

A Neurocognitive Study into the Combination of Senses and Language Learning: A Case of EEG

Shaghayegh Shayesteh

Ferdowsi University of Mashhad, shaghayegh.shayesteh@gmail.com

Abstract

As many studies have examined the cognitive and emotional aspects of language learning, few studies seem to have explored its sensory aspect. Therefore, using electroencephalography (EEG), this study intended to examine a number of sensory combinations contributing to language learning. These combinations which have their roots in the emotioncy model, consisted of avolvement (no sensory combination), exvolvement (three-sense combination: auditory, visual, & tactile), and involment (five-sense combination: auditory, visual, tactile, olfactory, & gustatory). The findings of the EEG experiment on a sample of 20 subjects showed that these sense combinations modulate the oscillatory neuronal dynamics of language learning to different extents. In particular, the three-sense combination approach led to an increase in the delta power over the areas which were not involved in language learning. That is, due to this slow-wave effect, some cortical areas become less active to help the related regions stay alert and maintain concentration for learning.

Keywords: *Language Learning, EEG, Delta Wave, Emotioncy*