

The role of bilingual experiences on attentional control in the dichotic listening: evidence from younger and older Cantonese-English bilinguals

Attentional control, a sub-category of executive function, is believed to be practiced when bilinguals/multilinguals use one language and inhibit others, resulting in a better attentional control performance than monolinguals. Most of the research examined this bilingual effect in the visual domain (e.g., Flanker). Only a few research adopted the forced-attention dichotic listening paradigm (FADL; simultaneously presenting two different stimuli to each ear and forcing attention to either ear) to investigate the bilingual effect in the auditory domain but yielded inconsistent findings. One possibility is the gradient bilingual experiences are neglected by the binary comparison of bilinguals and monolinguals. In addition, the age difference (younger vs. older) in the bilingual effect remains unclear. Therefore, the current study, with bilingualism measured as gradient variables, investigated the bilingual effect on (auditory) attentional control for Cantonese (L1)-English (L2) bilinguals in their lifespan.

In Experiment 1, 60 younger adults (aged 18-25) completed the Language History Questionnaire (LHQ-3; aggregating scores of proficiency, dominance, and immersion) and a FADL task on lexical tones from their dominant language (i.e., Cantonese). Bayesian mixed-effect analysis showed that multilingual diversity (MLD) scores and L2-L1 dominance ratio (i.e., more frequent usage of L2) positively predicted attentional control in the FADL task. In Experiment 2, 57 older adults (aged 59-72) followed the same procedure. A similar model did not show a significant relationship between bilingual experience and FADL performance.

The younger adults' results support the bilingual effect on attention control in the less-documented auditory domain. Importantly, bilingual experiences (multilingual ability and frequent usage of L2) that are related to attentional control are specified. The lack of the effect for older adults might be explained by a narrow range of bilingual variables (e.g., MLD scores), and studies need to find older adults with more diverse bilingual experiences to further investigate the bilingual effect.