

การเสริมสร้างการเรียนรู้คำศัพท์จากปริมาณคำศัพท์ที่เพิ่มขึ้นในการเรียนภาษาอังกฤษ

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Enhancing Vocabulary Acquisition through Progressive Word Increments in English Language Learning

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บทคัดย่อ

คำศัพท์เป็นสิ่งจำเป็นและมีความสำคัญมาก สำหรับผู้เรียนภาษาคำศัพท์ส่งเสริมความสามารถของผู้เรียนภาษาในการสร้างการสื่อสารที่มีประสิทธิภาพ สร้างความเข้าใจที่ลึกซึ้ง และเป็นตัวแปรในการประเมินระดับความสามารถทางภาษา อย่างไรก็ตามผู้เรียนมักประสบปัญหาในการจัดการเรียนรู้คำศัพท์เนื่องจากคำศัพท์เพิ่มจำนวนมากขึ้นอย่างต่อเนื่อง บทความนี้มีวัตถุประสงค์แนวคิดสำหรับบุคคลที่สนใจที่จะเรียนรู้คำศัพท์ และต้องการแนวทางในการเริ่มเรียนรู้คำศัพท์ บทความนี้เริ่มจากเสนอแนะปริมาณคำศัพท์ที่ควรเรียนรู้ตามวัตถุประสงค์ของผู้เรียนแต่ละคน เหตุผลและแหล่งในการเลือกเรียนรู้คำศัพท์ บทบาทของหน่วยความจำในการเรียนรู้คำศัพท์ และแนะนำเทคนิคต่าง ๆ ในการเรียนรู้คำศัพท์ซึ่งจะช่วยให้ผู้เรียนสามารถเรียนรู้คำศัพท์ได้อย่างมีประสิทธิภาพ

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Abstract

For language learning, vocabulary is essential and of considerable importance. It broadens the abilities of language learners to establish effective communication, foster deeper comprehension, and plays a fundamental role in language proficiency level assessment. However, learners possess difficulty managing their vocabulary as it continues to expand as their language exposure increases, especially for beginners and second language learners. This article aims to provide concepts for those who are interested in acquiring vocabulary in a second language and seeking where to begin. It suggests the number of words learners should learn, the rationale, and resources to obtain vocabulary. It discusses the general concept of vocabulary acquisition, the role of memory in learning vocabulary, and certain useful vocabulary learning strategies for learners that facilitate their vocabulary acquisition.

Keywords: role of memory in vocabulary learning, vocabulary acquisition, vocabulary learning strategies

Introduction

In the context of our progressively interconnected and globalized society, the significance of English vocabulary assumes a pivotal role that should not be underestimated. Nation (2001) addresses the fact that vocabulary is viewed as a fundamental factor for first- and second-language proficiency. It forms the foundation of language abilities, including listening, speaking, reading, and writing. Vocabulary knowledge plays a significant role in various contexts, facilitating effective communication and enhancing better comprehension. Moreover, in an era of globalization, possessing a strong knowledge of vocabulary is crucial for success in areas such as business negotiations, academic growth, scientific research, artistic expression, and diplomacy. As Education First (EF) emphasized in its "Global English Report" for 2020, English vocabulary proficiency is essential for navigating cross-cultural challenges and attaining success in international business interactions. This highlights the importance of vocabulary in fostering meaningful connections and enabling individuals to succeed in a globalized society.

Not only is vocabulary essential for the foundation of language acquisition, but it also facilitates effective communication (Bai, 2018). Lin (2010) asserts that having limited vocabulary knowledge can possibly hinder the ability of second language (L2) learners to pursue an advanced level of listening, speaking, reading, and writing. In other words, we may face difficulty establishing communication without having an extensive vocabulary (Woodeson, Limna & Nha-Fa, 2023), as we cannot express our feelings without acquiring an adequate number of words. For this reason, it is believed that understanding vocabulary in a second language may assist learners in obtaining a deeper comprehension of the target language and provide more opportunities to engage in the initial phases of second language learning development (Bai, 2018). In addition, acquiring an extensive vocabulary could determine the English



proficiency level of the learner, which could be equivalent to that of a native speaker (Afzal, 2019; Surmanov & Azimova, 2020).

Even though vocabulary is pivotal in language learning, the acquisition of vocabulary presents significant difficulties for language learners, affecting their ability to effectively communicate and comprehend. Nation's (2006) research in "Vocabulary Learning and Teaching" emphasizes that learners frequently struggle to retain and recall new words due to their limited exposure to those words in authentic contexts. Nevertheless, vocabulary learning is demanding, especially for non-native English speakers who struggle with the meanings of new words, spelling, word pronunciation, accurate usage of words, and predicting meaning through context (Afzal, 2019). These challenges also extend to Thai EFL students. According to earlier studies on L2 vocabulary learning in the Thai EFL context (Boonkongsaen & Intaraprasit, 2014), Thai students also have challenges acquiring English vocabulary. This might be because they are obligated to deal with a large number of words, which seems to be a serious problem among second language learners. In addition, Thai language learners revealed that a deficiency in vocabulary knowledge is their greatest obstacle to overcome (Saengpakdeejit, 2014).

Several studies have investigated improving vocabulary acquisition. Ramezanali, Uchihara, & Faez (2021) examined how multimedia affects vocabulary learning in a meta-analysis. The study concluded that multimedia improved vocabulary acquisition over text-based methods. Uchihara, Webb, & Yanagisawa (2019) examined a meta-analysis of incidental vocabulary learning through lengthy reading. The results revealed that reading extensively without specific vocabulary taught increased vocabulary. Dehham (2021) integrated technology and creativity into our instructional program by using the application of peer instruction technology, sometimes known as smart phone replies, which has achieved significant global recognition as an educational innovation inside the classroom setting. The findings of the study revealed that the experimental group that experienced using Smart One Responses outperformed the conventional group in terms of overall achievement and vocabulary learning. This article opens with the suggested number of words in a second language and the rationale for selecting words to learn and useful resources to self-familiarize with new vocabulary, then discusses vocabulary acquisition and the role of memory, and ends with some useful vocabulary learning strategies.

How many words should we learn in a second language?

It is a typical question of how many words we need to acquire in order to master a language. According to Gass and Mackey (2012), the answer to this complex query depends on an individual's goals. If you wish to sustain a brief conversation in a foreign country, you may wish to acquire a phrasebook containing basic vocabulary for daily survival. However, if you have higher aspirations, a vocabulary of approximately 2,000 words would be sufficient to provide a solid foundation for anyone eager to advance in their studies. Milton (2009) argued that English as a Foreign Language (EFL) learners required a

vocabulary of at least 3000 words to perform adequately in basic communication tasks. Moreover, when people discuss words, it usually relates to word families. As an example, word families, or clusters of words derived from the same root, facilitate vocabulary acquisition. Consider the 'administer' family of words: administer (verb), administration (noun), administrator (noun), and administrative (adjective). The acquisition of such word families improves language skills and context-specific comprehension.

As long as we are required to read authentic materials, the size of the learner's vocabulary will increase proportionally to the desired level of proficiency. According to Nation and Waring (1997), the range of 3,000 to 5,000 word families is adequate for beginning-level academic reading comprehension. If you wish to comprehend a radio interview with minimal assistance, a number of 6,000–7,000 word families should be sufficient. Those who are able to acquire 8,000–9,000 word families will be able to read non-fiction and novels (Nation, 2001). Nation and Waring (1997) also suggest approximately 10,000 word families for academic reading materials. If the learner has a strong desire to acquire a vocabulary size comparable to that of a native speaker, 15,000 to 20,000 word families are recommended.

Conclusively, the number of words needed to master a language depends on personal goals. It is ideal that 2,000 words are needed for more advanced conversation. However, Milton (2009) recommends 3,000 words as being more advantageous for EFL learners' basic conversation. Word families like 'administer' improve language and contextual comprehension, helping vocabulary acquisition. Reading real texts could increase vocabulary proficiency. Nation and Waring (1997) recommend 3,000–5,000 word families for academic reading, 6,000–7,000 for radio comprehension, and 8,000–9,000 for non-fiction and novels. Finally, academic reading requires 10,000 word families, while 15,000 to 20,000 word families resemble native-like vocabulary.

The rationale of choosing words to learn and resources to start learning vocabulary

It is undeniable that the vocabulary size of L2 learners is not the same as that of native speakers, given that more and more words are being queued up to be memorized. For this reason, non-native speakers should prioritize the learning of words necessary for effective communication in a variety of contexts. The ability of a non-native speaker to participate confidently in academic and everyday conversations will be greatly enhanced by acquiring a vocabulary that includes these types of words. The more learners increase their vocabulary bank, the better they improve their understanding. This can be accomplished through written texts since they provide a great opportunity for learners to be exposed to unknown words (Gass & Mackey, 2012). Thus, the primary criteria for choosing which words to learn are their functions and individual requirements, and some learners may benefit from the use of certain frequently-used, beneficial words while others may not (Laufer & Nation, 1995).

According to Nation (2001), he suggested that the first 2,000 essential words are beneficial for real-world language usage as well as for teaching and learning. The General Service List (GSL) is a reliable



source for locating appropriate words (West, 1953). Since it is common for many English words to have multiple meanings, we can refer to GSL to determine the frequency of each meaning sense. Even though these 2,000 words are only deemed a starting point, it is advantageous for students to continue expanding their vocabulary. The top 50 words listed in GSL are mainly function words, which are, for instance, the, be, of, etc. These function words are mainly used to construct the sentences, while the content words include go, state, year, take, and come, which fall into the top 60.

Not only can the GSL be used as a reference for learners to increase their vocabulary knowledge, but recently, on the occasion of the 60th anniversary of West's publication of the GSL, a New General Service List (NGSL) was also compiled based on a 273 million-word subset of the 1.6 billion-word Cambridge English Corpus (CEC), formerly known as the Cambridge International Corpus (Laughran, 2018). While the New General Service List (NGSL) and the General Service List (GSL) are comparable, there are significant distinctions between the two. The first is that it is more current; on the other hand, the GSL contains many obsolete terms, such as shilling and headdress (Browne, Culligan, & Phillips, 2013). As a result, the primary goals of NGSL are to update and expand the 1964 corpus appearing in GSL to 2368 word families and to construct high-frequency words that provide the greatest possible coverage of English texts using fewer words (Laughran, 2018).

Conclusively, referring to the New General Service List (NGSL) for vocabulary selection offers substantial benefits to non-native English learners aiming to enhance their language proficiency. Research by Webb and Nation (2017) suggests that mastery of the NGSL leads to improved reading comprehension and writing skills, enabling learners to engage confidently in various communicative contexts. This list encompasses words that appear frequently in both spoken and written language, rendering it a valuable resource for non-native speakers seeking to develop a practical and versatile vocabulary repertoire. By focusing on the NGSL, learners can efficiently prioritize learning words that will have a substantial impact on their communicative competence, fostering greater fluency and comprehension in English.

Vocabulary Acquisition

Since we have a general notion of how many words we need to acquire, we may consider how to do so. We must acknowledge that it is impossible to learn every aspect of a word every time. It is indeed the case that not all can be learned simultaneously. Learners acquire the fundamental meaning prior to full collocation competence in order to extend their acquisition to other aspects at any time prior to reaching the mastery level. At any given moment, learners may possess varying levels of knowledge regarding different aspects of word comprehension (Gass & Mackey, 2012).

Gass and Mackey (2012) also believe that our vocabulary acquisition will improve when we are exposed to a new word for the first time. This is because we will gain an understanding of the form and meaning of the word. In other words, the first time we hear a word, it provides us with an opportunity to

explore its pronunciation, rhythm, and number of syllables. On the other hand, if we encounter them in a written text, we will only learn the initial few letters because we are only exposed to them once. We tend to understand its meaning only in that specific context, whereas we may not yet be able to decipher its other concealed meanings until we have the opportunity to assimilate other aspects of it and more opportunities to familiarize ourselves with this novelty. For this reason, we might not reach the mastery level if we follow this pattern of learning. Moreover, if a person wishes to acquire other knowledge, such as word frequency, register constraints, and collocational behavior, they may require additional time and exposure, as these distinctive features require a sufficient number of examples of their application in order to determine their value.

There are several essential stages involved in acquiring vocabulary that contribute to effective language learning. Firstly, exposure to words through reading, listening, and authentic language use is essential (Horst, et al., 1998). As a consequence, Webb and Nation (2017) suggest that focusing on frequently used and relevant words will facilitate effective learning. Contextual learning, which involves the use of words in sentences or meaningful contexts, has been identified as an effective retention technique (Hulstijn & Laufstijn, 2001). Kang (2016) found that regular review and regular repetition strengthen word recall over time. Incorporating words actively into speaking and writing, in accordance with the principles of usage-based learning (Ellis & Larsen-Freeman, 2006), completes the acquisition cycle and improves both production and comprehension abilities.

In addition, Thornbury (2002) suggests that the most fundamental level of knowing a word involves knowing both its form and meaning, whereas Henricksen (1999) proposes three dimensions of vocabulary knowledge that indicate how well we know the term which can be illustrated in Figure 1.

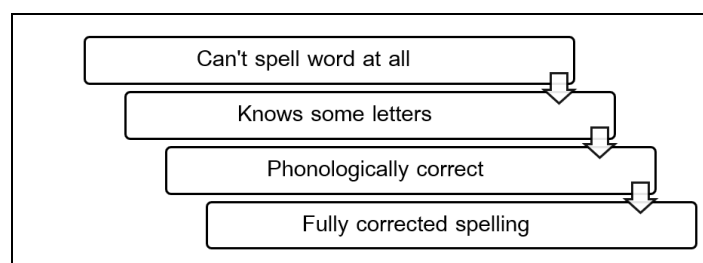


Figure 1 Adapted from “Three dimensions of knowledge” Schmitt (2000, p.118)

For any lexical aspect, learners' knowledge can range from zero to partial comprehension to complete mastery. To gain a deeper understanding of a word, we must be familiar with all of its lexical aspects. Possessing both receptive and productive knowledge enables us to comprehend words accurately. It is conventionally believed that we begin learning with receptive knowledge and then proceed to develop productive knowledge. However, receptive knowledge does not always precede



productive knowledge (Thonbury, 2002). The aforementioned receptive knowledge can be defined succinctly as the process by which students learn words through study, whereas productive knowledge is what students learn when implementing them in any situation. This information appears interchangeable. For instance, some students can produce the word effectively but cannot read it completely, and many students can provide the meaning(s) of words in isolation but cannot apply their knowledge to understanding them in certain contexts due to a lack of productive collocation and register knowledge (Gass & Mackey, 2012).

In conclusion, effective vocabulary acquisition requires multiple phases. It begins with exposure to the language through reading, observing, and authentic language usage. The emphasis on frequently used useful words facilitates efficient learning and contextual learning, and the use of words in meaningful contexts improves retention. Regular review and repetition are also necessary to improve word recall. For this reason, using words regularly in speaking and writing enhances both language production and comprehension since vocabulary knowledge includes both receptive and productive knowledge, which contribute to accurate comprehension and application.

Role of memory in vocabulary acquisition

Memory is essential for vocabulary acquisition because it facilitates the encoding, storage, and retrieval of words for effective communication. The research of Hamrick, Lum, and Ullman (2018) emphasizes the role of declarative memory in the acquisition of new words and their meanings, allowing for conscious recall. Declarative knowledge is the ability to articulate or verbalize explicit, conscious knowledge. It includes factual knowledge, concepts, and definitions that can be expressed through language. Understanding word meanings and grammar rules, as well as being able to explain language concepts, is a requirement for language acquisition. Declarative knowledge involves knowing "about" something, whereas procedural knowledge involves knowing "how" to perform tasks or skills. Not only does declarative memory affect vocabulary acquisition, but the procedural memory also facilitates the automatic recognition and utilization of words through repeated exposure and practice (Batterink, & Neville, 2013). In addition, the interaction between working memory capacity and vocabulary acquisition has been established; learners with larger working memory capacities are better at retaining and manipulating vocabulary (Swanson, Jerman, & Zheng, 2008).

In addition to learning vocabulary through both declarative and procedural knowledge, Ellis (1996) also mentions short-term and long-term memories, which contribute to vocabulary retention. Short-term memory capacity is one of the greatest assets for both vocabulary and grammar proficiency. It is believed that words are not solely learned in a linear instruction. However, it is advisable that learning words can be iterative. Both progression and regression are interchangeable. We may acquire new vocabulary but neglect the words we already know. This phenomenon occurs naturally until we achieve

mastery and are able to store it in our long-term memory. It is intriguing that the majority of backsliding occurred with words that were only acquired through receptive learning, while productive words had a lower tendency to be forgotten (Gass & Mackey, 2012). Follow the principle of expanding rehearsal to prevent forgetting what has already been stored in memory. It can be easily attained if we review after the initial meeting and progressively increase the intervals (Baddeley, 1997). For this reason, it is recommended to establish a schedule to practice 5–10 minutes after the conclusion of the study period, then 24 hours later, a week later, and finally six months later. By following this recommendation, we can reduce the frequency of forgetfulness.

Short-term and long-term memory, also known as working memory, are the two fundamental types of memory. The former is used to store and contain data while it is being processed, whereas the latter stores data for future use. Typically, the capacity of short-term memory to store information is limited to a few seconds, but rehearsal can increase this capacity. In addition to being quick and adjustable, it has a limited capacity. On the other hand, long-term memory has a near-limitless storage capacity but is time-consuming. Consequently, our primary goal is to transfer our lexical knowledge from short-term memory to long-term memory. Obtaining the pre-existing information in our long-term memory to attach to the new information is the primary action involved in performing this task. The Keyword Approach, employing synonyms, and associating the word with a similar sound are regarded as techniques that can aid us in associating new words with our long-term memory. It is believed that the previously learned words that are already in our minds enable us to associate them by creating a link between them (Gass & Mackey, 2012).

In conclusion, memory is considered an important aspect of vocabulary acquisition because it facilitates the encoding, storage, and retrieval of words for effective communication. Understanding new words and meanings is dependent on declarative memory, which depends on the conscious recall of explicit knowledge. This involves both factual information and concepts conveyed through language. Particularly, vocabulary acquisition consists of both declarative and procedural knowledge, with procedural memory facilitating the recognition of words through repetition. Moreover, it also includes working memory capacity, which influences vocabulary retention, with greater capacities facilitating retention and manipulation. The process of vocabulary acquisition is not strictly linear; words can be acquired iteratively, with both progression and regress. Expanding rehearsal, which utilizes spaced repetition to transmit information from short-term to long-term memory, is one method for overcoming forgetfulness.

Vocabulary – building strategies

It is essential to demonstrate to students how to utilize strategies for vocabulary acquisition. These strategies are significant for enhancing language acquisition. A number of researchers have identified



some useful strategies that could possibly help language learners improve their vocabulary acquisition. Several activities, such as the use of context clues, sorting, categorizing, and semantic mapping, may assist in the development of vocabulary knowledge in language learners. The use of word clues enables students to decode the meanings of words they encounter in meaningful sentences by analyzing contextual information. This method is based on Craik and Lockhart's (1972) "Depth of Processing" theory, which describes thoroughly how processing words—such as comprehending them within sentences—improves memory retention. In addition, the use of word associations, in which students associate both unfamiliar and familiar words, this has proven effective (Meara, 2005), and this technique utilizes cognitive connections to facilitate vocabulary storage and retrieval.

Word sorting is seen as a basic activity but is useful because learners simply sort words into the same category based on similarities in their meanings. This strategy can be applied to all levels of education. There are two distinct varieties of word sorts: the open sort and the closed sort. In open sort, learners will not know the category of advice; for this reason, they must search for meaning and attempt to identify the connection between the meanings of the words. In contrast, in the closed sort, the primary category of the words will be provided in advance, and then learners will be required to group them into similar groups. The objective of this exercise is to classify words into various categories (Thornbury, 2002).

Categorization is another useful method for aiding students in associating relationships between the meanings of words. It is similar to the open and closed categories in appearance, but the categorization provides learners with additional information to complete the task. For instance, a teacher may provide fewer words for classification and instruct students to cross out those that seem irrelevant in meaning. Vacca, Vacca, and Gove (1995) found that when learners attempt to eliminate individuals from a group, this could possibly enhance their ability to recognize the differences in the meaning of the words.

In addition, semantic mapping is a method for constructing a visual representation that demonstrates the relationships between words and classifies them accordingly. It enables students to associate new words with their prior experiences and knowledge (Dilek & Yuruk, 2013). According to Heimlich and Pittelman (1986), semantic mapping is a successful and beneficial vocabulary teaching strategy because it allows students to see how words are related to one another. Stroller and Grabe (1993) state that semantic mapping can improve vocabulary retention because students can add new words to an existing diagram. The semantic mapping teaching instruction begins by placing the target word in the center of the board and then asking students to provide as many words as possible to acquire as much information as possible. Then, students will arrange terms cooperatively into the same category (Vacca, Vacca, & Gove, 1995).

Semantic mapping benefits students in numerous situations, including vocabulary development, pre- and post-reading, and as a study skill strategy. In vocabulary development, it assists students in activating their prior knowledge to determine the relationship between the chosen key words. Learners can also alter it for use prior to and after reading. Learners can easily accomplish this by identifying the

passage's main idea and attempting to connect new categories with additional words to demonstrate their relationship to the main idea. They can use semantic mapping to summarize their ideas after reading, and they can possibly adapt this strategy to other reading materials as well (Heimlich & Pittleman, 1986).

Semantic mapping is not only used for vocabulary development as well as pre – post reading but it also can be used in study skill when learners read textbooks. Hunt (1957) suggests that mapping procedure can be applied to use as a technique by grouping the main ideas of the text and label others into sub - categories on the map. Finally, learners summarize all the significant details by completing the map from what they have read (Heimlich & Pittleman, 1986).

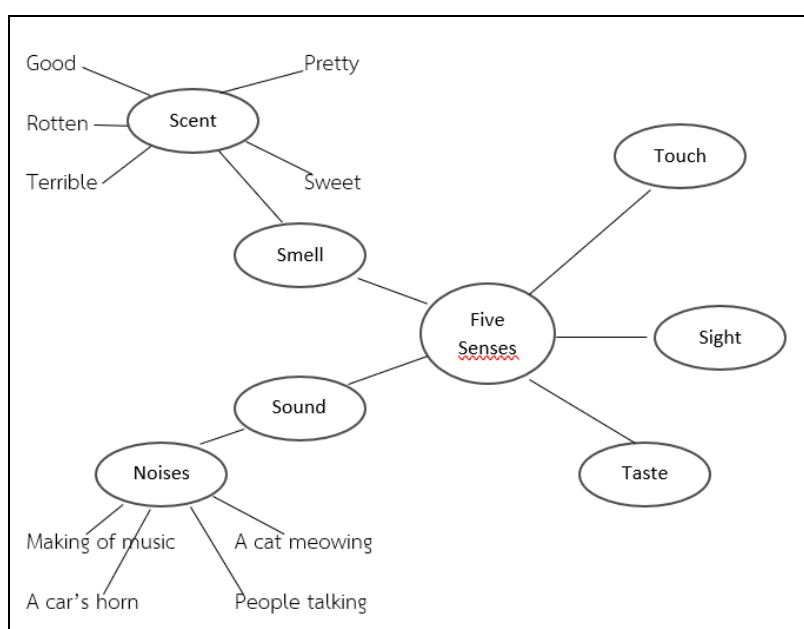


Figure 2 Adapted from “A semantic map of the five senses” (Vacca, Vacca, & Gove, 1995, p. 249)

In summary, implementing effective strategies for vocabulary acquisition is essential to enhancing language learning. Various techniques, including using context clues, word associations, sorting, categorizing, and semantic mapping, can aid in developing vocabulary knowledge. Context clues involve deciphering word meanings from sentences, drawing on Craik and Lockhart's "Depth of Processing" theory. Word associations link unfamiliar words to familiar ones, aiding cognitive connections. Word sorting involves categorizing words based on similarities, with open and closed sorts allowing learners to identify connections between meanings. Categorization helps associate relationships between terms, while semantic mapping visually represents word relationships and enhances vocabulary retention. This technique can be adapted for vocabulary development, pre- and post-reading activities, and study skills, providing a versatile tool for learners.



Conclusion

Vocabulary serves as a fundamental in language learning since it enhances establishing effective communication. To determine a number of words and which one to learn depends on individual purposes. Understanding the deeper meaning of words takes time, as it is dependent on our exposure, and it is even more time-consuming to comprehend. Nevertheless, learners could benefit from the New General Service List (NGSL), which provides the most frequent words in both spoken and written languages, as a platform to initiate learning vocabulary. This includes reading, listening, and authentic language use. Furthermore, word comprehension develops sequentially, beginning with the inability to spell words and progressing to the mastery of both receptive and productive knowledge, as it is obligatory to be familiar with all aspects of vocabulary. Due to the need for numerous examples and exercises to comprehend their distinction, these values cannot be taught simultaneously. Therefore, it is significant for learners to invest their extra time in seeking out every opportunity to become accustomed to these functions and practice using them. Context clues, word classification, categorization, and semantic mapping set a good example for effective vocabulary-building strategies that can aid most students in expanding their vocabulary.

References

- Afzal, N. (2019). A Study on Vocabulary-learning Problems Encountered by BA English Majors at the University Level of Education. *Arab World English Journal (AWEJ)*, 10, 81-98.
- Baddeley, A. (1997). *Human Memory: Theory and Practice*. Boston: Allyn and Bacon.
- Bai, Z. (2018). An Analysis of English Vocabulary Learning Strategies. *Journal of language Teaching and Research*, 9(4), 849-855.
- Boonkongsan, N., & Intaraprasert, C. (2014). Use of English Vocabulary Learning Strategies by Thai Tertiary-level Students in Relation to Fields of Study and Language Learning Experiences. *English Language Teaching*, 7(5), 59-70. <http://doi.org/10.5539/elt.v7n5p59>
- Browne, C., Culligan, B. & Phillips, J. (2013) *The New General Service List*. Retrieved on March 15, 2023, from <http://www.newgeneralservicelist.org/>
- Batterink, L., & Neville, H. (2013). Implicit and Explicit Second Language Training Recruit Common Neural Mechanisms for Syntactic Processing. *Journal of Cognitive Neuroscience*, 25(6), 936-951.
- 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.
- Dehham, S. H. (2021). Iraqi EFL Students' Ability in Acquiring English Vocabulary by Peer Instruction Technology. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, 12(9), 1634-1639.

- Dilek, Y., & Yürük, N. (2013). Using Semantic Mapping Technique in Vocabulary Teaching at Pre-Intermediate Level. *Procedia-Social and Behavioral Sciences*, 70, 1531-1544.
- Ellis, G. (1996). How Culturally Appropriate is the Communicative Approach? *ELT journal*, 50(3), 213-218.
<https://doi.org/10.1093/elt/50.3.213>
- Ellis, R., & Larsen-Freeman, D. (2006). *Language as a Complex Adaptive System*. New York: Wiley.
- Education First. (2020). *The World's Largest Ranking of Countries and Regions by English Skills*. Retrieved on March 15, 2023, from <https://www.ef.co.th/epi/>
- Gass & Mackey. (2012). *The routledge handbook of second language acquisition*. UK.: Routledge.
- Hamrick, P., Lum, J. A., & Ullman, M. T. (2018). Child First Language and Adult Second Language are Both Tied to General-purpose Learning Systems. *Proceedings of the National Academy of Sciences*, 115(7), 1487-1492.
- Heimlich, J.E., & Pittelman, S. D. (1986). *Semantic Mapping: Classroom Applications*. Newark, Del.: International Reading Association.
- Henriksen, B. (1999). Three Dimensions of Vocabulary Development. *Studies in Second Language Acquisition*, 21, 303-317.
- Hulstijn, J. H., & Laufer, B. (2001). Some Empirical Evidence for the Involvement Load Hypothesis in Vocabulary Acquisition. *Language Learning*, 51(3), 539-558.
- Hunt Jr, L. C. (1957). Can We Measure Specific Factors Associated with Reading Comprehension?. *The Journal of Educational Research*, 51(3), 161-172.
- Kang, S. H. K. (2016). Spaced Repetition Promotes Efficient and Effective Learning: Policy Implications for Instruction. *Policy Insights from the Behavioral and Brain Sciences*, 3(1), 12-19.
- Laufer, B., & Nation, P. (1995). Vocabulary Size and Use: Lexical Richness In L2 Written Production. *Applied Linguistics*, 16(3), 307-322.
- Meara, P. (2005). *Designing vocabulary tests for English, Spanish and other languages*. In The Dynamics of Language Use: John Benjamins.
- Laughran, S. (2018). *The New General Service List: A Core Vocabulary for EFL Students and Teachers*. Retrieved on April 12, 2023, from <https://www.cambridge.org/elt/blog/2018/05/29/general-service-list/>
- Lin, L. F. (2010). English Learners' Incidental Vocabulary Acquisition in the Video-based CALL Program. *AsianEFL Journal*, 12(4), 1-16.
- Milton, J. (2009). *Measuring Second Language Vocabulary Acquisition*. UK.: Multilingual Matters.
- Nation, P. (2001). *Learning Vocabulary in another Language*. Cambridge: Cambridge University Press.
- Nation, P. (2006). How Large a Vocabulary is Needed for Reading and Listening? *The Canadian Modern Language Review*, 63, 59-82.
- Nation, P., & Waring, R. (1997). Vocabulary Size, Text Coverage and Word Lists. In Schmitt, N. & M. McCarthy (Eds.), *Vocabulary: Description, Acquisition and Pedagogy*. Cambridge: Cambridge University Press.



- Ramezanali, N., Uchihara, T., & Faez, F. (2021). Efficacy of Multimodal Glossing on Second Language Vocabulary Learning: A Meta-analysis. *Tesol Quarterly*, 55(1), 105-133.
- Saengpakdeejit, R. (2014). Awareness of Vocabulary Learning Strategies among EFL Students in Khon Kaen University. *Theory and practice in language studies*, 4(6), 1101-1108.
<https://doi.org/10.4304/tpls.4.6.1101-1108>
- Schmitt, N. (2000). *Vocabulary in Language Teaching*. Cambridge: Cambridge University Press.
- Stroller, F., & Grabe, W. (1993). Implications for L2 Vocabulary Acquisition from L1 Vocabulary Research. In Huckin et al. (Eds.), *Second Language Reading and Vocabulary Learning*. New York: Ablex Publishing Corporation.
- Surmanov, S., & Azimova, M. (2020). Analysis of Difficulties in Vocabulary Acquisition. *The Journal of Legal Studies*, 6(1), 144-153.
- Swanson, H. L., Jerman, O., & Zheng, X. (2008). Growth in Working Memory and Mathematical Problem Solving in Children at Risk and not at Risk for Serious Math Difficulties. *Journal of Educational Psychology*, 100(2), 343.
- Thornbury. (2002). *How to Teach Vocabulary*. London: Pearson Education Limited.
- Uchihara, T., Webb, S., & Yanagisawa, A. (2019). The Effects of Repetition on Incidental Vocabulary Learning: A meta-analysis of Correlational Studies. *Language learning*, 69(3), 559-599.
- Vacca, R., Vacca, J., & Gove, M.. (1995). *Reading and Learning to Read*. New York: HarperCollins College Publishers.
- Webb, S., & Nation, P. (2017). *How Vocabulary Is Learned*. Oxford: Oxford University Press.
- West, M. (1953). *A General Service List of English Words*. Harlow: Longman.
- Woodeson, K., Limna, P., & Nga-Fa, N. (2023). Students' Vocabulary Learning Difficulties and Teachers' Strategies: A Qualitative Case Study of Ammartpanichnukul School, Krabi in Thailand. *Advance Knowledge for Executives*, 2(1), 1-9.