

Word Learning in Late and Novice Learners of German

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The neural correlates of word learning were investigated by presenting German cognates, German noncognates and English matched control words to participants while being scanned with Functional Magnetic Resonance Imaging (fMRI). Thirteen monolingual, English speaking participants were asked to learn a list of German words and their definitions before scanning. While scanning, subjects were asked to decide if the words were living or non-living. Using SPM analysis, comparing noncognates with English words, increased activity was discovered in the right transverse temporal gyrus and in Heschl's gyrus. Similarly, an English to cognate comparison indicated activity in the right inferior lobule, transverse temporal gyrus and Heschl's gyrus. These findings may indicate that the auditory system is accessed to determine cognate status. Noncognates compared to English words resulted in increased activity in the supplementary motor area, cingulate, caudate nucleus, thalamus and basal ganglia. Comparing German words to English words, there was increased activity in the middle frontal gyrus and anterior cingulate gyrus. These areas of activation indicate that, to facilitate recognition during the early stages of word learning, indirect, motoric processes may be more important than semantic processes. Overall, these results help to elucidate how the brain is able to use cross-language similarity during early stages of foreign language learning. These findings will be compared to a group of more fluent, late-learners of German to determine if any differences in neural processing exist and to help clarify how the neural processing of language changes with extended learning.