Psychophysiological Correlates of Language Processing and Handedness

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Left-handedness and forced handedness (left-handed to right-handed, or vice versa) have been tangibly proven to worsen brain functions, through higher incidences of neurodevelopmental disorders and rewiring of hemispheric specialization. Electroencephalography (EEG) brainwaves were analyzed from subjects in a psychomotor skill task and language comprehension task, using a BrainMaster Discovery 24E channel amplifier. This study explored the novel idea of analyzing subjects' motor skills using Fitts Law as a concise model for hand movement. Subjects' bandwidth was charted in bits per second, and mean time to respond was recorded. In coalition, word-pair and sentence priming language comprehension tasks were presented to subjects. Subjects' EEG brainwaves were measured using time-locked N200, N400, P300, and P600 ERP components. Reaction time and accuracy were also recorded. The results showed a strong adherence to the claim that handedness will significantly affect reaction time, accuracy, and the ERP components. Conclusively, this study may aid in the creation of particular psychological and physiological handedness benchmarks for global reference use, in the benefit of all humans.

Awards Won:
American Psychological Association: Certificate of Honorable Mention