Theme: Cognitive Neuroscience

Exploring behavioral and neurophysiological markers of metacognitive efficiency on late bilinguals learning affect-laden pseudowords

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Abstract:
The following abstract corresponds to the first experimental stage of the presenting author's PhD project.
This study investigates how affective appraisal during pseudoword learning influences metacognitive efficiency (ME) in late bilinguals. Prior research suggests that highly proficienct bilinguals may exhibit enhanced metacognitive abilities due to their experience managing multiple linguistic cues, which could also be linked with a reported better emotional regulation against linguistic tasks. To test this, the experiment will entail 64 portuguese-english bilinguals in a pseudoword-learning task where half the words are paired with affective stimuli, and the other half with neutral stimuli. After learning, participants complete a test phase where they match pseudowords to objects and rate their confidence for ME measurement. Neurophysiological data will be collected via EEG and ECG to track brain and autonomic responses to affective stimuli, including event-related potentials (ERPs), heartbeat-evoked potentials (HEPs), and heart rate variability (HRV).
We hypothesize that (1) affective pseudowords will lead to lower ME than neutral ones, (2) second language proficiency will be positively correlated with better ME overall, especially in the affective condition, and (3) neurophysiological markers of emotional embodiment will correlate with ME reductions.
This study aims to enhance our understanding of how affective and linguistic factors interact to influence metacognition, with implications for the fields of bilingualism and emotional language processing.

Keywords: Bilingualism, Metacognition, Emotional Regulation, ERP, HEP