



HOW THE BRAIN LEARNS NEW WORDS: VOCABULARY ACQUISITION

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Abstract

This article explores the process of vocabulary acquisition, its connection to the brain, common challenges that learners encounter, effective strategies for memorization and retention, and practical implications for both students and teachers.

Keywords: Vocabulary Acquisition, hippocampus, prefrontal cortex, declarative memory, spaced repetition, active engagement, long-term memory, short-term memory.

Introduction

In recent decades, interest in language learning has increased dramatically. More and more individuals are eager to acquire new languages, as doing so is highly beneficial for their education, careers and future aspirations. However, it should be acknowledged that students often face challenges while mastering the vocabulary of a foreign language. One of the most common difficulties is the tendency to forget newly learned words.

The brain is a remarkable organ that constantly adapts and reorganizes itself when we are exposed to something new. When we encounter unfamiliar words, multiple regions of the brain work in coordination. The hippocampus plays a crucial role in forming new memories, while the prefrontal cortex helps maintain focus and organize incoming information. (Gazzaniga, Ivry, & Mangun, 2018).

At the initial stage, new words are processed through their phonological form (how they sound) and later through their semantic form (what they mean). Repetition and meaningful associations allow these words to be transferred from short-term memory to long-term memory. (Baddeley, Eysenck, & Anderson, 2020).



Long-term memory can be divided into two main types: declarative and procedural. Declarative memory is responsible for storing facts and knowledge, which makes it highly relevant for vocabulary acquisition. When we learn new words, they are mainly encoded and retained through this type of memory. Procedural memory, in contrast, is related to unconscious skills and routines we have already mastered—such as riding a bicycle, speaking fluently, or performing other automatic actions. (Squire & Dede, 2015).

Common challenges in memorizing new words

One of the most common challenges in vocabulary learning is dealing with difficult word structures. When a word has a complicated spelling or pronunciation, it becomes harder to memorize. As a result, remembering such words often takes more time and effort.

Another well-known difficulty is not knowing where and how to use new words. This usually happens when students learn vocabulary without any context. Simply memorizing word lists is not enough. If learners don't know how to use words correctly, they tend to avoid them in their communication, which makes the process of learning by heart even more challenging. Effective vocabulary learning should focus not only on memorization but also on understanding meaning, usage, and common collocations.

Lack of motivation and attention is another crucial factor. Many learners find memorizing words boring and repetitive, which makes the process even more difficult. Creating engaging and meaningful ways to learn vocabulary can help overcome this barrier and make the experience more enjoyable.

Effective strategies for vocabulary acquisition

Although there are some challenges in this process, there are also many helpful and proven techniques that can make vocabulary learning easier and more effective.

One of the best strategies is engaging multiple senses while learning. Saying the word out loud, writing it down, listening to its correct pronunciation, and using it in real-life contexts can activate different areas of the brain and help create stronger memory connections. (Ellis, 2015)

Another powerful method is spaced repetition. Repeating a word hundreds of times in one sitting is not very helpful. Instead, it is better to review the word at increasing



intervals after first learning it. For example, you can learn a new word in the morning, review it after an hour, then again before going to bed, and once more the following day. This process helps your brain store the word more securely. (Cepeda et al, 2006)

Learning in context is also very effective. Watching videos, movies, reading texts, or listening to podcasts allows you to see how words are used naturally. This not only improves your understanding of the correct usage but also strengthens the connections between brain neurons, helping store these words in long-term memory.

Practical Implications for Learners and Teachers

Neuroscience of learning new vocabulary can offer highly effective insights that can be used both in classrooms by teachers and also in self-study tasks. Research shows that one of the most effective ways for learners is active engagement, especially when it involves their emotions. Words are less likely to be forgotten when they become emotionally relevant. Teachers should try to introduce new vocabulary through various methods such as storytelling, real-life experiences, role-plays, and many others.

Students can also strengthen their learning by associating words with gestures and images, which helps the brain store these words in long-term memory. Another important implication is the value of providing timely feedback. Correcting mistakes and giving encouragement at the right moment not only prevents fossilization of errors but also boosts motivation by releasing dopamine, a neurotransmitter linked to reward and learning.

Finally, it is crucial for both teachers and learners to understand that stress and sleep play significant roles in how the brain processes new information. While high stress can block the transfer of new words, sufficient sleep has a huge impact on consolidating them. By integrating these strategies, the process of learning new vocabulary can become faster and more long-lasting.

Conclusion

To conclude, learning new words is a fascinating process that involves different parts of our brain. While it's normal to forget words or struggle to recall them, these challenges can be managed with the right strategies. Techniques like spaced



repetition, actively using new words, and connecting them to meaningful experiences help make vocabulary more memorable and long-lasting. For both learners and teachers, combining these strategies with practical, real-life applications can make learning more effective and enjoyable. By understanding how our brain processes and stores new vocabulary, we can become better learners and educators, paving the way for greater success in language learning.

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