The Effects of Multilingualism on the Working Memory of Human Subjects

Gomez, Joaquin (School: Benjamin Franklin High School)

The purpose of this study was to determine whether or not multilingualism had an effect on working memory capacity and retention of information. The null hypothesis was that there would be no correlation between multilingualism and working memory, while the alternate hypothesis was that there would be a positive correlation between multilingualism and working memory. The study in question was done by testing the capacity of the one hundred subjects' working memory via three computer tasks, two of which were developed by the student researcher. The subjects were sorted into two groups, multilingual and monolingual, to determine the number of languages the subjects spoke regularly. Before beginning, the subjects were given a verbal explanation of the computer tasks. The tasks focused on storage, processing, and visuospatial aspects of working memory. The subjects then completed a self-assessment on how many languages they spoke, with parameters given if they were unsure whether they were fluent. The amassed data for the three tasks showed an overall 10.5% increase in score with a significant p-value of 0.012445 for the multilinguals who spoke their second language at home over the monolinguals, and one of 13.5% with a p-value of 0.001195 for the multilinguals who spoke their second language only at school over the monolinguals. In particular, the multilinguals significantly outperformed the monolinguals in the processing and visuospatial working memory tasks. Altogether, the results show that multilinguals have advantages at working memory over monolinguals.

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