school-aged children, bilingualism was found to be a factor only in semantic fluency, with bilinguals performing lower (Friesen et al., 2015). These studies did not further consider potential effects of AoA or amount of exposure on verbal fluency.

This study addressed the impact of timing of first exposure to the second language by comparing typically developing simultaneous and sequential learners of French on verbal fluency tasks. It was predicted that simultaneous and sequential learners would perform on similar levels, while an effect would be seen of amount of exposure. It was also predicted that the association with exposure would be stronger with semantic fluency than phonological fluency.

Simultaneous and sequential bilingual French and English-speaking third-grade children participated as part of a larger study (N = 37, mean age = 8;10). Detailed information about language history and exposure patterns over lifetime was obtained by parent report. Cut-off for sequential learning of French was set at 36 months. Twenty-five children were considered simultaneous bilinguals, and 13 were sequential learners. Eighteen of the children were also

exposed to languages other than English and French. The experimental tasks were semantic (fruits and clothes) and phonological fluency (initial letter F, A, and S). Six of the children were only tested in French due to inadequate English according to parents.

Comparing the performance in French between simultaneous and sequential bilinguals with independent t tests, no significant differences were found on either task (semantic:  $p = .202$ ; phonological:  $p = .825$ ). Additionally, paired sample t tests found that the participants performed significantly higher on semantic than phonological fluency (French:  $t(36) = 9.15$ ,  $p = .000$ ; English:  $t(30) = 9.58$ ,  $p = .000$ ). Further, AoA was not significantly correlated with either task in French (semantic:  $p = .291$ ; phonological:  $p = .283$ ), while a small correlation was found between AoA of English and semantic fluency in English ( $r = -.392$ ,  $p = .029$ ), but not with phonological fluency ( $p = .171$ ). Significant correlations were found between amount of exposure to English and both semantic ( $r = .651$ ,  $p = .000$ ) and phonological fluency in English ( $r = .532$ ,  $p = .000$ ), with a stronger association with semantic fluency. In French, amount of exposure showed a small correlational effect only with semantic fluency ( $r = .328$ ,  $p = .048$ ).

In conclusion, when it comes to language experience, it appears to be a matter of how much rather than timing.

## REFERENCES

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