

Co-activation of languages across modalities: Deaf bilinguals activate signs when reading print

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Studies on hearing bilinguals have shown that during lexical processing, non-target languages and target languages are activated simultaneously (e.g. Dijkstra & Van Heuven 2002). Moreover, previous studies have demonstrated that cross-language activation can be observed even if the languages do not share the same modality. Both deaf and hearing bilingual adults seem to activate signs when reading printed words – this finding has been replicated for several languages (Kubus et al. 2015; Morford et al. 2011; Pan et al. 2015). In the present study, we investigated cross-language activation during development. To this end, we tested deaf American Sign Language (ASL)-English bilingual middle school students ($n = 39$; age range = 11–15 years), as well as a hearing control group ($n = 26$; age range = 11–14 years) in a monolingual English semantic judgment task. The experimental task followed the implicit priming paradigm by Morford et al. (2011; adapted from Thierry & Wu 2007). Half of the English word pairs had phonologically related translation equivalents in ASL, whereas half of the translation equivalents were unrelated. Phonologically related translation equivalents shared two of three phonological parameters (handshape, location and/or movement). Results revealed that the deaf children, but not hearing controls, displayed an effect of cross-language activation in their response time data. Therefore, our findings indicate that crossmodal co-activation of the target and non-target language can be observed not only in adulthood, that is, after a long time of experience, but already during development.

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