Determining Whether the Onset Age of Bilingualism Enhances Cognitive Control

Choi, Michelle (School: Iolani School)

My research examines whether bilingualism improves cognitive control and whether the onset age of bilingualism enhances bilinguals' cognitive control through the Stroop Task. Cognitive control is the ability to control or moderate one's behaviors or thoughts, which includes our working memory, switching attention skills, and inhibitory control skills. The Stroop Task assesses the participants' ability to inhibit cognitive interference, which evaluates the participants' overall cognitive processing abilities. The reaction time in the Stroop Task assesses how enhanced one's cognitive control is, meaning a faster reaction time suggests a more improved cognitive control. Two types of Stroop Tasks, Text Naming Task and Color Naming Task, were used to assess the participants' cognitive performance. I determined whether bilingualism enhanced our cognitive control by examining if the bilingual participants' cognitive performance improved compared to those of the monolingual participants. The bilinguals were also divided into early and late bilinguals (bilinguals who acquired their second language before/after age 10) to determine whether learning a second language earlier would affect cognitive performance. My research participants were Japanese Americans ranging from 17 to 18 years old. In this research, I assessed their cognitive performance, evaluated their language proficiency, and determined the bilinguals' onset age of bilingualism. The results of my study suggested the existence of the bilingual advantage as the bilinguals performed better in the Stroop Task than the monolinguals. Additionally, my results suggested that early second language acquisition may enhance cognitive control as the early bilinguals had the fastest reaction time in both Stroop Tasks.

Awards Won:

American Psychological Association: Complimentary student affiliate memberships

American Psychological Association: Third Award of $500