

Reclaiming Forgotten Words: Retrieval-Based Vocabulary Retention in Technology-Enhanced ESL Classrooms

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Abstract

Vocabulary knowledge is usually regarded as an indicator of improvement in ESL studies, yet knowing a word does not necessarily imply that it would be utilized. Students have the ability to recognize meanings in reading or listening activities and be hesitant or even unable to say and write those words. New words also usually disappear in weeks and only remain bits in the memory. In this study, vocabulary is a skill that is to be preserved and re-proposed rather than introduced. It explores the conflict between recognition, retention and production and the impact of digital settings on vocabulary durability in Technology-Enhanced Learning perspective. The research puts the focus on the active use and does not simply accumulate the vocabulary but focuses on that which is under-utilized or forgotten at a very fast rate. It provides a theoretical framework on how technology mediated interaction and memory processes dictate the functionality of vocabulary becoming functional. To improve long term lexical retention among ESL learners, the study is of the opinion that consistent retrieval, meaningful usage, and systematic review is essential in transforming the known words into words in active uses.

Keywords: Memory Process, Recognition, Retention, Technology-enhanced Learning, and Vocabulary Durability.

Vocabulary acquisition in English as a Second Language (ESL) acquisition is often considered to be one of the most noticeable signs of language success. An empowered understanding of words with regard to reading passages, class discussions or listening exercises are usually perceived as the teacher as an indicator of enhanced language competence. Moreover, vocabulary tests tend to measure this progress by asking students to match words with their definitions or identify correct definitions. Vocabulary knowledge is not recognition only. Students may find it easier to recognize a word during the reading process but may be reluctant to apply it in the speaking and writing process (Alghamdi, 2019). This distinction between usage and knowing of a word represents an important challenge of language learning.

The same thing happens to many ESL students where they seem to know words in the class and not when they are required to

communicate. To some degree, the issue is caused by the manner in which language is taught in most classrooms. In a reading or a practice, students often read new words during a relatively brief time before quickly proceeding to the next unit of study without having to read them once another. Without rehearsal through regular recall or practice in the field, vocabulary will simply fade out of memory. The linguistic research of resources of language learning has also demonstrated that the exposure of vocabulary in textbooks is not consistently followed by the future acquisition of language provided that there is minimal possibility of the repetition of interaction (Matsuoka and Hirsh, 2025).

Consequently, vocabulary learning is not as limited as merely the introduction of new words. It also entails the retention of words in the memory in order to use them as and when required. Being known is not a guarantee of the student remembering a term in the future. Even when learners succeed in keeping language in their memory, they might not be able to retrieve it at the time they engage in real communication. The gap between recognition and retention, as well as production, remains one of the primary concerns in vocabulary learning among ESL learners (Vasu & Dhanavel, 2015).

Instructional technology as a tool to support the vocabulary acquisition process has been given increased attention in recent years. Digital platforms allow students to revise words through interactive activities, practice activities, and examples. As an example, mobile-based learning environments allow learners to train the vocabulary beyond the classroom and encounter words in different situations (Agca and Ozdemir, 2013). The long-term vocabulary engagement and repetition retrieval, which are the most important factors in the formation of long-term memory, can be encouraged in such technologically assisted learning settings (Amin, 2019).

In this respect, vocabulary acquisition can be regarded as a reactivation process, which cannot be defined as mere introduction. Language teaching should not merely be aimed at introducing new vocabulary and then must also aid in recalling and further applying the vocabulary that has already been acquired. As learners repeat words in relevancy questions and use them in an active context, words become an ongoing element of their active language with reinforced communication skills.

The learning of new words is often termed as vocabulary development in language learning. One of the most common classroom teaching is introduction of new vocabulary using exercises, reading materials or memorisation exercises. This exposure does not necessarily ensure that the vocabulary that students are exposed to will be available to them at all times, even though it will greatly widen their lexicon. Due to the fact that they are not repeated after the lecture, a lot of words become outdated. Vocabulary training should not be limited to simple presentation but focus on maintaining lexical information by the use of committed practice and reinforcement as explicated by Mukoroli (2011). Laufer (1998) makes a strong distinction between active and passive vocabulary knowledge. Passive vocabulary consists of words that the student already knows but realises only when he or she reads a piece of writing or listens to a piece of spoken language. Those words might not be new and students can often tend to understand the words without struggling. Active vocabulary on the other hand is the ability to independently remember and use such words either in writing or speech. The passive vocabulary of the students is much greater in various learning processes, yet they apply a smaller amount of words to express the ideas which puts the gap between understanding words and their effective usage.

One of the explanations of this discrepancy has to do with the method which is applied in most ESL schools in order to practice vocabulary. The words usually are presented to the students by way of reading or teacher explanations, but they are not always repeated as the useful language exercise. The correlation between expression and meaning remains poor in cases where vocabulary is not in active use. Noroozi and Siyyari (2019) state that vocabulary knowledge can be improved

by meaningful output activities when students have to recall and use words in real communicative contexts, e.g. speaking or writing assignments. The second factor that affects vocabulary retention is that of failure to recall repetition upon the introduction of the terms. The memory association which the students had made in the lesson can be forgotten quickly when they just hear a word once. To preserve this relationship, it is advisable to revise vocabulary periodically so that it is easier to access it at a later date. In a study on vocabulary learning strategies, Ramachandran and Rahim (2004) showed that memorizing and recalling strategies improved memory and long term retention. The more that a learner repeats accessing a term in the course of communication, the easier it gets to access the terminology.

The third challenge is that ESL learners often have a huge number of underutilised words in their vocabulary. A great number of lexical words can be presented in reading materials to students, but they should not always be applied to real life use. Matsuoka and Hirsh (2025) state that vocabulary acquisition may be facilitated with reading exposure and more practice is needed so that words could become a productive part of the language learner's use. Without such reinforcement, students will still be capable of expressing their ideas with using easier or more familiar words.

The instructional activities that encourage remembering and association can assist the process of reintroducing these under-used terms into the active language. Indicatively, visual learning techniques help students to systematise their vocabs and make associations among the words and their meanings and situations. As demonstrated by Feng et al. (2023), such methods as mind mapping can stimulate the desire to talk in students and improve the recall of language. Similarly, digital vocabulary learning environments provide both practice and repeated exposure opportunities that support creation and recognition. Online platforms may be used to strengthen the transition between passive and active usage of language, as a result of encouraging contact with lexical components and maintaining vocabulary memory over time (Miyazaki, 2019; Noroozi and Siyyari, 2019).

The processes of recognition, retention, and production are closely connected processes where vocabulary is slowly instilled in linguistic skills of a learner. The first stage is usually recognition: students recognize and understand a word when it is given in a sentence or passage that they are reading. Jones (2004) notes that learners usually perform well in the recognition vocabulary tests due to the fact that contextual clues support their understanding. However, the fact that the term is recognized does not imply that it has become an active word in the vocabulary of the learner. To produce, one has to be capable of recalling and applying the term without assistance or help when communicating and retention is maintaining the word in memory with time.

In most of ESL classes, the recognition level is achieved more frequently than the other phases. Reading exercises, vocabulary lists and explanations provided by the teacher teach students quite a number of words. These words appear comprehensible since interpretation is influenced by the context around. As Cheng and Good (2025) mention, the contextual support, including reading resources glosses, assists students in identifying meanings faster. Nevertheless, when they are not supported by this means, when the same vocabulary is retained, the learners tend to forget it, which demonstrates that recognition does not necessarily result in the deeper mastery.

It is better to remember different terms in different contexts since retention is better. Having lots of meetings enhances the connection between the form of any word, its meaning, and the area of its possible application. Ramachandran and Rahim (2004) posit that the processes of learning through recall methods enhance the long term memory since they prompt the students to recall the meanings rather than simply identifying them. This process is also supported by multimedia learning environments, where interactive activities, audio, and visual facilitation are also used to consolidate memory routes and allow the students to retain vocabulary more effectively (Teng, 2022).

The highest level of vocabulary learning is production, as it is a process that requires fast access and good application of words in communication. It involves more cognitive disposition between the learner and the word. As presented by Icht and Mama (2019), the active use of language due to pronunciation of words aloud can have a significant positive impact on acquisition since it pushes the student to grasp both, meaning and pronunciation, together. Correspondingly, the repetition through the presence of retrieval and use options, which digital platform provides to students, enables them to shift away from passive recognition and transform to active vocabulary generation (Miyazaki, 2019).

The vocabulary that terminates at the identification level leaves a vast number of words trapped in the psychological lexicon of the learner. Even though students might believe that they know a lot of words, they might still be unable to make them in writing or speaking. Research indicates that memory improves due to the encouragement of repeated exposure to vocabulary- with the help of digital and multimedia glosses and flashcards. As an example, Aghlara and Tamjid (2011) discovered that vocabulary memory is significantly improved with the use of digital games, whereas visual representation using a flash card allows students to reinforce the recognition and recall processes (Sari et al., 2023).

A lack of a recall opportunity is one of the key reasons why vocabulary is never used fully. When learners are not required to remember words but to identify them as a result of requiring the sensorimotor mechanism, then, memory associations weaken. Mobile learning tools and message based activities have demonstrated retention because they encourage students to revise the terms which are normally outside the classroom (Motallebzadeh and Ganjali, 2011). Relating meaning to visual and contextual signals, multimedia glossing enhances the recall better, and students can recall terms easier (Ramezanali, 2019). Thus, there is a need to enhance the recall mechanisms so that vocabulary stored in a simple form of recognition may be transferred to a common usage during the communication process.

The acquisition of vocabularies has been strongly linked to the manner in which linguistic information is stored and arranged in the human brain. Whenever a learner is presented with a new word the brain automatically associates the form of the word with its meaning and context. These relationships are reinforced in the process of time through cognitive processing and they are integrated in the mental vocabulary of the learner. According to Nemati (2025), the best way vocabulary can be learned is when the students are involved in using words instead of learning them by sight. Such lexical connections in the long run will help the learner recognize and recall words when talking.

Lexical networks become stronger when the students are subjected to terms on a frequent basis in various learning contexts. Every time a new experience happens with a specific word in a particular language, it increases the knowledge about the role of a word in language, despite the fact that the initial encounter might have done some bare definition only. Contextual readings, explanations and associations are exercises that strengthen these ties. Alghamdi (2019) claims that it is when words are spoken in contexts that they are remembered and not memorized. The constant repetition will create a memory of the word in the mental dictionary.

Nevertheless, vocabulary is lost unless words are repeated or practiced regularly. A learner can master a word during that particular session, but not remember later. The recollection trace can be fussy and only vague familiarity is felt. Lots of students believe that they know terms but are not able to get their precise definitions. Vasu and Dhanavel (2015) discover that the perceptions of the vocabulary improvement largely depend on the ease with which words can be stored in the mind to be used in other occasions.

To develop lexical memory, repetition and active interaction are thus crucial. The association of a word to its meaning gets stronger with every time the students look it up. Associative exercises, recall exercises or visual mapping of the vocabulary assist in this process. Feng et al. (2023) find that mind mapping and other strategies enhance the recall due to the fact that the words are linked to some related ideas, which allow the long-term retention to occur through repetitive retrieval. The extent to which a learner recalls vocabulary also influences the duration of the vocabulary. Words that are regularly used remain in the memory but seldom used words become weak. The use of a regular language, for example, the one provided in a well-planned learning environment, would maintain these channels. The tools that assist learners in their activities and that are enabled by technology prove particularly helpful as they allow students to train the language in different situations and during the convenient time. Digital tools stimulate a high frequency of vocabulary use outside of the classroom, according to Pazilah, Hashim, and Yunus (2019).

Finally, the development of the long-term vocabulary is contingent on the reinforced memory. More resilient brain links develop once the students train and rehearse terms on a regular basis. The combination of interaction, contextual use and repetition, during learning activities, promotes word retention in the mental lexicon. Educational technology supports this process even further, as it lets students get higher and higher in terms of their vocabulary memory by offering a variety of engagement options such as online exercises and multimedia glossaries (Ramezanali, 2019; Amin, 2019).

The learning of vocabulary is closely connected with the organisation of linguistic information in a human memory. In learning a new word, students begin to form some mental association to the word, meaning and its connectivity with the context. These connections do not occur instantly. Each time the word comes in contact with a learner, the mental association that will make the learner recognize this word will be reinforced. According to Berline and Katemba (2021), vocabulary development becomes more effective when the students interact with words regularly using different learning activities, and the brain, in turn, can develop lexical relationships gradually.

As the learners read words in different contexts, their vocabulary memory tracks develop. Subsequent exposures enhance the role of the word in language despite the original encounter that may just trigger introduction of the word and its meaning. Reading, listening and discussion activities all contribute to this reinforcement. According to Kilickaya and Krajka (2010), language is likely to be reviewed more when the teachers use a variety of learning resources and techniques. The frequent use is gradually adding the words to the mental lexicon of the learner, increasing the ability of the learner to retrieve the information faster and more reliably in a conversation.

Nonetheless, such connections can fade away in case learners fail to repeat such terms after initial learning phase. A word can only be maintained semi-consciously in the memory in cases whereby it is used once or twice during a lesson. With time, the student may get to remember the appearance of the word and struggle to recall its meaning in specific words. Words that can be easily remembered at the point of the session and then one cannot remember them subsequently because of the loss of memory tracks. A small amount of exposure often leads to poor memory when not covered in any later learning tasks, as proved by some studies of technology-assisted learning (Yu and Trainin, 2021).

Lexical memory deterioration could be prevented with the help of repetition and active recall. This neural connection which is associated with a word becomes stronger when students attempt to recall it themselves. Since it compels the learner to seek relevance in memory, the method is more efficient than passive exposure. Educational technology can support these recall methods by providing regular opportunities of contact. Amin (2019) further observes that digital learning uses exercises, tests, and practice assignments in enhancing memory connections, which motivate students to revise language.

Frequency of retrieval also affects the stability of knowledge of vocabulary over time. The words that are learned regularly remain in the minds of the learners but rarely used words gradually become inaccessible. Technology-based learning environments allow students to revise the vocabulary more effortlessly out of the classroom. One example of such digital vocabulary is multiple practices with words, creating a series of contexts with the identical word, and maintaining memory pathways, enhancing long-term memory (Pazilah, Hashim, and Yunus, 2019).

This is why memory reinforcement plays a crucial role in damaging vocabulary in the long-term. Retention of vocabulary in the memory is enhanced when the learners are exposed to the words in a contextual practice, repetitive recall and interesting activities. Technology-based learning resources can help in this process with a combination of consistent exposure and retrieval opportunities. The interactive games such as educational games can significantly contribute to vocabulary memory because they stimulate the students to work with words as well, as per research on digital learning environments (Aghlara and Tamjid, 2011).

The issue of retrieval in the learning of vocabulary. It challenges learners to be more forceful and to draw up prior-viewed words as opposed to mere encountering of new words. Through an active search of their memory, to retrieve a word, students bring the term into the same connection and associations with its meaning and the ways the word can be used in a conversation. The practice increases their knowledge of words steadily. According to research conducted by Pavlik and Anderson (2005), word retrieval increases accessibility in the future, as there is a slowdown in forgetting and word retrieval stimulates memory pathways.

There is also need to distinguish between retrieval and passive exposure. Passive exposure occurs when a learner reads or hears a word in a text or explanation and gets its meaning out of the context. Such familiarity helps, but the learner does not need to memorize the word on his or her own. Retrieval on the other hand requires the learner to make the meaning come to mind. Research by Jones (2004) has demonstrated that the rich vocabulary associated with recall tasks is more profound and richer than the simple recognition activities.

The possibilities of digital learning tools increase opportunities of practice that are centered on retrieval. Short interactive activities, flashcards, matching games, and tests allow students to deal with words. Students are required to remember a word then the right answer will be displayed in various activities. According to a research by Hassan Taj et al. (2017), these technology-enhanced environments further enhance vocabulary engagement because they promote more and more interactions with words.

It is also through the digital platforms that teachers are able to arrange study in systematic repetitions. The words are introduced with a certain frequency and this offers the students an opportunity to revise them, before forgotten. Such heavy interaction enhances retention and increases memory connections. Retrospective research by Pazilah et al. (2019) reveals that students undergo vocabulary reviews when an instructor applies structured digital practice more frequently than when they are in the customary classroom. The retrieval routes in the memories of students are gradually intensified through repeated retrieval in the digital arena. With every successful retrieval, the connection between a word and an interpretation becomes stronger, and it will be easier to retrieve the word in the future. As demonstrated by Miyazaki (2019), active use and recognition improve with the high frequency of interaction with lexical items in various tasks. Once hard to remember words can become firm components of a learner language skill through the constant recollection with the use of technology.

Thus, technology-aided instruction is very helpful in retrieval-based drilling vocabulary. Learners are encouraged to reiterate words and use them in appropriate contexts through interactive digital elements, multimedia activities and systematic reviews systems. The analysis of literature

by Enzo Simonnet et al. (2024) proves that these environments enhance vocabulary retention to an important degree, as they combine recall, engagement, and repetition as the elements of learning.

There are a lot of ESL learners who have numerous words, which they can never apply in normal language. These are not entirely new words; they are the ones which learners encounter in readings or in the classroom. Recognition does not bring about active use. The words become passive over time since the learners hardly recall the words in a discussion. According to Laufer (1998), the passive vocabularies of learners are significantly large compared to their active vocabularies and therefore a great number of words are learnt but rarely spoken and written. As a result, students rely on a limited number of previously known words and much of their knowledge remains inactive.

Showing meaning with words brings about the use of neglected words. The use of familiar words is advised to the students when they are doing communicative work where clarity is essential. And they then experiment with more words rather than basics. Referring to and employing lexical elements in authentic communication, Noroozi and Siyyari (2019) assert that they enhance the expansion of vocabulary. By so doing, dormant words slowly come to play. I speak and write, this is the most important transition in the process. Students have to remember words when you give them a talk or a presentation, not only based on the context clues. This reinforces words connections and enhances word interaction. Verbal communication, or speaking, which is an additional active process of the mind, is demonstrated to benefit the growth of vocabulary. Icht and Mama (2019) discovered that vocal production at the time of use strengthens meaning and pronunciation and enhances retention.

To be active in keeping words, it is essential to use them frequently and often. When a word is applied once, connections are lost. Intensifying these connections is possible using the methods that structure, memorize, and rehearse practice. An example is that with the aid of visual tools like mind map, learners are able to improve the information retention process by bridging the gap between words and associated concepts (Feng et al., 2023). A large part of vocabulary stability depends on memory processes, with repetition being beneficial to long-term storage (Morra & Camba, 2009). Unused vocabulary can slowly become one of the active products of the linguistic repertoire of a learner, as a result of intentional dialogue and with the help of regular practice.

Learning vocabulary is not just a process of adding words to ESL classroom settings. The teachers also need to assist the students to keep the old words alive and prepared to be conversed. A word that may appear to be known when it is taught in the classroom can be dormant in case the student is not given time to use it on a regular basis. Alghamdi (2019) explains that vocabulary actually expands because the words provide tangible experiences to the learners, therefore, learning vocabulary is also a matter of reactivation, and maintenance, and the learners have to revisit words to make them relevant.

One of the most important problems in vocabulary development is the disparity between recognition, retention and production. Students tend to identify a word in a reading or definition, and it may not always be converted into the long-term memory and independent application. It has been found that passive recognition can also increase more rapidly than active production in second-language learning (Laufer, 1998). Having no frequent opportunity to remember the vocabulary, a student loses his/her relation to the word, and remains able to use a lot of words without the help in the real life.

It is necessary to strengthen vocabulary knowledge by regularly recalling and putting the words into perspective. The memory circuits eliminate the words in the pronunciation of ideas and when words are used repeatedly to ascertain the ideas, the memory of the words becomes stronger. Research has shown that activities requiring active retrieval have enormous improvement of long-term memory and retention (Ramachandran and Rahim, 2004). Such repeated interaction

transforms passively received knowledge into competence and with time, the words become more readily available when speaking or writing.

This process can be addressed by means of digital learning settings. There are opportunities of practice with interaction, repetition, and constant work with vocabulary online. They enable the learners to reexamine words in various activities thus enhancing retention and recall (Yu and Trainin, 2021). The final aim is to transform words into functional linguistic resources as opposed to recognizable symbols. Words that were seldom used by students eventually enter into their daily use as they constantly remember and put vocabulary to meaningful use.

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