Developing an Application to Measure Stroop Interference in Bilinguals

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Stroop Interference can be used to measure one's fluency, relative to other individuals, in a specific language. The goal of this project was to design an electronic application that could measure one's Stroop Interference. Firstly, individuals from Spain, France, Germany, Israel, and Russia were contacted. Each individual would work with a group of participants that were bilingual in their home language, as well as English. Next, each participant's (at least 9 per language) Stroop Interference was calculated with a paper test. This was done to ensure that each group's Stroop Interferences resembled normal models when placed into histograms. After this, the development of the application began, using GameMaker Studio 2 to build the app. Each language has a specific "room," accessed from a main menu, where each Stroop Test would be conducted. The Stroop Test consisted of a singular word being flashed upon the screen, and the individual pressing the correct key (up, down, left, right) to match the colour of the word text. After 15 words, the individual's time to complete the task was calculated. The app was then sent back to the contacts for distribution to the participants. From there, histograms were made measuring their Stroop Interferences, and they appeared unimodal and symmetric. These histograms, also resembling normal models, suggest that the app works as intended, as it matches the normality of the paper test. This application can serve as an inexpensive method to measure an individual's fluency, and has a potential use in an educational environment.

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