English proficiency predicted the Cantonese-English bilinguals' attentional control ability in auditory and visual domains

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Research objectives:

The beneficial effect of bilingualism on attentional control (the ability to focus on targets) is under debate. Previous studies investigated the group difference between monolinguals and bilinguals in an auditory attentional control task (forced-attention dichotic listening paradigm, FADL), but found inconsistent results (bilinguals outperformed monolinguals or null effect). A possible reason was that the traditional grouping method ignored the variance in individuals' bilingual experiences. One recent study improved the method by using the Language History Questionnaire (LHQ-3) to quantify each Mandarin-English bilingual's experiences. It found that participants with higher L2 English proficiency showed better performance in the visual attentional control task (i.e., Simon). However, it is unknown whether 1) the improved method can be extended to examine the bilingual effect in the auditory task and 2) which bilingual experience is crucial across modalities. Therefore, the current study measured bilingual experiences with multiple, continuous variables. It aimed to investigate if higher-level bilinguals performed better in the auditory task and which bilingual variable predicted the attentional control ability in both auditory and visual tasks.

Methodology and Key findings:

60 Cantonese (L1) - English (L2) bilingual adults (aged 18-25) finished the experiment. LHQ-3 measured proficiency, dominance, and immersion in each language. They finished the FADL task on Cantonese tones from their L1 (simultaneously presenting tonal minimal pairs to each ear, focusing on one ear, and identifying the tone presented in that ear). Mixed-effect models showed that only English proficiency positively predicted attentional control performance. They also finished the arrow Simon task (pressing buttons according to the direction of arrows) and their English proficiency predicted the task performance as well.

Our study echoed the previous suggestion of treating bilingual experiences as continuous variables. It further extended the bilingual effect on attentional control from the visual to the auditory domain. Importantly, L2 proficiency was specified as a promising resource for bilingual effect across modalities.