

## Bimodal bilingualism and executive function in hearing children, native signers

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According to the hypothesis of an EF bilingual advantage, bilinguals need to control language processing to a greater extent than monolinguals and this is thought to bring greater experience in managing high-level demands, resulting in general EF benefits in non-linguistic tasks (Bialystok 2017). Bimodal bilingualism – in a sign language and a spoken language – provides a unique opportunity to examine the cognitive effect of using two highly different languages with two distinct perceptual and motor systems (Emmorey, Luk, Pyers & Bialystok 2008).

This study is the first looking specifically on EF in bimodal bilingual hearing children – BSL native signers who are growing up in deaf families in the UK. The EF level of bimodal bilingual children was compared to unimodal bilinguals and monolinguals. In the present study three groups of children (bimodal bilinguals, unimodal bilinguals and monolinguals) did not differ significantly on WM skills and cognitive flexibility. Bimodal bilinguals outperformed monolinguals on overall accuracy in the Simon task (conflict resolution). However, the effect size was small, suggesting only a potential effect of bimodal bilingualism on conflict resolution capacity. From the perspective of bilingualism, executive function skills in both groups of bimodal children may be connected with language switching opportunities and language processing demands (Green & Abutalebi 2013). From the perspective of modality, the advantage in the Simon task may reflect experience of visual-spatial language (Giezen, Blumenfeld, Shook, Marian & Emmorey 2015).

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