

THE NEUROSCIENCE OF FORGETTING IN LANGUAGE LEARNING: WHY STUDENTS KNOW BUT CANNOT USE ENGLISH

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Abstract

One of the most persistent challenges in second language acquisition is the gap between language knowledge and language performance. Many English learners demonstrate understanding of vocabulary, grammar rules, and sentence structures during controlled classroom activities but experience difficulties when they attempt to use the same knowledge in spontaneous communication. This phenomenon is often interpreted by learners as a lack of ability, weak memory, or age-related cognitive decline. However, contemporary research in cognitive neuroscience suggests that such difficulties may result not from the absence of knowledge but from problems related to memory accessibility, retrieval processes, and the development of automatic language skills.

This article examines the neuro-cognitive mechanisms underlying the difference between knowing and using English. Drawing on research in declarative and procedural memory, retrieval practice, cognitive load theory, and second language acquisition, the study explores why learners may recognize linguistic information but fail to produce it effectively. A classroom-based exploratory study involving adult ESL learners was conducted to examine differences between recognition-based tasks and productive language activities. The findings demonstrate that learners often possessed explicit knowledge of English structures but experienced difficulty accessing this knowledge during communication. The study argues that effective language instruction should focus not only on presenting linguistic information but also on developing retrieval pathways, procedural knowledge, and automaticity through meaningful language production.

The article concludes that adult learners' difficulties should not automatically be interpreted as evidence of reduced cognitive ability. Instead, they may reflect a mismatch between instructional practices and the cognitive mechanisms required for successful language use. Understanding the neuroscience of forgetting can help teachers create more effective and inclusive approaches to second language education.

Keywords: Neuroscience of language learning; retrieval failure; declarative memory; procedural memory; automaticity; cognitive load; adult ESL learning; second language acquisition; language production.

Introduction

A common experience among foreign language learners is the feeling of knowing English but being unable to use it effectively. Students frequently express frustration by saying, "I know this grammar, but I cannot speak," or "I understand the word when I see it, but I cannot remember it when I need it." This phenomenon represents a fundamental challenge in second language acquisition: the difference between possessing linguistic knowledge and accessing that knowledge during real communication.

Traditional approaches to language teaching often assume that increasing explanation, repetition, and exposure will automatically lead to successful language use. While these methods contribute to learning, classroom experience demonstrates that knowledge acquisition does not always result in spontaneous performance. Learners may achieve high scores on grammar exercises and vocabulary tests but still experience difficulties when they need to construct sentences independently.

Cognitive neuroscience provides an explanation for this problem by distinguishing between stored knowledge and accessible knowledge. Learning is not simply a process of placing information into memory; it also requires developing efficient pathways for retrieving and applying information when necessary. Therefore, a learner may possess linguistic knowledge while experiencing difficulty accessing it under communicative conditions.

One important explanation comes from the Declarative/Procedural Model proposed by Ullman (2001). According to this model, language learning involves the interaction of different memory systems. Declarative memory supports consciously accessible knowledge, including vocabulary meanings and grammatical explanations. Procedural memory supports the development of automatic skills that allow learners to use language without consciously analyzing every linguistic decision.

This distinction explains why learners may understand grammar rules but fail to apply them during conversation. A student may know that the past tense of *go* is *went*, yet during spontaneous speech produce “I go yesterday.” The problem is not necessarily that the learner has forgotten the information. Rather, the knowledge may not yet be sufficiently proceduralized for rapid retrieval.

The transformation of knowledge into skill requires meaningful practice. DeKeyser (2007) argues that second language development involves a gradual movement from conscious rule application toward automatic performance. Learners initially rely on explicit knowledge, but through practice they develop faster and more efficient language processing.

However, not all practice produces the same results. Memory research demonstrates that active retrieval plays a crucial role in strengthening knowledge. Roediger and Karpicke (2006) found that attempting to recall information improves long-term retention more effectively than repeated exposure alone. In language learning, this means that learners need opportunities not only to study English but also to retrieve and produce it independently.

The difference between recognition and retrieval is particularly important. Recognition occurs when learners identify information that is already presented to them. Retrieval requires reconstructing information without direct support. Many classroom activities emphasize recognition, while real communication requires retrieval.

For example, a learner may recognize the correct answer:

“She ____ to school yesterday.”

- a) go
- b) went
- c) gone

However, during conversation the same learner may struggle to produce:

“Yesterday, I went to school.”

This difference demonstrates that successful language learning requires more than knowledge storage; it requires accessible and flexible language systems.

Another factor influencing language production is cognitive load. Speaking a foreign language requires learners to manage multiple processes simultaneously: generating ideas, selecting vocabulary, organizing grammar, producing pronunciation, and monitoring accuracy. According to Cognitive Load Theory (Sweller, 1988), working memory has limited capacity, and excessive processing demands may interfere with performance.

This explains why learners may perform successfully in controlled classroom exercises but experience difficulties during spontaneous communication. Under pressure, their cognitive resources become occupied by multiple tasks, making previously learned information more difficult to access.

Adult learners are particularly affected by beliefs about memory and age. Many adults assume that difficulties in language learning indicate reduced cognitive ability. However, research on neuroplasticity demonstrates that the adult brain remains capable of adaptation and learning through meaningful experiences (Kandel et al., 2013). The challenge is often not age itself but whether teaching methods support the cognitive processes involved in learning.

The development of internal language processing is also connected with learner independence. Modern learners increasingly use translation tools and artificial intelligence applications for linguistic support. Although these resources can facilitate learning, excessive dependence may reduce opportunities for learners to practice independent language construction. Kasimkhodjayeva (2025) argues that overreliance on translation tools may limit learners’ ability to develop autonomous sentence construction skills.

Therefore, effective language teaching should aim not only to provide information but also to develop learners’ ability to retrieve, apply, and produce language independently.

The present study explores the following research questions:

1. Why do learners demonstrate a difference between knowledge of English and the ability to use English spontaneously?
2. What cognitive mechanisms explain the gap between recognition and production?

3. How can understanding memory processes improve ESL teaching practices?

2. Methodology

2.1 Research Design

This study employed a qualitative classroom-based exploratory design. The purpose was to investigate the relationship between learners' knowledge of English and their ability to retrieve and use this knowledge during communication.

The study focused on classroom observations rather than standardized testing because the central issue was not simply achievement level but accessibility of knowledge.

2.2 Participants

The participants were 20 adult ESL learners aged between 30 and 50 years old. The learners had previous experience studying English through traditional approaches involving grammar explanation, vocabulary memorization, translation, and written exercises.

During classroom interaction, many learners expressed the belief that their difficulties were caused by weak memory or age-related limitations. A common statement among participants was:

"I understand English, but when I need to speak, I cannot remember."

2.3 Data Collection

Learners participated in three types of classroom activities:

Recognition tasks:

Students identified correct grammar structures and vocabulary items.

Production tasks:

Students created sentences, answered questions, and participated in short speaking activities without written support.

Retrieval activities:

Students practiced recalling vocabulary and grammatical structures through active production tasks.

Observations focused on differences between learners' performance in recognition and production activities.

3. Results

The classroom observations revealed three major findings.

First, learners demonstrated stronger performance in recognition tasks than in production tasks. Many students could identify correct grammar forms and explain rules but experienced difficulty applying the same knowledge during spontaneous communication.

Second, learners showed improvement when classroom activities required active retrieval rather than passive review. Regular opportunities to recall vocabulary and construct sentences increased learners' confidence and accessibility of language knowledge.

Third, learners' perceptions of their own abilities changed. Initially, many participants believed that their difficulties reflected declining memory or inability to learn languages. Through classroom experience, they began to recognize that the problem was related to learning processes rather than lack of ability.

4. Discussion

The findings support the view that language learning difficulties often represent problems of accessibility rather than absence of knowledge. Learners may possess linguistic information but lack efficient retrieval pathways required for communication.

The distinction between declarative and procedural memory provides an explanation for this phenomenon (Ullman, 2001). Students may consciously know rules but have not developed automatic language patterns. This explains why explicit instruction alone does not guarantee fluent language use.

The findings also support retrieval-based theories of learning. Roediger and Karpicke (2006) demonstrated that memory becomes stronger through active recall. In language education, learners therefore need opportunities to produce language rather than only receive information.

The role of practice is also consistent with DeKeyser's (2007) theory of skill development. Language competence develops gradually as learners move from conscious rule application toward automatic processing.

Furthermore, cognitive load theory explains why learners often experience failure during spontaneous speaking. Communication places greater demands on working memory than controlled exercises. Therefore, teaching should gradually

develop automaticity so that learners can process language with reduced cognitive effort.

The results also have implications for adult education. Learners should not interpret difficulty in language production as evidence of cognitive decline. Instead, teachers should help learners understand that memory performance depends on instructional conditions, retrieval opportunities, and practice design. Finally, the findings connect with issues of learner autonomy. External supports such as translation tools and AI applications can be valuable resources; however, they should support rather than replace cognitive processing. Learners need opportunities to construct language independently in order to strengthen internal linguistic systems (Kasimkhodjayeva, 2025).

5. Conclusion

The present study examined why learners may know English but struggle to use it. The findings suggest that this problem is not necessarily caused by insufficient intelligence, poor memory, or age-related limitations. Instead, it is often related to the accessibility and automaticity of stored linguistic knowledge.

Understanding the neuroscience of forgetting changes the way language difficulties are interpreted. Learners do not simply need more information; they need stronger retrieval pathways and more opportunities to transform knowledge into usable skills.

For language teachers, this perspective highlights the importance of moving beyond explanation and recognition-based activities toward retrieval, production, and meaningful practice. The goal of language education should not only be helping learners remember English but enabling them to access and use English when communication requires it.

Future research should further examine how retrieval-based instruction, digital tools, and learner autonomy interact in developing long-term language competence.

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