

Cognitive mechanisms of word learning: Contributions from amnesic patients and healthy ageing

ABSTRACT:

Word learning is a lifelong skill with two facets that differ in time course and neural underpinning. Phonological configuration swift depends on the hippocampus and episodic memory. Lexicalization emerges slowly, with neocortical underpinning, and involves lexical competition. Surprisingly, no study has hitherto examined the role of the hippocampus on lexicalization, in the transition from episodic to abstract lexical representations. We run two complementary studies: one with hippocampus-resection's patients, the other with healthy older adults (> 60 yrs). We hypothesized that the presence of schemas (rich semantics) at encoding of new words facilitates lexicalization but only in hippocampus malfunctioning. In Study 1, epileptic patients vs. control adults were tested. In Study 2, young and old adults matched in critical variables. Both studies adopted the same paradigm. Participants were exposed to spoken new words with a visual item: orthographic (new-word's form) or semantic (a picture of a real rare item). The two facets were assessed in Days 1, 2, and 8. Lexicalization was indirectly studied with semantic categorization of real words: if the new item (e.g., daffadat) were lexicalized, recognition of base-words (e.g., daffodil) would be slower than of control words (e.g., pelican). The pattern of results was similar in both studies. Phonological configuration was less influenced by the visual context in older than young adults. In contrast, lexicalization was only affected by the visual context in older adults. Both groups showed robust lexicalization effects on Day 8 but, for older adults, only for items in the semantic context. Lexicalization is preserved along ageing and in hippocampus malfunctioning thanks to semantic information.

Keywords

Word learning, Episodic and semantic memory, Temporal lobe epilepsy, Healthy ageing

Published Work:

Araújo, S., Fernandes, T., & Huettig, F. (2018). Learning to read facilitates the retrieval of phonological representations in rapid automatized naming: Evidence from unschooled illiterate, ex-illiterate, and schooled literate adults. *Developmental Science*, e12783. doi: 10.1111/desc.12783

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