

The Functions of Long-Term Memory in Language Processing

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Abstract: This article examines the three core functions of long-term memory (LTM) in language processing. Long-term memory, divided into semantic memory (factual knowledge) and episodic memory (personal experiences), is crucial for storing and retrieving information over extended periods.

The first function is vocabulary storage and retrieval. Semantic memory allows for the immediate recall of word meanings, facilitating fluent conversation and comprehension. The effectiveness of this process is evident in educational and advertising contexts but can be impaired under stress, highlighting the need for strategies like spaced repetition to strengthen long-term retention; Secondly, LTM is essential for grammar and syntax processing, primarily through procedural memory. This subsystem automates the application of language rules, enabling the effortless production of grammatically correct sentences. Its role is fundamental in language acquisition and rehabilitation for conditions like aphasia, though its capacity can be challenged by complex structures; The third function involves supporting the fluent retrieval and use of language rules. LTM enables the automatic access to vocabulary and grammatical structures necessary for seamless communication. This fluency is vital in everyday interactions, language teaching, and advertising, though individual differences and cognitive load can affect performance.

The interplay of these three functions underscores LTM's indispensable role in efficient language use across diverse domains such as education, therapy, and marketing. Enhancing memory-based strategies can improve language learning, therapeutic outcomes, and communication effectiveness.

Keywords: Function of Long-term Memory; Language Processing; Language Learning; Therapeutic Outcomes; Communication Effectiveness

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Introduction

Long-term memory (LTM) entails encoding, maintaining, and retrieving information over long periods. LTM can store information indefinitely. Defined as a structure for retaining permanent knowledge, LTM is divided into two components: semantic memory, which stores knowledge, and episodic memory, which stores experience (Carroll, 1986). For instance, while semantic memory tells us that the horse has four legs and a tail, episodic memory gives us the knowledge of when we last saw or rode on a horse. The items stored in LTM represent facts and impressions of people, objects, and actions. This essay critically discusses three core functions of the LTM: (1) vocabulary storage and retrieval, (2) grammar and syntax processing, and (3) supporting fluent retrieval and use of language rules. Looking at these functions raises awareness of how LTM supports and is relevant to communication across various contexts, from language learning to therapy and marketing. With a focus on semantic and episodic memories, this essay illustrates how each supports linguistic competence in real-world interactions.

1 Vocabulary Storage and Retrieval

LTM has a significant functional role in storing and retrieving vocabulary. A good example is when a teacher rises a question, the students use LTM retrieve stored information. In another similar example, if a teacher asks about the definition of the word "metaphor," the student can immediately recall this term from semantic memory; which helps in analysing

literature and the student's writing. Clue words play several roles in the memory model, one of which corresponds approximately to the role transformational linguists ascribe to "selectional restrictions" (Quillian, 1966, p.31). This access enables a smooth flow of conversations and successful voicing of ideas, making it easier to demonstrate how LTM is helpful in learning (Wright, 2018). The learners' memory and retrieval of words influence their fluency and comprehension (McNamara & Holbrook, 2003). Nonetheless, the capacities for the structural encoding of meaningful content remain intact. Still, the durability of the stored vocabularies might be ambivalent, asking for tutorial techniques stressing long-term retrieval through intermediate spacing and meaningful interconnecting cues.

In advertising, the choice of right words is based on LTM's connections to elicit a certain feeling and leave an unforgettable impression (Quillian, 1966). For instance, repetition creates persuasion through familiar, emotionally laden words; it demonstrates how LTM retrieval yields a response among consumers.

Additionally, language production is selecting proper words, which are needed for interpersonal communication to avoid improper implications. This process works well for accurate and proficient interlocutors; however, it may break down under stress conditions like social anxiety, where retrieval is interfered, affecting communication. A stress reduction strategy or cognitive-behavioral approach to deal with these retrieval issues may improve LTM vocabulary (Francis, 1999). LTM is essential for storing and recalling words within many contexts; however, lack of capacity and retrieval speed implies directions for developmental strategies in school, therapy, and communication environments.

Hence, speech therapy highly depends on the understanding and rehearsal of the LTM functions, especially for people with aphasia, where word retrieval is affected. Some methods used in speech therapy primarily serve to enhance the density of the connections between neurons in semantic memory and to optimize the stimulation process when retrieving the targeted vocabulary (Francis, 1999). However, this process is developmental, stressing the importance of studying how the rate of such vocabulary access may be increased in the affected individuals.

2 Grammar and Syntax Processing

The procedural memory, a component of LTM plays a significant role in grammar and syntax processing. Procedural memory helps people combine words as required, due to the written language system, meaning and syntactic structures becoming retrievable by procedure (Ellis, 1996). Such an aspect is crucial for successful speaking activity as it requires less effort and does not overload the workers' minds with essential language use.

Grammar and syntax are essential in processing languages in practical contexts. In language learning and acquisition particularly, procedural memories prove helpful in such areas as the production of syntax, where learners can create entirely grammatically correct sentences as they move up the learning ladder from the beginner level to the second, and third and higher orders (Wen, 2019). Many English teachers, for instance, have noticed that while learners should practice a particular measure before applying grammar rules, such measures would become habitual after usage numerous times. The problem, however, comes with complicated frameworks that may lack procedural memory storage capacity, which is why there is a need for instructional interventions that foster deeper memory enshrinement.

Knowledge regarding procedural memory's involvement in grammar is valuable to speech therapy. For learners with certain conditions, such as aphasia, which interferes with grammar and syntax, the treatment entails an attempt to reconstruct the automatic processes (Jefferies et al., 2004). Repeated cues are applied following procedural memory to help speech patients relearn language patterns. However, after the injury, the rehabilitation process is slow and often restricted as procedural memory may not be restored with practice.

In language use particularly in adverts the grammars and syntax should not complicate the viewers' or listeners experience such that it leads to understanding or analytical strain. Brief, simple messages are effective because they decrease information processing load and increase understanding but when it is overdone it becomes an "ad fatigue." Procedural rehearsal of sequences promotes the consolidation of long-term memories of language sequences (Ellis, 1996). Procedural memory assists through grammar and syntax directions to help stabilise the communication. However, difficulties in spoken language learning, and especially after a specific lesion of language, prove that the procedural memory is crucial in learning and rehabilitation.

3 Supporting Fluent Retrieval and Use of Language Rules

LTM is responsible for vocabulary storage and retrieval, without which the language use would be limited or fluent. This capacity enables persons to recall words appropriately in different situations for communication. In real-life situations, vocabulary retrieval teaches English to students in that their ability to store and retrieve words defines their fluency. LTM encoding, when teaching vocabulary, entails repeated presentation of the words and their contextual use (Ellis, 1996; Wright, 2018). However, one problem is that students are different and capable of memorising some lexis material, recalling words that they rarely use. This limitation calls for better instruction techniques, primarily multisensory learning to enhance word recall.

In speech therapy, LTM's role in vocabulary retrieval is critical for learners with language impairments, such as those recovering from aphasia. Therapists may use cues and repetition to reactivate word recall in learners, aiming to rebuild neural connections associated with vocabulary (Jefferies et al., 2004). Although this process of repetition helps, some may struggle with retrieval due to brain injury limitations, highlighting the need for more innovative therapeutic interventions, like virtual reality or gamification, to enhance engagement and memory activation.

Advertising relies on practical vocabulary, where memorable, concise language captures the audience's attention. Ad slogans often use simple yet powerful words stored easily in consumers' LTM, making them more effective in promoting brand recall. (Oberauer, 2010). However, ad vocabulary choice can be controversial, as marketers sometimes use complex or technical jargon that confuses rather than engages audiences. Simplifying language and tailoring vocabulary to the target demographic can improve communication but also pose the risk of oversimplifying the message.

In interpersonal communication, vocabulary retrieval ensures that the flow of conversation is not interfered. However, knowing the right words becomes complicated when stressed or in a tense situation. This may affect the ability to cultivate relationships and indicate the presence of practices that help develop vocabulary while under stress, where much speaking might be done (Meiran & Kessler, 2008). These imply that vocabulary storage and retrieval for language use is significant in LTM, but enhancing the educational, therapeutic, and communication interventions in each domain could go a long way in improving the access and cues to the necessary word.

4 Conclusion

In conclusion, LTM is crucial for language activities, including storing and using vocabulary, grammar and syntactic competence, and fluent language utilisation. The vocabulary store allows for fast access to specific words used in daily interaction, knowledge acquisition, and remedial and counseling practices. Grammar and syntax processing enables the interminability of incorporating language rules, thus providing structure and ease of use. The provision of fast and easy access to linguistic information is helpful for its automatic use, particularly when it comes to social communication, as well as in emergency advertising and teaching-related settings. Combined, these three functions define LTM as a tool in efficient and variable language processing. Future research could extend LTM in learning, such as language learning and rehabilitation, to meet emergent difficulties in vocabulary retention and application of rules. Enhancements of memory-based language tools can also aid in recovery from speech disabilities and render language accessibility within broad society more possible.

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