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**Literature Search Results**

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**Enquiry Details**

The lit search is for second language learning and how the brain stores second languages (L2) and how the brain stores L2 phonology.
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Select Edit from the menu, the Find and type in your term in the search box which is presented. The search function will locate the first use of the term in the document. By pressing ‘next’ you will jump to further references.
Research

Second-Language Learning and Changes in the Brain


Presumably, second-language (L2) learning is mediated by changes in the brain. Little is known about what changes in the brain, how the brain changes, or when these changes occur during learning. Here, we illustrate by way of example how modern brain-based methods can be used to discern some of the changes that occur during L2 learning. Preliminary results from three studies indicate that classroom-based L2 instruction can result in changes in the brain’s electrical activity, in the location of this activity within the brain, and in the structure of the learners’ brains. These changes can occur during the earliest stages of L2 acquisition. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2600795/


Noriaki Yusa, Masatoshi Koizumi, Jungho Kim, Naoki Kimura, Shinya Uchida, Satoru Yokoyama, Naoki Miura, Ryuta Kawashima, and Hiroko Hagiwara

Adults seem to have greater difficulties than children in acquiring a second language (L2) because of the alleged “window of opportunity” around puberty. Postpuberty Japanese participants learned a new English rule with simplex sentences during one month of instruction, and then they were tested on “uninstructed complex sentences” as well as “instructed simplex sentences.” The behavioral data show that they can acquire more knowledge than is instructed, suggesting the interweaving of nature (universal principles of grammar, UG) and nurture (instruction) in L2 acquisition. The comparison in the uninstructed complex sentences” between post-instruction and pre-instruction using functional magnetic resonance imaging reveals a significant activation in Broca’s area. Thus, this study provides new insight into Broca’s area, where nature and nurture cooperate to produce L2 learners’ rich linguistic knowledge. It also shows neural plasticity of adult L2 acquisition, arguing against a critical period hypothesis, at least in the domain of UG. see attached

The Mental Lexicon in Second Language Learning

Anna Cieslicka-Ratajczac Studia ANglica undated


Learning Second Language Vocabulary: Neural Dissociation of Situation-Based Learning and Text-Based Learning

Hyeonjeong Jeonga Motoaki Sugiuraa, Yuko Sassa Keisuke Wakusawab, Kaoru Horiec, NeuroImage Volume 50, Issue 2, 1 April 2010, Pages 802–809

Second language (L2) acquisition necessitates learning and retrieving new words in different modes. In this study, we attempted to investigate the cortical representation of an L2 vocabulary acquired in different learning modes and in cross-modal transfer between learning and retrieval. Healthy participants learned new L2 words either by written translations (text-based learning) or in real-life situations (situation-based learning). Brain activity was then measured during subsequent retrieval of these words.
The right supramarginal gyrus and left middle frontal gyrus were involved in situation-based learning and text-based learning, respectively, whereas the left inferior frontal gyrus was activated when learners used L2 knowledge in a mode different from the learning mode. Our findings indicate that the brain regions that mediate L2 memory differ according to how L2 words are learned and used.

Cross-Linguistic Universals in Reading Acquisition with Applications to English-Language Learners with Reading Disabilities.
Gorman BK. Semin Speech Lang. 2009 Nov;30(4):246-60
There is a considerable gap in English reading achievement between English-language learners and native speakers in the United States. Differentiation of whether English language learners' struggles are symptomatic of reading disability or related to second language acquisition is often challenging. These issues highlight the need for increased insight into reading development and disability in this population. The purpose of this article is to provide an overview of cross-linguistic universals in reading acquisition, how reading disabilities manifest in various languages, and whether diagnostic and instructional approaches that are effective for native English speakers are also appropriate for English-language learners. Recommendations for assessment and intervention practices for at-risk and reading-disabled English-language learners are provided.

Early Language Acquisition: Cracking the Speech Code.
Infants learn language with remarkable speed, but how they do it remains a mystery. New data show that infants use computational strategies to detect the statistical and prosodic patterns in language input, and that this leads to the discovery of phonemes and words. Social interaction with another human being affects speech learning in a way that resembles communicative learning in songbirds. The brain's commitment to the statistical and prosodic patterns that are experienced early in life might help to explain the long-standing puzzle of why infants are better language learners than adults. Successful learning by infants, as well as constraints on that learning, are changing theories of language acquisition.

See also Database Results Below