AMERICAN JURNAL OF ADVANCED SCIENTIFIC RESEARCH
ISSN 2195-1381 Volume- 2 March 2025
https://journal-index.org/index.php/ajasr

HOW SHORT-TERM AND LONG-TERM MEMORY AFFECT VOCABULARY ACQUISITION: A PSYCHOLINGUISTIC PERSPECTIVE IN HIGHER EDUCATION

Khazratkulova Ezoza Ismat kizi
PhD Candidate, Chirchiq state pedagogical university
E-mail: ehazratqulova@cspu.uz / khazratkulovae@gmail.com
Phone: +998 93 195 28 97

Abstract: Vocabulary acquisition is a central component of language learning, especially in the context of higher education where academic language proficiency is crucial. From a psycholinguistic perspective, both short-term memory (STM) and long-term memory (LTM) play essential roles in how learners perceive, store, and retrieve lexical items. This paper explores the cognitive mechanisms involved in vocabulary learning among university students, emphasizing the contributions of STM and LTM, and discusses implications for language instruction in higher education.

Keywords: psycholinguistics, vocabulary acquisition, short-term memory, long-term memory, higher education, language learning

Introduction. In the field of psycholinguistics, vocabulary acquisition is understood as a cognitively complex process that relies on various types of memory systems. Short-term memory allows learners to temporarily store and manipulate new lexical items, while long-term memory ensures their retention and future retrieval. These two memory systems are not isolated; rather, they interact dynamically during the process of learning and using language. Short-term memory is involved during the initial exposure to new vocabulary, especially when learners encounter unfamiliar words in reading or listening tasks. It helps in phonological rehearsal and temporary storage until the information is either discarded or encoded into long-term memory through repetition, contextualization, and meaningful use.[2]

Long-term memory plays a key role in storing vocabulary over time, making it accessible for both receptive (listening and reading) and productive (speaking and writing) language tasks. It allows learners to recall words automatically and use them in appropriate syntactic and semantic contexts. Furthermore, the efficiency of vocabulary acquisition is influenced by individual cognitive differences, such as working memory capacity, attentional control, and prior linguistic knowledge.[3]

Understanding how these memory systems interact is particularly important in higher education, where students must master specialized vocabulary in academic and professional domains. Complex texts, discipline-specific terminology, and abstract concepts require robust memory strategies to ensure retention and flexible use of new vocabulary. This article aims to investigate the psycholinguistic underpinnings of vocabulary learning and highlight the practical implications for

university-level English language instruction. By exploring how memory mechanisms function in the vocabulary learning process, educators can design more effective, evidence-based pedagogical approaches to support learners in academic contexts.[1]

According to Baddeley's model of working memory, the phonological loop is particularly relevant to vocabulary acquisition, as it allows for rehearsal of new words. The phonological loop consists of two main components: a phonological store that holds verbal information for a few seconds and an articulatory rehearsal process that refreshes this information. When learners hear or read a new word, it is temporarily held in the phonological store, and through rehearsal, it may be transferred into long-term memory. This mechanism is essential for language learning, especially when dealing with unfamiliar or low-frequency lexical items.[2]

Psycholinguistic research further demonstrates that frequent activation and use of lexical items result in stronger and more durable neural connections in long-term memory. Each retrieval or productive use of a word reinforces its representation in the brain, promoting faster and more automatic recall in future use. This concept aligns with the Hebbian theory of neural learning, which states that "cells that fire together, wire together."

In higher education, students face the challenge of processing large volumes of academic vocabulary in a relatively short amount of time. The complexity and abstractness of many academic terms require learners to engage in deep cognitive processing. Rote memorization alone is often insufficient; instead, learners benefit from strategies that involve contextualized usage, semantic mapping, and meaningful associations. These strategies help facilitate the transition of vocabulary from short-term to long-term memory.[6]

Moreover, the interaction between working memory and long-term memory is affected by individual differences. Learners with greater working memory capacity are often more efficient at processing and retaining new vocabulary. Cognitive load theory suggests that instructional design should consider the limitations of working memory to avoid overload and to optimize learning conditions. Therefore, educators must be aware of these psycholinguistic principles to design vocabulary instruction that aligns with how memory operates.

Vocabulary acquisition plays a pivotal role in mastering a new language, particularly within the academic setting of higher education, where learners are required to comprehend and use specialized, domain-specific vocabulary. From a psycholinguistic standpoint, the acquisition of new vocabulary is a cognitively intensive process that hinges on the interplay between short-term memory (STM) and long-term memory (LTM). This article delves into how these memory systems

function in tandem during the vocabulary learning process and highlights pedagogical strategies that can enhance lexical acquisition in university contexts.

Short-term memory is responsible for the temporary storage and manipulation of information, particularly when learners are first exposed to new lexical items. It is most active during reading and listening tasks, when new words are processed in real-time. Baddeley's model of working memory, especially the phonological loop, underscores the importance of auditory rehearsal in retaining unfamiliar vocabulary. Within this model, a phonological store briefly holds verbal input, while the articulatory rehearsal process enables learners to repeat and encode this input for deeper processing. Through repetition and meaningful engagement, lexical items transition from STM into LTM.[4]

Long-term memory, in contrast, provides the foundation for the lasting storage and automatic retrieval of vocabulary. It comprises semantic memory, which stores meanings, and procedural memory, which governs patterns of use. Psycholinguistic research indicates that repeated exposure to and use of words lead to stronger neural connections, in line with Hebbian learning principles. Thus, repeated retrieval and application of vocabulary facilitate faster, more fluent recall. In higher education, where academic texts are dense with abstract and low-frequency terms, the efficiency of this transition from STM to LTM is critical.[3]

Moreover, individual cognitive differences—such as working memory span and attentional control—affect learners' ability to process and retain vocabulary. Students with stronger working memory capacities typically exhibit better lexical retention, while those with limited STM may struggle with encoding and rehearsal. This has direct implications for instructional design, particularly in higher education, where the volume and complexity of required vocabulary are substantial.

To support vocabulary acquisition, educators can implement several memory-informed strategies. For instance, **semantic mapping** and **the keyword method** can help learners form associative networks, aiding long-term storage. **Corpus-based learning** offers exposure to real academic contexts, while **project-based learning** encourages meaningful vocabulary use. With the rise of technology, **mobile-assisted language learning (MALL)** has become an accessible tool for spaced repetition and personalized practice.

Language instructors should also integrate techniques such as **chunking**, **repetition with variation**, and **retrieval practice**, all of which align with how memory systems function. **Visual and auditory reinforcement**—through multimedia resources—can support different learning modalities. **Mnemonic devices**, like acronyms and storytelling, serve as additional cognitive tools to aid memorization.[5]

Beyond individual strategies, collaborative classroom activities, including discussions and simulations, enable learners to actively use new vocabulary in communicative contexts. Encouraging students to maintain vocabulary journals

Conclusion. From a psycholinguistic standpoint, both short-term and long-term memory systems are foundational to successful vocabulary acquisition in higher education. Understanding the functions and interactions of STM and LTM provides insights into how academic vocabulary can be effectively taught and retained. By aligning teaching methods with cognitive mechanisms of memory, educators can significantly enhance learners' ability to process, retain, and use complex academic vocabulary in meaningful contexts. Moreover, as university students bring different cognitive capacities and learning preferences to the classroom, personalized and adaptive instruction is essential. Further research is recommended to explore how individual differences in memory capacity, learning strategies, and metacognitive awareness affect language learning outcomes at the university level. This can lead to the development of more effective, evidence-based teaching practices that promote sustainable vocabulary growth.

REFERENCES:

1. Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. In K. W. Spence & J. T. Spence (Eds.), *The Psychology of Learning and Motivation* (Vol. 2, pp. 89–195). Academic Press.
2. Baddeley, A. D. (2000). The episodic buffer: A new component of working memory? *Trends in Cognitive Sciences, 4*(11), 417–423. https://doi.org/10.1016/S1364-6613(00)01538-2
3. Craik, F. I. M., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior, 11*(6), 671–684.
4. Ellis, N. C. (2001). Memory for language. In P. Robinson (Ed.), *Cognition and Second Language Instruction* (pp. 33–68). Cambridge University Press.
5. Hazratqulova, E. I. (2023). Psixolingvistika bo'limida psixologiya va lingvistikaning o'zaro bog'liqlik darajasi va uning ahamiyati. *Academic Research in Educational Sciences, 4*(4), 387–390.
6. Nation, I. S. P. (2001). *Learning Vocabulary in Another Language*. Cambridge University Press.
7. Oxford, R. (1990). *Language Learning Strategies: What Every Teacher Should Know*. Heinle & Heinle.
8. Schmitt, N. (2010). *Researching Vocabulary: A Vocabulary Research Manual*. Palgrave Macmillan.
9. Thornbury, S. (2002). *How to Teach Vocabulary*. Pearson Education.

10. Waring, R., & Takaki, M. (2003). At what rate do learners learn and retain new vocabulary from reading a graded reader? *Reading in a Foreign Language, 15*(2), 130–163.
11. Webb, S. (2007). The effects of repetition on vocabulary knowledge. *Applied Linguistics, 28*(1), 46–65.