Exploring the Relationship between Vocabulary Breadth and Rote Learning Strategies among High School EFL Learners

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Study Programme: Double Major MA Study Programme in English Language and Literature and – Teaching English as a Foreign Language and Hungarian Language and Literature

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Abstract

One of the biggest challenges learners will face during foreign language learning is vocabulary. Vocabulary plays a crucial part in language use and insufficient vocabulary knowledge may lead to difficulties in language learning. Therefore, learners need to be acquainted with vocabulary learning strategies to help them overcome difficulties that come with vocabulary learning.

This paper focuses on the research conducted at Valpovo High School. The aim was to explore the relationship between rote learning strategies and vocabulary breadth among high school English foreign language (EFL) learners. The results of Pearson's correlation revealed significant correlation between vocabulary breadth test achievement and the use of rote learning strategies among the learners of Grammar School and Electrical Engineering School but no correlation with the learners of High School of Economics.

The results show that learners' performance on the test is better when they rely less on rote learning strategies and vice versa. However, even though many factors could influence the results, the research findings show that it is of great importance to raise learners' awareness of different language learning strategies.

Key words: vocabulary, language learning strategies, rote learning strategies, breadth of vocabulary, vocabulary knowledge

Sažetak

Jedan od najvećih izazova s kojim će se učenici suočiti tijekom učenja stranog jezika je vokabular. Vokabular igra veliku ulogu u korištenju jezika te nedovoljno znanje vokabulara može dovesti do poteškoća u učenju jezika. Stoga se učenici trebaju upoznati sa strategijama učenja vokabulara kako bi im pomogle u prevladavanju poteškoća povezanih s učenjem vokabulara.

Ovaj diplomski rad opisuje istraživanje provedeno u Srednjoj školi Valpovo. Cilj je rada istražiti povezanost strategija učenja napamet i širine vokabulara u nastavi engleskog kao stranog jezika kod srednjoškolskih učenika. Rezultati Pearsonove korelacije pokazuju značajnu korelaciju između rezultata na testu širine vokabulara i uporabe strategija učenja napamet u Gimnaziji i Elektrotehničkoj školi, ali ne i u Ekonomskoj školi.

Rezultati pokazuju da je uspješnost učenika na testu bolja kada se manje oslanjaju na strategije učenja napamet i obrnuto. Iako mnogi čimbenici mogu utjecati na rezultate, radom se nastoji ukazati na veliku važnosti podizanja svijesti učenika o različitim strategijama učenja jezika.

Ključne riječi: vokabular, strategije učenja jezika, strategije učenja napamet, širina vokabulara, znanje vokabulara

1. Introduction

Vocabulary acquisition is always an interesting topic of discussion for all involved in second language or foreign language learning. Researchers, teachers, theorists, and others see vocabulary as an important element in a language acquisition due to its internal link with all language skills and knowledge, i.e., reading, writing, speaking, listening, and grammar. Although there are many studies on vocabulary and language learning strategies in the educational field, vocabulary breadth has been neglected in that sense. The role of vocabulary breadth in vocabulary acquisition needs more attention especially because breadth of vocabulary knowledge is an indicator of learners' linguistic competence. Furthermore, language learning strategies have a crucial role in vocabulary acquisition and therefore have a great impact as well on learners' vocabulary knowledge and their overall linguistic competence. Many researches have strongly advocated and argued that vocabulary learning strategies (VLS) play a vital role in improving learners' vocabulary acquisition preparing them to be independent vocabulary learners.

The first part of this paper focuses on the theoretical background of language learning strategies in general, vocabulary learning strategies, and rote learning strategies, providing an insight into vocabulary assessment and lexical knowledge. It is followed by the section on vocabulary breadth definition, measuring and testing. Lastly, the theoretical part outlines recent studies relevant for this research that include vocabulary strategies and vocabulary breadth.

The second part of this paper describes the study that investigates the relationship between vocabulary breadth and rote learning strategies among EFL learners. Research focuses on learners' achievement on vocabulary breadth test and their use of rote learning strategies. Aims, participants, instruments, procedures, and results of the research conducted at High School Valpovo are discussed later in this paper. Our initial assumption is that learners that rely more on rote learning strategies achieve lower results in vocabulary breadth test and vice versa. As the results would show, the hypothesis regarding learners' vocabulary knowledge was confirmed, but the one related to rote learning strategies was somewhat surprising and eventually discarded. In the conclusion, the results are elaborated in detail and some constructive guidelines for teaching language learning strategies are given.

2. Language learning strategies

From its introduction in the late 1970s the notion of "learning strategy" was very appealing to researchers who later came to conclusion that "it was not merely a high degree of language aptitude and motivation that caused some learners to excel, but also the students own active and creative participation in the learning process through the application of individualized learning techniques" (Dornyei and Skehan, 2003: 607). The scholars took up a number of research about language learning strategies in the 1980s and language learning strategies were given a new role in language acquisition. They have concluded that learning strategies play an important role in the acquisition of an L2 and that, in the future, language learning strategies will become a broad area of research. First, it was necessary to define language learning strategies. Among many definitions, Oxford (1989: 253) provided a seemingly straightforward functional definition for language learning strategies – "behaviours or actions which learners use to make language learning more successful, self-directed, and enjoyable". Later, "behaviours and actions" were replaced by "steps taken by the learner" in order to make the definition more general and to include mental steps that were not so clear in the prior definition. This definition, among many others, encountered a problem when it comes to learners approach to learning and specific actions taken while learning. Stern (1986) made a distinction between these two approaches and saw them as separate terms in L2 acquisition. The first referred to learning strategies and the later to techniques. However, researchers had eventually abandoned strategy - technique dichotomy and introduced the term *individual learning strategies* instead. A clear overview of definitions of language learning strategies can be seen in Table 1. (Pavičić Takač, 2008: 51)

Table 1. Definitions of language learning strategies (Pavičić Takač, 2008: 51)

Source	*Definition*
Tarone (1981)	An attempt to develop linguistic and sociolinguistic competence in the target language.
Rubin (1987)	What learners do to learn and do to regulate their learning.
Chamot (1987)	Techniques, approaches or deliberate actions that students take in order to facilitate learning, recall of both linguistic and content information.
Wenden (1987)	The term refers to language behaviours learners engage in to learn and regulate the learning of L2, to what learners know about the strategies they use (i.e. strategic knowledge), and to what learner know about aspects of L2 learning.

Weinstein and Mayer (1986)	Behaviours and thoughts that a learner engages in during learning that are intended to influence the learner's encoding process.
Oxford (1990)	Behaviours or actions which learners use to make language learning more successful, self-directed and enjoyable.
Ellis (1995)	Generally, a strategy is a mental or behavioural activity related to some specific stage in the process of language acquisition or language use.
Ridley (1997)	Broadly speaking, the terms strategy denotes procedures – which are sometimes conscious and sometimes unconscious – used by a person as a way of reaching a goal.
Cohen (1998)	Processes which are consciously selected by learners and which may result in action taken to enhance the learning or use of L2, through the storage, recall and application of information about language.
Purpura (1999)	Conscious or unconscious techniques or activities that an individual invokes in language learning, use or testing.

2.1 Taxonomy of language learning strategies

The difficulty of defining language learning strategies led to another problem and that is the lack of an adequate taxonomy and categorization. Over the time, different researchers used different criteria for their classification. The mostly recognized taxonomy is Oxford's (1990) taxonomy, which gives a general overview of the system of language learning strategies. Two major classes, direct and indirect strategies are further subdivided into six groups: cognitive, memory, metacognitive, compensation, effective, and social strategies. These two groups enjoy a mutual support and are able to connect with every other strategy group. General strategy overview is shown in the *Figure 1*. The focus of this research is primarily on direct strategies. In other words, the emphasis is put on rote learning strategies and memory strategies which share a close mutual connection within the same category.

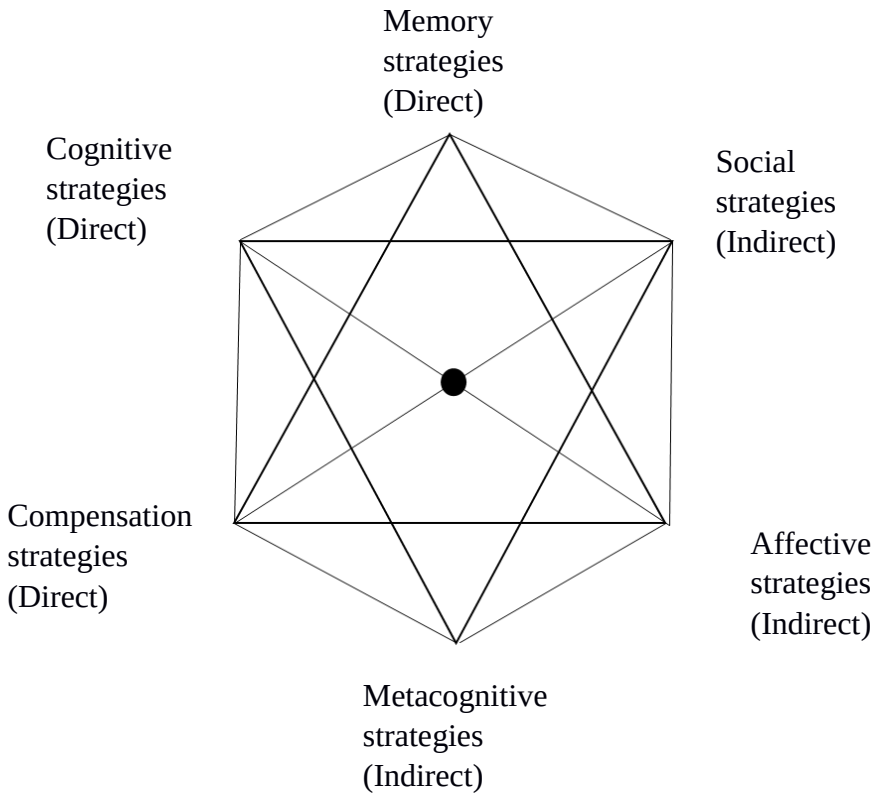


Figure 1. Interrelationships between Direct and Indirect Strategies among the Six Strategy Group (Oxford, 1990: 15)

The classification of language learning strategies is still a controversial topic and as such provokes occasional heated discussions. As Oxford states, "… any existing system of strategies is only a proposal to be tested through practical classroom use and through research. At this stage in the history of language learning strategy research, there is no complete agreement on exactly what strategies are; how many strategies exist; how they should be defined, demarcated, and categorized: and whether it is – or ever will be – possible to create a real, scientifically validated hierarchy of strategies." (Oxford, 1990: 17) Since this area of language acquisition is still an ongoing process of research development and under the influence of various external and internal factors, it cannot be considered a final product in the field of language acquisition. With this in mind, it is advisable to follow the work of the prominent researchers and consider the finding that suit us best at any given moment and eventually use it as our standpoint when it comes to language learning strategies.

2.2. Memory strategies

In the light of the classification of language learning strategies, we continue to focus on memory strategies in order to clarify the term rote learning strategies. According to Oxford (1990), memory strategies are a part of direct learning strategies. Direct learning strategies are strategies that directly involve the target language. Memory strategies, just as cognitive and compensation

strategies that fall into the same group, require mental processes. The main difference between these classifications is that each of these three strategies do mental processing differently and for different purposes. Memory strategies have a specific function to help learners store and retrieve new information. Unlike cognitive strategies that focus on helping learners to understand and produce language by many different means. According to Oxford (1990), memory strategies fall into four sets: creating mental linkages, applying images and sounds, reviewing well and employing actions (see *Figure 2).* The diagram in *Figure 2* outlines the taxonomic position of the rote learning strategies as the lowest level of language learning strategies placed within the higher level of the memory domain.

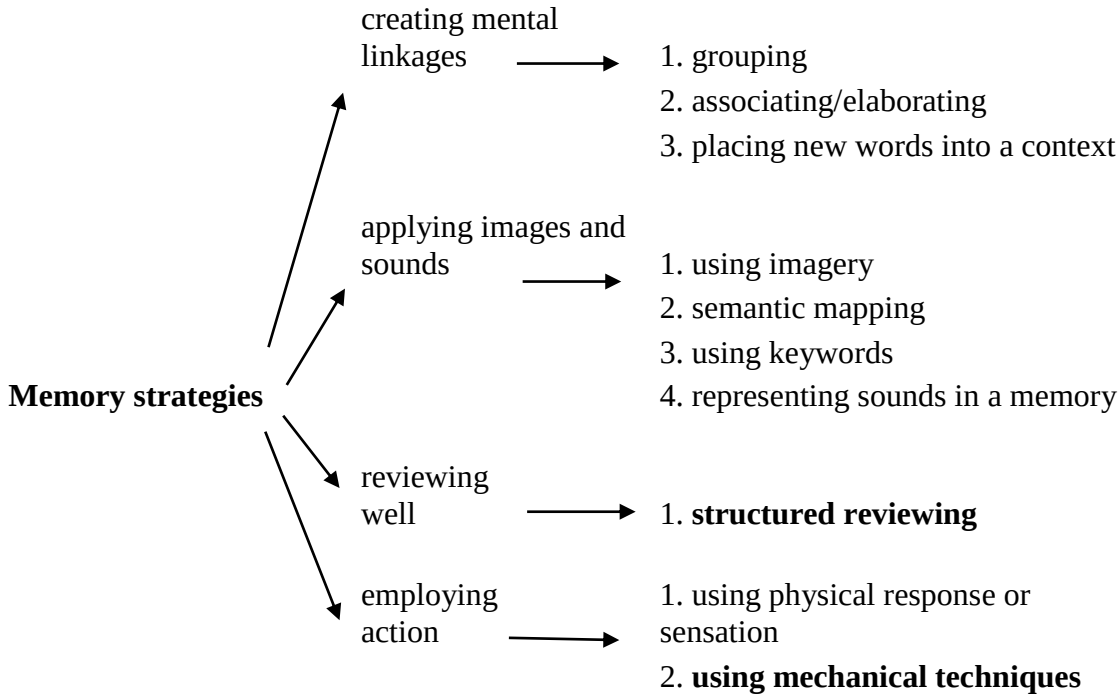


Figure 2. Diagram of the Strategy System Showing Memory Related Strategies (Oxford: 18)

2.3. Rote learning strategies

Generally, repetition is a type of strategy used frequently by EFL learners. Cambridge Learner's Dictionary online gives the following definition of rote learning: "learning something in order to be able to repeat it from memory, rather than in order to understand it". To be more specific, the major practice involved in rote learning is repetition by which learners commit information to memory in a highly structured way. However, there is more to rote learning than repetition. Rote learning is also seen as memorization and practicing and for that reason it plays an important role in language learning strategies, especially vocabulary learning strategies. Structured reviewing and using mechanical techniques are strategies that are the closest to rote

learning strategies or, as we like to call it, “learning by heart”. Structured reviewing is reviewing in carefully spaced intervals. The goal of this strategy is “overlearning“, or, in other words, being so familiar with the information that it becomes natural. Mechanical techniques include mechanical repetition, which is the most common way of rote learning. Repeating plays a major role in rote learning and is a part of cognitive strategies. Simple definition would be, saying or doing something repeatedly. Examples of that kind of acquisition are listening to something several times, repeating yourself, imitating a native speaker, rehearsing, etc. (Oxford, 1990). Although memorization is not the most effective way to learn something, many students still use it as a method, particularly when the large amount of new information is being processed or when quick recall is required. Although rote learning is widely used in the mastery of foundational knowledge. However, it eschews comprehension and is considered an ineffective tool in mastering any complex subject at an advanced level. Cohen and Aphek (1981) found that most students tried to memorize the words they did not know. Ahmed (1989) described different types of learners and found that most took notes on vocabulary, or wrote notes in the margins of their books. O'Malley et al. (1985) found that repetition was the most commonly mentioned strategy, with strategies requiring more active manipulation of information (imagery, inferencing, Keyword Method) being much less frequent. Therefore, it seems that mechanical strategies are often favoured over ones that are more complex (Schmitt, 1997).

An overlap between the classes in memory strategies category exists, as it does among the groups. While memory strategies are the closest to rote learning strategies and one would commonly rely on them, cognitive strategies also contribute to this type of learning. Another key point is translation, which, as a part of vocabulary learning, belongs to the category of cognitive strategies, subcategory - analysing and reasoning. Converting a target language into the native language and vice versa has been used the most by the learners and teachers as they find it easy to connect native language with target language. Point often overlooked is that although modern language practice does not encourage translation as learner’s first choice in vocabulary acquisition or overuse of one’s mother tongue, both learners and teachers still rely on this strategy when faced with comprehension difficulties. *Figure 3.* shows which areas of direct strategies affects rote learning.

Rote Learning Strategies	
Memory strategies	1. Reviewing well (Structured reviewing) 2. Employing action (Using mechanical techniques)
Cognitive strategies	1. Practising (Repeating) 2. Analysing and reasoning (Translating, Transferring)

Figure 3. Rote Learning Strategies (Oxford, 1990)

3. Vocabulary learning strategies

Due to the importance of vocabulary and the place it occupies in language acquisition, vocabulary learning strategies need to be observed as a separate part of language learning strategies. Nation (1990) differentiates between the language learning strategies (LLS) as a subcategory of general learning strategies and vocabulary strategies (VLS) as a part of language learning strategies. Schmitt (1997) claims that ever since 1970s and the research shift from teaching methods to the study of learner characteristics, vocabulary learning strategies (VLS) have gained attention. When it comes to learning vocabulary, language learners have a great problem remembering large amounts of vocabulary. Memory strategies are considered helpful tools in coping with problems related to vocabulary learning. They facilitate the storage of the verbal material and the retrieval when needed. Learners' autonomy in vocabulary learning outside the classroom is very important and often subconscious. It has been suggested that learners use various vocabulary learning strategies. According to Schmitt (2000: 132), "some of the most common strategies are simple memorization, repetition, and taking notes on vocabulary." They are also called mechanical strategies and learners tend to use them more frequently than the complex ones which require manipulation of information. These mechanical strategies are indeed strategies of rote learning. Rote learning became outdated and somehow associated with "bad teaching". Consequently, rote learning has been replaced with new techniques or at least used in combination with some other techniques such as critical thinking, associative learning, metacognition, etc. Nowadays, under the influence of previous research findings, it has been concluded that multiple vocabulary learning strategies are being used concurrently rather that individually. This means that strategy use management has been improved and encouraged by the teacher. The better the knowledge about

vocabulary strategies and their use, the better the management over them and, consequently, better vocabulary knowledge. The role of the teacher is therefore irreplaceable. Cohen and Aphek (1981, as cited in Nation, 2000: 133) suggest that "[w]hen considering which vocabulary learning strategies to introduce to our students, we need to consider the learners themselves and their overall learning context." Hereby, proficiency level seems to play an important role. According to Cohen and Aphek's (1981, as cited in Nation, 2000: 133) study suggests word lists to be used with beginner learners and contextualized words with the more advanced ones. In conclusion, it is up to us to properly inform our learners with vocabulary learning strategies so they could manipulate with that knowledge in a way that is best suited for them. Although proficiency level does play a role in choosing the appropriate strategies, in the end it is up to the learner to choose which strategy he is going to use.

John Read (2000) argues that vocabulary knowledge is both necessary and reasonably straightforward: "It is necessary in the sense that words are the basic building blocks of language, the units of meaning from which larger structures such as sentences, paragraphs and whole texts are formed" (Read, 2000: 1). Vocabulary learning starts with the childhood and continues to develop all the way through adulthood as a "response to new experiences, inventions, concepts, social trends and opportunities for learning." (Read, 2000: 1) Another reason why vocabulary learning is of such importance is that many learners see it as an essential part of language acquisition. With this in mind, most of their time is devoted to memory enhancements and vocabulary improvement. Not only do the learners recognize the importance of vocabulary but also the teachers who are looking for ways to promote it more effectively and put it as a priority in language acquisition. Paul Nation (2005) talks about problems with vocabulary teaching and how to effectively give attention to words and principles for better vocabulary teaching. They are listed below the paragraph. Nation argues that the main problem with teaching vocabulary is limitation. "Teaching can effectively deal with only a small amount of information about a word at one time. The more complex the information is, the more likely the learners are to misinterpret it." (Nation, 2005: 2) These principles prove that learning a word is a cumulative process. "Knowledge is built up over a series of varied meetings with the word." Teaching can provide only two or three of these meetings while others involve learners' own efforts to deliberately study the words more.

Principles

1 Keep the teaching simple and clear. Don't give complicated explanations.

2 Relate the present teaching to past knowledge by showing a pattern or analogies.

3 Use both oral and written presentation - write it on the blackboard and explain as well.

4 Give most attention to words that are already partly known.

5 Tell the learners if it is a high frequency word that is worth noting for future attention.

5 Don't bring in other unknown or poorly known related words like near synonyms, opposites, or members of the same lexical set.

3.1. Teaching vocabulary learning strategies

After a brief overview of language learning strategies and more detailed look on vocabulary learning strategies, a point often overlooked is how to teach language learning strategies. Particularly vocabulary learning strategies. As mentioned before, language learning strategies are part of language acquisition that is yet to be defined and researched. In the meantime, we can rely on theories and researchers to provide us with standpoint in both learning and teaching language learning strategies. Although there is no explicit way of teaching vocabulary learning strategies or the final recipe for success, there are suggestions how to approach vocabulary learning strategies. One is given by Nation (2001) as cited in Pavičić, Takač and Bagarić, Medve (2013) and it consists of steps that are given to teachers. They can choose which steps to apply and in what order. There are seven steps on how to teach vocabulary learning strategies. First step would be that the teacher demonstrates the use of the strategy. After that comes the practice of each step of the strategy. Next, learners apply the strategy in pairs while mutually supporting each other. After applying the strategy, learners need to report on the implementation of the strategy. They also report any difficulties and effectiveness of strategy implementation outside the classroom. This step is very important because it shows that the strategy can and should be used outside the classroom. At the very end, teachers systematically test the use of strategy and provide feedback. Finally, learners consult with their teachers on how to use the strategy, if necessary. Although there is no ready-made plan on how to teach strategies, the steps can be used with any given strategy, no matter its complexity. They also serve as confirmation that learners have understood the given strategy, its intention, implementation, and difficulties that could be encountered while using one. The main thing to remember is that there is no perfect strategy. Therefore, a large number of strategies and their combinations, in line with learners' needs, should be included in the teaching process (Pavičić Takač, Bagarić Medve 2013: 167).

3.2. Vocabulary assessment

According to John Read (2000: 8), there are three dimensions of vocabulary assessment. The dimensions represent ways in which we can expand our conventional ideas about what a vocabulary test is, in order to include a wider range of lexical assessment procedures. The first dimension focuses on discrete vocabulary test that treats vocabulary knowledge as a distinct construct, separated from other components of language. What makes the test discrete is the fact that it is focusing purely on the construct of vocabulary knowledge. Contrary to discrete test is embedded vocabulary measure that contributes to assessment of a larger construct. An example of this kind of assessment can be a reading task consisting of a written test and followed by a set of comprehension questions. Here, vocabulary items will not be counted separately but as a part of learners reading comprehension ability. Embedded measure can also be made into a discrete test and that is why we need to differentiate between the two terms. "To determine whether a particular vocabulary measure is discrete or embedded, you need to consider its purpose and the way the results are to be interpreted" (Read, 2008: 10). The second dimension is a selective vocabulary measure and it concerns the range of vocabulary in the assessment. Contrary to that measure, a comprehensive one takes account of all vocabulary content of a spoken and a written text. The third dimension stresses the role of context. "Traditionally contextualization has meant that a word is presented to test-takers in a sentence rather than as an isolated form" (Read, 2008: 11). Items can be either context-dependent or independent. Read (2008) states that the degree of context dependence can be either a characteristic of individual test items or property of the test as a whole. In addition, vocabulary measures embedded in writing as well as in speaking are typically context dependent. These three dimensions are intended to provide a basis for locating the variety of assessment procedures that are currently in use. Vocabulary assessment relies on ready-made vocabulary lists that provide basis for selecting words to be tested. We can use many item types for vocabulary testing. Some of them include multiple choice questions, completion, translation, and matching. The type of testing we used for the purpose of this research was matching and we will examine it in more detail later while discussing the research.

4. Lexical competence

4.1 Lexical competence as part of communicative competence

While scholars have extensively investigated grammatical and communicative competence, lexical competence has been neglected. However, if we think of lexical competence as an important part of communicative competence, then it is essential to pay more attention to it and

try to define it. When we define lexical competence as vocabulary knowledge, then lexical competence becomes an essential part of communicative competence (Pavičić Takač, Bagarić Medve: 2013). The lexical competence has not yet found its place in learner's competence. In other words, although some models include lexical competence as part of communicative competence, others consider it a part of some other competence. A large number of scholars investigated the connection between lexical competence and communicative competence. The theories of lexical competence emerged from these studies, i.e. its most commonly studied aspects and factors that play an important role in the development of lexical competence. Certain communicative competence models serve as a prerequisite for the concept of lexical competence. Without a doubt, there is a large number of studies on lexical competence, and it would be impossible to cover them all. However, some of them need to be mentioned in order to understand the term lexical competence, its aspects and other factors that are included in its development.

Celce-Murcia (1995) model does not go into depth while analysing lexical competence. This model informs us about components of lexicon (receptive and productive) it includes words (content and function words), routines (word-like fixed phrases and formulaic and semi-formulaic chunks), collocations (V-Obj), and idioms. Celce-Murcia, Dörnyei & Thurrell's (1995) model differs from Bachman and Palmer's (1996) in that their model places "lexical knowledge" within linguistic competence. They also believe that lexicon and grammar are closely connected and that the final result of that interdependence is "lexico-grammar", which is also a part of linguistic competence. Bachman's (1990) earlier model places vocabulary within grammatical competence, whereas Bachman and Palmer (1996) decided to move lexical knowledge into pragmatic knowledge. This shift emphasised the interdependence between the meaning and the sociocultural context. Celce Murcia, Dörnyei , & Thurrell (1995) see that Bachman and Palmer model has similarities with their actional competence which "concerns getting one's (illocutionary) meaning across in actual language use, and is typically associated with a repertoire of conventionalized phrases and routine." (Celce Murcia, Dörnyei , & Thurrell 1995: 13 They also emphasize the importance of distinction between linguistic competence and previously mentioned lexical phrases that have pragmatic function and are placed in actional competence. Distinction can be seen in *Figure 4.* that provides a schematic comparison of Celce Murcia's construct to Bachman and Palmers's.

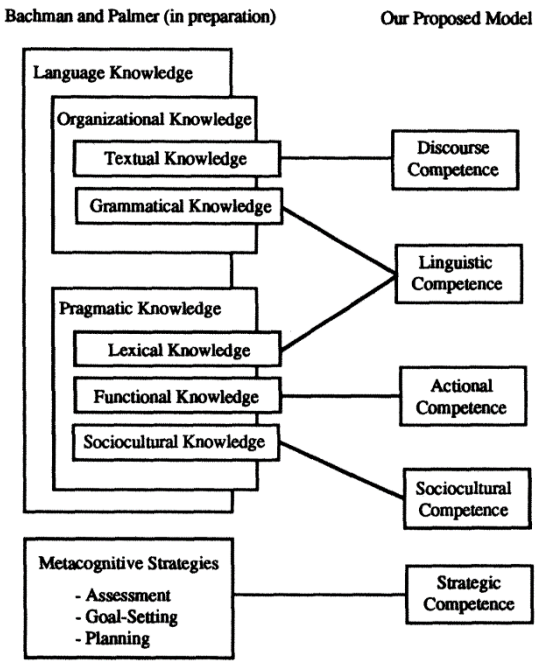


Figure 4. Comparison of the Celce-Murcia Proposed Model with Bachman and Palmer's (in Preparation) Model of Communicative Language Abilities

In addition, Celce-Murcia also mentions Canale and Swains's (1980) model that has one major difference. It consists of the term "linguistic competence", preferred by Celce-Murcia, in comparison to "grammatical competence" used by Canale and Swain. By doing so, Celce-Murcia indicated that this component includes lexis as well as phonology, in addition to morphology and syntax. That is another key point in analysing lexical competence. Methodologist take a step further from grammatical competence, but at the same time most agree that grammatical knowledge and lexical knowledge are interdependent. *Figure 5* below provides a chronological evolution of the proposed model by Celce Murcia in comparison to Canale and Swain's model.

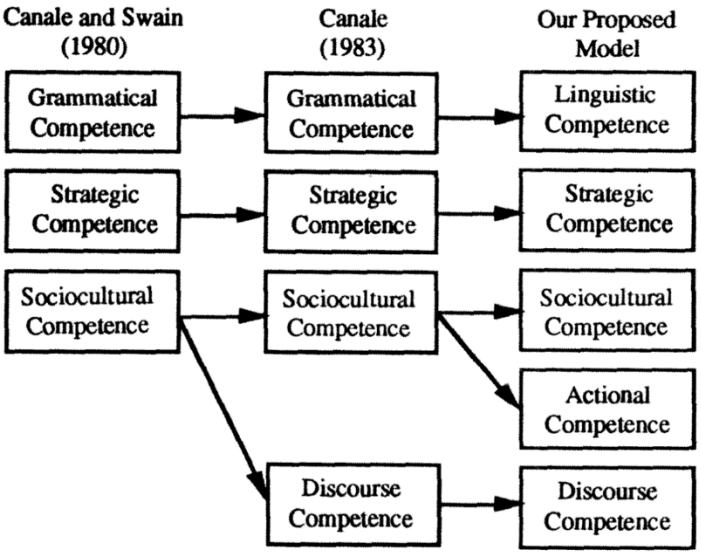


Figure 5. Chronological Evolution of the Celce-Murcia, Dörnyei & Thurrell Proposed Model

According to CEFR (2005), the model of communicative competence recognizes lexical competence as an explicit part of communicative competence and defines it as "knowledge of, and ability to use, the vocabulary of a language, consists of lexical elements and grammatical elements" (CERF, 2005: 119)

In conclusion, lexical competence includes vocabulary, vocabulary knowledge (morphological, semantic and other rules), lexical knowledge, understanding dictionaries, etc. Because of its expanded application, and omnipresence in almost all components of language, lexical competence is closely observed not only along with communicative competence but also with grammatical, linguistic, discursive, formulaic and also sociolinguistic competence (Pavičić Takač, Bagarić Medve, 2013: 138-168). What makes it hard to define lexical competence is simply the fact that lexis can be observed from many aspects: from the semantic perspective, morphology, lexicology etc. because they all deal with different aspects of vocabulary and its usage. What has been proved throughout all research based on lexical competence or vocabulary knowledge is that lexical competence is multidimensional and should be observed as such. That is to say, it encompasses several types of knowledge and because of its complexity delves into other communicative competences.

4.2 Dimensions of lexical competence

Next step in lexical research was defining dimensions of lexical competence. An early research into defining and modelling lexical competence done by Meara (1996) concluded that the main

idea of lexical competence was that it can be described in terms of very small numbers of measurable dimensions. These dimensions are considered to be the properties of the lexicon as a whole and not properties attached to the individual lexical items. These types of lexical component models are also called global trait models. Although some scholars think that these models should include four dimensions: vocabulary size, knowledge of the characteristics of words, mental lexicon organization (Chapelle, 1998), we will focus mainly on Meara's two dimensions. First dimension is vocabulary size, also known as vocabulary breadth. This dimension of lexical knowledge is the main point of our research and will be discussed in detail later in the paper.

Another dimension is vocabulary depth. It refers to all types of knowledge a learner or user of language has about some lexical unit (Nation, 2001; Milton, 2009, as cited in Takač, Medve, 2013: 155). It also focuses on the idea that for useful higher-frequency words learners need to have more than just a superficial understanding of the meaning. Components like spelling, meaning, pronunciation, register etc. are all part of vocabulary depth. Depth can be measured in two ways. Developmental approach and dimensional approach (Read, 1997). Because of its complexity, vocabulary depth is very difficult to define and there is no sufficient definition that would cover all of what vocabulary depth represents.

According to Daller et al. (2007) there is a third dimension to the already mentioned ones. They exist in the so-called three-dimensional lexical space where each dimension represents one aspect of knowing words: lexical breadth, lexical depth and lexical fluency. Connection between these three dimensions is shown graphically for better understanding and realization of their interdependency (*Figure 6*). The horizontal line represents vocabulary breadth, vertical the vocabulary depth, and the third line is fluency, in other words, ability to use words in writing and speaking. It is possible to determine in which part of lexical space the lexical knowledge of the learner is set. For example, a learner who knows a great number of words, but has difficulties remembering them is located at the endpoint of lexical breadth.

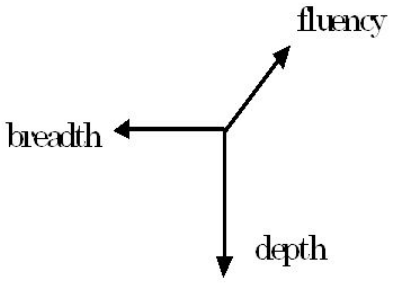


Figure 6: The lexical space: dimensions of word knowledge and ability (Daller et al. 2007: 8, as cited in Pavičić Takač, Bagarić Medve, 2013: 152)

4.3. What does it mean to know a lexical item?

In addition to lexical competence, we will try to explain what it means to know a lexical item. Firstly, we must define what lexeme (also lexical unit or lexical item) means. According to Schmitt (2000: 3) it is "an item that functions as a single meaning unit, regardless of the number of words it contains". Complexity of words is seen not only in the attempt to define a word and its meaning but also in attempt to define what it means to know a word. In other words, what is necessary to know in order to possess a word knowledge. While trying to answer that question, Schmitt (2000) proposes the following list made by Nation (1990: 31) with different kinds of knowledge that a person must master in order to know a word.

1... The meaning(s) of the word

2. The written form of the word

3. The spoken form of the word

4. The grammatical behaviour of the word

5. The collocations of the word

6. The register of the word

7. The associations of the word

8. The frequency of the word

Nation (1990: 31) as cited in Schmitt (2000: 5)

Schmitt concludes that this list is helpful in a sense that it separates lexical knowledge but word knowledge does not happen necessarily at the same time. Complete word knowledge according to this list should come gradually, during the course of study. With one knowledge coming before the other, and some knowledge at the same time.

Furthermore, we will take a look at another approach of defining lexical items and vocabulary knowledge. To describe the nature of vocabulary knowledge we need to define what aspects of lexical items learners need to know in order to fully understand a word and acquire it. Richards (1976) outlined a series of assumptions about lexical competence. Linda Taylor (1990) also elaborated on the topic and in her book and stated the following: ["k]nowledge of a word exists on various levels, which seem to be language universals." Read (2000) gives brief overview of Richards's assumptions below:

1 Vocabulary knowledge of native speakers continues to expand in adult life, in contrast to the relative stability of their grammatical competence.

2 Knowing a word means knowing the degree of probability of encountering that word in speech or print. For many words we also know the sort of words most likely to be found associated with the word.

3 Knowing a word implies knowing the limitations on the use of the word according to variations of function and situation.

4 Knowing a word means knowing the syntactic behaviour associated with the word.

5 Knowing a word entails knowledge underlying form of a word and the derivations that can be made from it.

6 Knowing a word entails knowledge of the network of associations between that word and other words in the language.

7 Knowing a word means knowing a semantic value of a word.

8 Knowing a word means knowing many of the different meaning associated with a word.

(Richards, 1976: 83 as quoted in Read, 2000: 25)

These assumptions serve as a general framework of vocabulary knowledge as they highlight the complex nature of vocabulary learning, which is much more that memorizing the meaning of a word. Effective vocabulary teaching means discovering what needs to be taught about a word.

Nation (2001) calls it "learning burden" of a word and describes it as the amount of effort that a learner puts in learning a word. There is a set of questions teachers can ask themselves before teaching a word to discover the learning burden of it. (See Table 1.) According to Nation (2001: 23) "different words have different learning burdens for learners with different backgrounds and each of the aspect of what it means to know a word can contribute to its learning burden".

Table 1. Vocabulary Knowledge (Nation 2001: 27)

Knowing a word			
Form	spoken	R	What does the word sound like?
		P	How is the word pronounced?
	written	R	What does the word look like?
		P	How is the word written and spelled?
	word parts	R	What parts are recognizable in this word?
		P	What words parts are needed to express the meaning?
Meaning	form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	concept and referents	R	What is included in the concept?
		P	What items can the concept refer to?
	associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
Use	grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	constrains of use	R	Where, when, and how often would we expect to meet this word?
	(register, frequency)	P	Where, when, and how often can we use this word?

R = receptive knowledge; P= productive knowledge

4.4. Role of memory in vocabulary acquisition

Due to emphasis on word knowledge in the previous chapter and vocabulary breadth that follows in the next chapter it would be wise to discuss one very important aspect of vocabulary acquisition and that is remembering words. Memory plays an important role in vocabulary acquisition since "words are not necessarily learned in linear manner, with only incremental advancement and no backsliding" (Schmitt, 2000: 129). What Schmitt means to say is that while learning new words, learner will encounter many problems, one of them being forgetting. He proposes that we view vocabulary knowledge as "being in a state of flux, with both learning and forgetting occurring until the word is mastered and 'fixed' in memory" (2000: 129). Most of the forgetting occurs soon at the end of the learning lesson, and after that loss the rate of forgetting decreases. See *Figure 7.*

That curve also indicates that it is crucial to have a review soon after learning lesson, with lesser chance of reviving information if review is postponed.

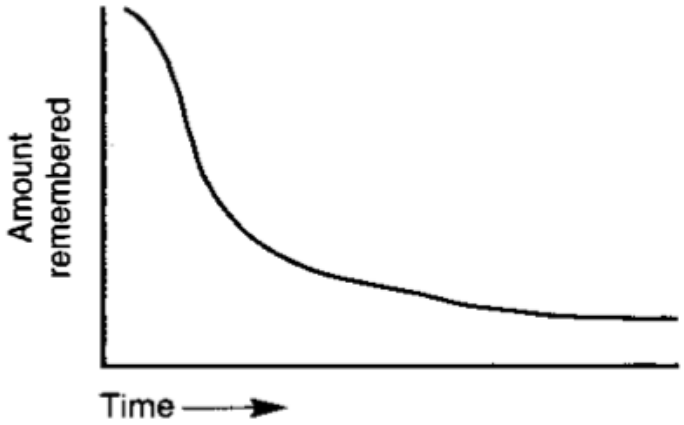


Figure 7. Typical Pattern of Forgetting (Schmitt, 2000: 131)

There are two types of memory: short-term and long-term memory, the latter referring to information for use in anything but not immediate future. The main goal of vocabulary learning is to transfer vocabulary knowledge from the short-term memory to the more permanent long-term memory. In order to do so, we need to find some elements already existing in mental lexicon and attach it to the new lexical information. For instance, keyword approach and grouping the new words with already known words that share some similarity. It was important to mention memorization of words since the main focus of this paper is vocabulary knowledge and strategies which work as a tool for enhancing memorization of words.

5. Vocabulary breadth

Vocabulary breadth or vocabulary size can be defined as a number of words learner knows and uses. “All other things being equal, learners with big vocabularies are more proficient in a wide range of language skills than learners with smaller vocabularies, and there is some evidence to support the view that vocabulary skills make a significant contribution to almost all aspects of L2 proficiency” (Meara, 1996: 3). The basic problem when it comes to vocabulary size is testing. That problem is common with all dimensions of lexical knowledge. Although there are many tests that have been developed and improved from the begging of vocabulary research until today, testing vocabulary knowledge is still something that is being developed and widely researched.

5.1. Measuring Vocabulary breadth

One prevailing area of research in second language vocabulary is the estimation of vocabulary breadth knowledge (also referred to as vocabulary size). Vocabulary assessment traditionally has a significant role in research on vocabulary knowledge. Vocabulary breadth measures require a fairly large sample of words that represents a defined frequency range and correspond to a simple response task. There is a difference between vocabulary breadth test for native speakers and second language learners. For native speakers, the sample of words to be tested comes from a large dictionary of contemporary English covering as many words as possible for participants to know. Second language learner's vocabulary breadth test focuses on a narrower range of words. Frequency of those tests ranges from low frequency words (1000 words test) to academic writing. Although the list is often criticized and described as outdated in lack of modern terms, it is yet to be replaced by any more up-to-date list (Read, 2007: 108). The question that remains today is: How many words do native speakers know? There have been numerous attempts to count all the words in English language and the one that stands out and comes closest to the truth is Webster's Third New International Dictionary (1963), as one of the largest non-historical dictionaries of English. Goulden, Nation and Read (1990) as cited in Schmitt (2000) counted the number of word families in that dictionary. According to Schmitt (2000), a word family is "usually held to include the base word, all of its inflections, and common derivatives". Although dictionaries cannot contain every word family possible, they are still the best source. Goulden et al. found 54,000 word families after excluding proper names and alternative spellings. 54,000 word families is a huge number especially when taken into account that each word family contains several words. Looking at that number of words the idea of teaching them to our students in classroom situation becomes impossible. Learners will be able to acquire only a fraction of them and the rest will have to be acquired through exposure to the language, or not acquired at all (Schmitt 2000: 3). That is why teachers have a great responsibility to raise learner's awareness of learning strategies.

One thing we can agree upon is that there is no definitive word frequency list for assessing vocabulary knowledge. When it comes to making a sample for a vocabulary breadth test it is preferable to use the best available and suitable for research or testing vocabulary generally.

5.3. Testing vocabulary knowledge

The Vocabulary Levels Test used for this research exists in two versions: low frequency and high frequency words. The test is designed to be quick and easy to take, mark and interpret. It covers only partial knowledge of words and its purpose is to let teachers find out learners' vocabulary

knowledge. Whether they need to be working on low or high frequency words, and how much work needs to be done when it comes to vocabulary knowledge of their students. Furthermore, it is very important to make a distinction between low frequency and high frequency words, made on the basis of their frequency, coverage and quantity (Nation, 2001: 21).

5.3.1. Low frequency words

Low-frequency words is a very large group of words that occurs very infrequently and covers a small proportion of any text (Nation, 2001: 19). Since we are talking about a very larger group of words, the easiest way to describe them and list them is to give a short overview.

1. The boundary between high-frequency and low frequency words is arbitrary. Because of that, "any of several thousand low-frequency words could be candidates for inclusion within the high-frequency list simply because their position on a rank frequency which takes account of range is depended on the nature of the corpus the list is based on." (Nation, 2001: 19) In other words, as the boundary between these two lists is "imaginary", there is no saying why words from one list should not belong to the other list if we take into account that the lists are compiled on the basis of corpus. Some low-frequency words that did not manage to get into high-frequency list are the words curious, wing, approximately, etc.

2. Proper names take up a large portion of low-frequency words. In some text, such as novels, newspapers, proper names are like technical words – their meaning is closely related to the message of the text, but before reading any kind of novel or newspaper it is not necessary to learn the character's names.

3. Technical vocabulary is closely related to person's personal interest, jobs, and specializations. However, what is important to one person is not important to another, and from that point of view technical vocabulary falls mostly into the category of low-frequency words.

4. Some low-frequency words fall into this category simply because they are rarely used. For example: plummet, ploy, gibbous, etc. Characteristics of such words are: they are marked as being old-fashioned, formal, belonging to particular dialect, vulgar, foreign or simply similar on meaning to a much more frequent word or phrase.

When it comes to teaching low-frequency words, the aim is to train learners to use strategies to deal with such vocabulary. According to Schmitt, these strategies include "guessing from context clues, using words parts to help remember words, using vocabulary cards and dictionaries". While

teachers should focus more on high-frequency words in classroom, they should also work on strategies to help learner increase their vocabulary knowledge outside the classroom.

5.3.2. High frequency words

High-frequency words are usually words that cover a large proportion of running words in spoken and written texts and occur in all kinds of uses of the language (Nation, 2001). That is why this small group of words is very important. The real question is just how large this group of words is. The most suitable limit for high-frequency words is usually the 2,000 word level. Schmitt stated that "the usual way of deciding how many words should be considered as high-frequency words is to look at the text coverage provided by successive frequency-ranked groups of words. The teacher or course designer then has to decide where the coverage gained by spending teaching time on these words is no longer worthwhile" (Nation, 2001: 14). Table 2 shows the coverage figures for each successive 1,000 lemmas from the Brown Corpus—a collection that contains 500 samples of 2, 000 word texts of American English totalling roughly one million words (tokens).

Table 2 The percentage text coverage of each successive 1000 lemmas in the Brown Corpus (Nation, 2001:15)

1000 word (lemma) level	% coverage of text (tokens)
1000	72
2000	79.7
3000	84
4000	86.7
5000	88.6
6000	89.9

Next question that poses itself is: What are the words in this group? As stated before, Michel West's general Service List which contains 2,000 words families. About 165 word families in this list are function words (a, some, two, because, to, etc.), and the rest are content words (noun, verbs, adjectives and adverbs). The main issue of this high-frequency is its stability. A lot of research has been done on this matter, and there is generally about 80 % agreement about which particular words should be included. Nation and Hwang's (1995) research on the General Service list showed that replacing some of the words in the General Service List with others resulted in only a 1 % increase in coverage. We can conclude that there is no perfectly complied list of words that present high-frequency words in English, but General Service List comes pretty close to it and serves as a great tool when investigating vocabulary and in teaching in general. That leads us to the final question: How should teachers and learners deal with these words? The importance of high-

frequency words is unquestionable and both teachers and learners should spend a considerable amount of time working with them. It can be done over the years in the teaching profession and it can be in the form of "direct teaching, direct learning, incidental learning, and planned meeting with the words." (Nation, 2001: 16) In other words, high-frequency words are highly important in acquiring English language and teachers need to make sure that learners they are paying enough attention to them and teach them properly. Nation provided an overview of teaching and learning possibilities, available in Table 3.

Table 3. Ways of learning and teaching high-frequency words (Nation, 2001: 16)

Direct Teaching	Teacher explanation Peer teaching
Direct learning	Study from word cards Dictionary use
Incidental Learning	Guessing from context in extensive reading Use in communication activities
Planned encounters	Graded reading Vocabulary exercises

6. Previous research on language learning strategies and vocabulary breadth

6.1. International research

Two tests were considered when choosing the right test for vocabulary assessment: Eurocentres Vocabulary Size Test 10KA (EVST; Meara and Jones, 1990) and Vocabulary Levels Test (VLT; Nation, 1983, 1990). A detailed description, procedure and purpose of these tests is well-documented and can be found in literature. There is also research evidence concerning their validity if intended for assessment purposes. Based on previous research (Laufer and Nation, 1999), the decision was made and Vocabulary Levels Test (VLT) was chosen for vocabulary breadth assessment. Laufer and Nation (1999) agree that VLT "has proved to be useful in helping teachers to determine the kind of attention they should be giving to vocabulary for particular group of learners" (1999: 34). With that in mind, and the fact that participants of these research are three different high schools with different levels of proficiency in English, it was reasonable to opt for VLT. Paul et al. conclude that for vocabulary testing "the choice of test format depends on the type of information desired" (1990: 1).

Furthermore, when going through vocabulary breadth and research done in the field, most of them investigated the relationship between the breadth of vocabulary knowledge and reading comprehension (Shen, 2008; Laufer and Nation, 1995; Qian, 1999, 2000). Some produced results indicating relatively high correlation proving that test of vocabulary are predictive of performance on test of reading comprehension. Others, on the other hand, showed that correlation widely ranged (Shen, 2008), which brought to the forefront other factors that influenced their performance.

Finally, a closer look was taken into rote learning strategies. One research provided a base for this research as Sinhaneti and Kyaw (2012) investigated the role of rote learning in vocabulary learning strategies among Burmese students. The results indicated that Burmese students use rote learning strategies more than other memory strategies, and that rote learning strategies will continue to be applied by Burmese learners because of factors such as cultural/educational background, traditional habit, EFL environment, etc.

6.2. Research in Croatia

A study was conducted to establish which vocabulary learning strategies are used among the Croatian language course participants, and if beginners and advanced users differ in their strategy use. The results indicate that the participants use three different types of vocabulary learning strategies: strategies of formal vocabulary learning and practicing, self-initiated independent vocabulary learning strategies, and incidental vocabulary learning strategies. The study shows that strategies of formal and incidental vocabulary learning prevail, while strategies of self-initiated learning are used less. The study also proved that vocabulary learning strategies, as well as other specific factors, play a major role in language acquisition. (Tabak and Ordulj: 2015)

Another research done in primary school by Andraka and Jurković (2016) explores whether foreign language coursebooks used in Croatian primary schools contain activities which encourage learners to use vocabulary learning strategies. The results indicated that Croatian coursebooks contain only a certain amount of the suggested activities. However, results also showed that coursebook authors rely mainly on the teacher as the mediator of strategies. Indeed, that seems to be the truth throughout learners' education. Question is raised whether coursebooks in High schools also require teachers to be strategy mediators or do they offer more engaging activities for the learners.

7. Research

7.1. Aims and research questions

The aim of the present study is to determine whether there is a relationship between vocabulary breadth and rote learning strategies among high school EFL learners. The research questions it tries to investigate are:

1. What is the most/least used rote learning strategy?
2. Is there a relationship between the vocabulary knowledge and overall rote learning strategies?
3. Is there a relationship between vocabulary knowledge and the use of each rote learning strategy?
4. Is there a difference in vocabulary knowledge between schools?
5. Is there a difference between schools in the use of overall rote learning strategies?
6. Is there a difference between schools in the use of individual rote learning strategies?

The hypothesis is that learners that rely more on rote learning strategies achieve lower results in vocabulary breadth test and vice versa. Rote learning strategies are chosen in order to investigate their connection to learners' vocabulary knowledge and also to investigate their overall usage in order to find out whether there is any improvement regarding their usage.

7.2. Sample

The data was collected from three different high school programmes in Valpovo: Grammar School and two vocational schools (Electrical Engineering and Economics School). For the purpose of this research, we will refer to them as Electrical Engineering and Economics School even though there is not a right equivalent for the names of these schools in the English language. The total number of the subjects is 118, 50 subjects from Grammar School, 45 subjects from Electrical Engineering and 23 subjects from Economics School. The subjects of vocabulary tests and questionnaire ranged between the first class of high school and fourth class of high school. Vocabulary Levels Test was given to learners according to their age and high school they are attending.

7.3. Instruments

7.3.1 Vocabulary Levels Test

Test instrument of the breadth of EFL learners' vocabulary knowledge was Vocabulary Levels Test designed by Schmitt et al. (1997, 2001, 2002) on the basis of a vocabulary test by Nation (1983, 1990). The vocabulary breadth test included three parts: 2000 words, 3000 words, and 5000 words. The 2000-word and 3000-word parts represent the most frequently used words, and the 5000-word part represents medium-frequency words. Every part has 10 questions, and each question tests 6 target words and three meanings. In each question, learners were asked to choose 3 words from 6 words matching the corresponding explanations. An example is given as follows:

1. birth

2. dust 5. game

3. operation 6. winning

4. row 1. being born

5. sport

6. victory

Each school was given a different test, according to their level of knowledge. Economics School was given a 2000-word test based on their level of knowledge and general opinion among the teachers in the school is that those learners are not particularly proficient in English and that this test would suit them the most. Electrical engineers were given a 3000-word test, more demanding that the one for Economics School. The Grammar School was given the most demanding test of 5000 words on the basis of their knowledge and the general opinion that Grammar School is the most difficult among these three schools, and that this level of knowledge is expected from the learners at their level. Vocabulary Levels Test can be seen in Appendix 2.

7.3.2. The questionnaire

The questionnaire consisted of two parts: background information and rote learning strategies questionnaire. In this research, we used vocabulary learning strategies questionnaire, and adjusted it fit this research in that it deals only with rote learning strategies. The first part of the questionnaire deals with background information such as age, gender, class, school etc. and the second part is Likert scale items. The five-point Likert scale was used for the questionnaire and

participants were asked to show how much they use each strategy: (1) = never, (2) = seldom, (3) = sometimes, (4) = very often, or (5) = always. It is important to note that rote learning strategies questionnaire initially consisted of 20 Likert scale items but only 12 items were taken into account while analysing data because the main goal of the research was to focus on mechanical repetition and translation because they belong to rote learning strategies whereas creating mental linkages and similar strategies belong to broader term, memory strategies. For a detailed look at the background information and rote learning strategies questionnaire see Appendix 1.

7.4. Procedure

All subjects were asked to take the test without prior notice. Learners took both Vocabulary Levels Test and the questionnaire at the same time, individually. Participants were filling in the questionnaire during their regular classes. It took approximately 10 to 15 minutes for them to do the questionnaire and test. All results were keyed into computer and analysed with statistical software tool SPSS (Statistical Package for the Social Sciences). In this research, descriptive analysis, correlation, and ANOVA were used for organizing and summarizing learners' questionnaire data and vocabulary breadth test. The internal consistency reliability value (Cronbach's alpha) was calculated by SPSS software and showed highly reliable results. The internal consistency reliability of questionnaire is $\alpha = .814$.

7.5 Results

Data were obtained from the rote learning strategies questionnaire and Vocabulary Levels Test, and all of them are shown and analysed in the following part. Table 5 shows the most/least used rote learning strategies. The mean values in the Table 5 show that learners use rote learning strategies very often ($M > 4$). There are twelve items in this part. The item that states that learners mostly remember a word if they encounter it many times has the highest mean value (4.29, SD=2.06), so it can be concluded that majority of learners adopt this strategy. However, the majority of them did not agree with revising words regularly outside the classroom. The mean value for that item was the lowest (1.69, SD=.91). It is also evident that learners rely mostly on the translation and mechanical repetition. Other strategies can be seen in the Table 5.

Table 5. The most/least used rote learning strategies

	Min	Max	Mean	SD
I repeat words regularly outside the classroom	1	4	1.69	.92
I write down words repeatedly to remember them.	1	5	2.03	1.17
I test myself with word list to check if I remember the words.	1	5	2.14	1.22
I try to remember two or three words, then I move on to the next group of words.	1	5	2.38	1.32
I make word lists and write their translations in my mother tongue	1	5	2.65	1.46
When I test myself, I cover the column with the words in Croatian and try to remember the English word (and vice versa)	1	5	2.66	1.64
I say a word out loud repeatedly in order to remember it	1	5	2.85	1.34
I repeat the word mentally in order to remember it	1	5	3.19	1.36
I remember words more easily if I translate them into my mother tongue	1	5	3.59	1.30
I translate the words into my mother tongue to understand them	1	5	3.83	1.26
I remember a word if I see it written down	1	5	3.90	1.10
I remember a word if I encounter it many times	1	5	4.29	2.06

The relationship between rote learning strategies and vocabulary breadth was investigated using Pearson's correlation coefficient. The results in Table 6 suggest a significant but negative correlation between rote learning strategies and grade in Vocabulary Levels Test. Grammar School results show a significant negative correlation of medium strength between the use of rote learning

strategies and the grade they received on the Vocabulary Levels test for, r = -.344, *p* = .000. Also, there was a significant negative correlation between usage of rote learning strategies and grade in Vocabulary Levels Test for learners of Electrical Engineering School, r = -.323, *p* = .025.

Likewise, results demonstrate there is no significant relationship between these two variables in Economics School, r = -.215, *p = 349*. The relationship between the use of rote learning strategies and grade in Vocabulary Levels Test is weak, which proves there is no significant correlation.

Table 6. Results of Pearson Correlation Coefficient for Items of Rote Learning Strategies and Grade in Vocabulary Levels Test

	Grade (Grammar School)	Grade (Electrical Engineering School)	Grade (Economics School)
RLS	-.344**	-.323*	-.215

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The results in Table 7 express significant negative correlation in nine out of twelve strategies in the list. Correlation was used in order to see if there was a relationship between vocabulary knowledge and each individual rote learning strategy in the questionnaire. The *p* value (.00 <.05) indicated that some rote learning strategies produced a significant difference in the relationship between rote learning strategies and vocabulary knowledge. The strongest correlation was found in the strategy *I keep a separate vocabulary book* r = .372 in strength. Other strategies are available in Table 7 below.

Table 7. Correlation between individual strategies and grade in vocabulary test

RLS	Grade
I make word lists and write their translations in my mother tongue	-.325**
I repeat words regularly outside the classroom	-.233*
I test myself with word list to check if I remember the words	-.199*
I say a word out loud repeatedly in order to remember it	-.114
I write down words repeatedly to remember them.	-.197*
I translate the words into my mother tongue to understand them	-.370**
I remember a word if I encounter it many times	-.080
I repeat the word mentally in order to remember it	-.056
I try to remember two or three words, then I move on to next group of words	-.307**
I remember words more easily if I translate them into my mother tongue	-.232*
I keep a separate vocabulary book	-.372**
When I test myself, I cover the column with the words in Croatian and try to remember the English word (and vice versa)	-.254**

** p <.01
* p <.05

The results showed that there was a statistical significant difference between groups as determined by one-way ANOVA (F (2,115) = 3.14, p = .047). A Turkey post hoc test revealed that the grade achieved in Vocabulary Levels Test was statistically significantly different within each group. The results point out a difference between Grammar and Economics School (MD = 1.01, p = .038). There was no statistically significant difference between Grammar and Electrical Engineering School (MD = .408, p = .438). We can safely assert that Grammar School achieved better results in Vocabulary Levels Test, although they were handed a more demanding test than Economics School. There is no difference in knowledge between Economics and Electrical Engineering School.

The results also indicated that there was a statistically substantial difference between groups as determined by one-way ANOVA (F (2,108) = 10.21, p = .00). A Tukey post hoc test revealed that the use of overall strategies was significantly different within each group. The results suggest a difference between Economics and Grammar School (MD = .72, p = .00). There was also a statistically more substantial difference between Economics and Electrical Engineering School

(MD = .83, p = .00). The results seem to suggest that Economics School is different not only in the sense of vocabulary knowledge, but also in their use of rote learning strategies. That was already proven while doing correlation earlier in the research.

A one-way ANOVA was conducted to compare the use of individual rote learning strategies in Grammar School, and two Vocational Schools in High School Valpovo. Table 8 shows that ten strategies are statistically relevant (p > .05), and there is a difference in the use of some rote learning strategies between three schools in High School Valpovo. By looking at means of three different school we can conclude that in most cases Economics School is different from Grammar and Electrical Engineering School. Means and significant differences can be seen in the Table 8.

Additionally, by doing Post hoc test we were able to look at differences more closely. The Sig. value in this test is less than .05 for some strategies. Difference was found between three schools in the use of the following rote learning strategies. The results show a difference between Grammar and Economics School in the use of these strategies*: I make word lists and write their translations in my mother tongue* (MD = -1.42, p = .00), *I repeat words regularly outside the classroom* (MD = -.73, p = .00), *I translate the words into my mother tongue to understand them* (MD = - .76, p = .03), *I remember words more easily if I translate them into my mother tongue* (MD = -.95, p = .01), *I keep a separate vocabulary book* (MD = -.62, p = .02), *When I test myself I cover the column with the words in Croatian and try to remember the English word (and vice versa)* (MD = -1.4, p = .00)

Also, there is a difference between Electrical Engineering and Economics School concerning these strategies: *I make word lists and write their translations in my mother tongue* (MD = 1.14, p =.00), *I test myself to check if I remember the words* (MD = .89, p = .00*), I write down words repeatedly in order to remember them* (MD = .72, p = .05), *I say a word out loud repeatedly in order to remember it* (MD = 1.21, p = .03*), I translate the words into my mother tongue to understand them* (MD = .88, p = .01), *I try to remember two or three words, then I move on to next group of words* (MD = .91, p = .01), *I remember words more easily if I translate them into my mother tongue* (MD = 1.05, p = .00), *I keep a separate vocabulary book* (MD = .64, p = .02), *When I test myself I cover the column with the words in Croatian and try to remember the English word (and vice versa)* (MD = 1.64, p = .00)

The single difference between Grammar and Electrical Engineering School was found in the use of the strategy *I say a word out loud repeatedly in order to remember it* (MD = .67, p = .03)

No difference between these three schools exists in the use of these two strategies: *I remember a word if I encounter it many times, I repeat the word mentally in order to remember it.*

Taken together, these results suggest that between these three conditions, the main differences in the adoption of rote learning strategies existing between Grammar and Economic school and Electrical and Economic school.

Table 8. ANOVA (Difference in the use of rote learning strategies between three schools)

VLS	SAMPLE	N	M	SD	F	Sig.
I make word lists and write their translations in my mother tongue	Total	118	2.56	1.44	8.92	.00
	Grammar	50	2.18	1.28		
	Electrical	45	2.46	1.42		
	Economics	23	3.61	1.37		
I repeat words regularly outside the classroom	Total	118	1.68	.87	6.06	.003
	Grammar	50	1.44	.61		
	Electrical	45	1.71	.87		
	Economics	23	2.17	1.15		
I test myself to check if I remember the words	Total	118	2.17	1.18	4.63	.012
	Grammar	50	2.16	1.03		
	Electrical	45	1.88	1.02		
	Economics	23	2.78	1.53		
I say a word out loud repeatedly in order to remember it	Total	116	2.94	1.34	7.35	.001
	Grammar	49	3.10	1.37		
	Electrical	45	2.42	1.15		
	Economics	23	3.63	1.29		
I write down words repeatedly to remember them	Total	118	2.06	1.20	2.85	.062
	Grammar	50	2.10	1.18		
	Electrical	45	1.80	1.03		
	Economics	23	2.52	1.44		
I translate the words into my mother tongue to understand them	Total	116	3.88	1.23	4.32	.016
	Grammar	50	3.78	1.16		
	Electrical	44	3.65	1.36		
	Economics	23	4.54	.85		
I remember a word if I encounter it many times	Total	118	4.27	1.88	0.04	.961
	Grammar	50	4.24	.91		
	Electrical	45	4.33	2.86		
	Economics	23	4.21	.85		
I repeat the word mentally in order to remember it	Total	117	3.15	1.31	2.34	.101
	Grammar	50	3.18	1.17		
	Electrical	44	2.88	1.38		
	Economics	23	3.61	1.40		
I try to remember two or three words, then I move on to next group of words	Total	118	2.36	1.31	3.86	.024
	Grammar	50	2.38	1.38		
	Electrical	45	2.04	1.10		
	Economics	23	2.95	1.36		
	Total	117	3.59	1.37	5.31	.006
	Grammar	50	3.44	1.43		

I remember words more easily if I translate them into my mother tongue	Electrical Economics	44	3.34	1.34		
		23	4.39	.98		
	Total	117	1.40	.96		
I keep a separate vocabulary book	Grammar	49	1.28	.79	4.24	.017
	Electrical	45	1.26	.68		
	Economics	23	1.91	1.50		
	Total	118	2.57	1.44		
When I test myself, I cover the column with the words in Croatian and try to remember the English word (and vice versa)	Grammar	50	2.36	1.26	9.838	.000
	Electrical	45	2.17	1.40		
	Economics	23	3.83	1.64		

7.6. Discussion

Based on the results of the research, the main aim of this study was to explore whether there is a relationship between vocabulary breadth and rote learning strategies (RLS) among high school learners. Based on the findings of this study, results indicated that RLS play an important role in learners' vocabulary learning and their Vocabulary Levels Test score. The above results of this study also support our hypothesis that learners that rely more on rote learning strategies achieve lower results in vocabulary breadth test (Vocabulary Levels Test) and vice versa. Correlation between vocabulary breadth test and rote learning strategies support that hypothesis to some degree. Results in Table 6 indicate a negative but significant correlation which means that increase in the use of rote learning strategies corresponds to decrease in Vocabulary Levels Test score. In other words, the more learners rely on their rote learning strategies, the lower their results were and vice versa. Accordingly, when Grammar school learners relied on rote learning strategies their achievement in Vocabulary Levels Test was low. The similar results were obtained when investigating one of the Vocational Schools, Electrical Engineering. One of the Vocational Schools, Economics School, did not support our hypothesis. Since no significant correlation was found, achievement on Vocabulary Levels Test was not dependent upon the use of rote learning strategies. Therefore, when it comes to Economics School, the use of the rote learning strategies did not guarantee success or failure in Vocabulary Levels Test.

In conclusion, Grammar and Electrical Engineering School results show that the more the learners used rote learning strategies, the less they were successful at the test and vice versa, and when it comes to Economic school the use of rote learning strategies did not affect their achievement in Vocabulary Levels Test.

These findings are supported and can be explained by another research (Teng, 2015) that explored the correlation between direct and indirect vocabulary learning strategies along with depth and breadth of vocabulary knowledge. A sample of 145 low proficiency EFL students computed a questionnaire and Vocabulary test. The results indicated that direct strategies were more frequently used and that they correlated significantly with breadth and depth of vocabulary knowledge. Indirect strategy use had a higher level of correlation with two dimensions of vocabulary knowledge. The results implied the same as this research, EFL students with a higher level of depth and breadth of lexical repertoire tend to use strategies that are more indirect.

Furthermore, questionnaire indicated that RLS play an important role in learners' vocabulary learning and that learners mostly rely on translation and repeating words aloud. Over the years, translation techniques and mother tongue usage have been replaced by the target language usage in vocabulary acquisition.

The study found that rote learning strategies still play a role in high school learner's vocabulary acquisition. Even though there are more negative than positive connotations associated with rote learning, it does not necessarily mean we should view that type of learning exclusively as outdated and wrong. Quite the contrary, Li (2005), Hummel (2010), Thompson (1987) and Watkins and Biggs (2001, as cited in Sinhanetu, 2012) who investigated the effects of the rote learning on Asian EFL students. Their results suggest that rote learning is accepted as an effective learning strategy in vocabulary acquisition.

The analysis of the difference in strategy deployment between three school results were predictable. The results in Table 8 proved to be statistically significant so we needed to compute a post hoc test. Post hoc test showed a difference between Grammar School and Economics School, and Electrical Engineering School and Economics School. No difference was found between Grammar School and Economics School. This refers to the majority of RLS, ten in total. Only in two strategies, there was no substantial difference. This difference in strategy use can be explained by strategy teaching. Economics School lacks in strategy use, presumably because they are not familiar with them but that is yet to be explored. Both Grammar School learners and Electrical Engineering learners use rote learning strategies greatly in their language acquisition, and as we have seen, that does not guarantee good results. A shift from teaching direct strategies should be made both in classroom and outside of the classroom. Nation (2008, as cited in Teng, 2015) discussed the issue of teaching language learning strategies and the role of teachers, implying that they should encourage learners to use indirect metacognitive strategies, i.e., self-planning, self-

monitoring, and self-evaluating, to manage or regulate their learning both inside and outside the classroom.

8. Conclusion

The findings of this study prove that there is a relationship between rote learning strategies and vocabulary breadth among EFL high school learners. The more learners relied on rote learning strategies, the lower their results in Vocabulary Levels Test were. However, the research shows that the use of rote learning strategies affected the score on Vocabulary Test only in two out of three schools. Namely, Grammar School and Electrical Engineering School supported that hypothesis. Throughout the research Economics School proved to have the lowest level of vocabulary knowledge and to use rote learning strategies the least.

The study also shows that learners mostly rely on translation and mechanical repetition while using rote learning strategies. This does not come as a surprise, bearing in mind that they are widely known and frequently used in mastering and memorizing new vocabulary. Based on the research results, some implications for future EFL teaching are considered. Firstly, the study aims at increasing public awareness of the importance of vocabulary learning strategies in general. Secondly, it emphasizes the need for greater variety of vocabulary learning strategies. Thirdly, it promotes teachers' role in the proper strategy presentation and learners' more active participation in and outside of the classroom.

Some of possible limitations to the present study include focusing exclusively on rote learning strategies and testing only specific levels of vocabulary knowledge. A research on a larger scale that would investigate more vocabulary learning strategies would exhibit more reliable data. Moreover, incorporation of vocabulary knowledge tests from 2000-word to Academic vocabulary test would probably give a wider spectrum of results and stronger connection between vocabulary knowledge and vocabulary learning strategies. It is also recommendable to conduct an interview with participants in order to gather more reliable and more personal data.

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Appendix 1

MEMORIJSKE STRATEGIJE U NASTAVI ENGLESKOG JEZIKA
STRATEGIJE UČENJA NAPAMET

Molim Vas da upišete svoje osobne podatke.

DOB: _____

SPOL (zaokruži): m ž

RAZRED: _____

SMJER: _____

OCJENA IZ ENGLESKOG JEZIKA NA KRAJU PROŠLE GODINE:

1-nedovoljan 2- dovoljan 3- dobar 4- vrlo dobar 5- izvrstan

KAKO PROCJENJUJEM SVOJE ZNANJE ENGLESKOG JEZIKA:

1-nedovoljan 2- dovoljan 3- dobar 4- vrlo dobar 5- izvrstan

UPITNIK

Engleski jezik se može učiti na razne načine. Ovim upitnikom želimo saznati kako TI učiš riječi. Molim te da odgovoriš onako kako ti zaista učiš, a ne kako misliš da bi trebao/la ili kako netko drugi uči. Na ponuđenoj ljestvici uz svaku tvrdnju zaokruži broj koji označava koliko često TI koristiš navedeni postupak. Ne postoje točni i pogrešni odgovori.

1- gotovo nikada 2- rijetko 3- ponekad 4- obično 5-često 6- vrlo često

	1- nikada	**1 – rijetko**	**3 – ponekad**	**4- često**		**5-uvijek**	
1.	Nove riječi upotrijebim u rečenici da ih zapamtim.	1	2	3	4	5	
2.	Kad učim riječi, ispisujem listu riječi i njihov hrvatski prijevod da lakše zapamtim što znače.	1	2	3	4	5	
3.	Kod kuće redovito ponavljam riječi koje smo učili na nastavi.	1	2	3	4	5	
4.	Ispitujem se da provjerim jesam li zapamtio/la nove riječi.	1	2	3	4	5	
5.	Riječ pamtim tako da zapamtim gdje se nalazi u bilježnici, knjizi ili na ploči.	1	2	3	4	5	

6.	Koristim rimu da zapamtim riječ.	1	2	3	4	5
7.	Tražim sličnost u zvuku i značenju izmedu hrvatskih i engleskih riječi (npr *fair-fer*) da pogodim što znači.	1	2	3	4	5
8.	Riječ lakše mogu zapamtiti ako je vidim napisanu.	1	2	3	4	5
9.	Više puta naglas izgovorim novu englesku riječ da je zapamtim.	1	2	3	4	5
10.	Povezujem nove riječi s riječima koje već znam u engleskom.	1	2	3	4	5
11.	Više puta napišem novu englesku riječ da zapamtim njezino značenje.	1	2	3	4	5
12.	U mislima povezujem novu riječ sa slikom napisane riječi da je bolje zapamtim.	1	2	3	4	5
13.	Riječi prevedem na hrvatski da bih shvatio/la što znači.	1	2	3	4	5
14.	Riječi pamtim tako da ih podijelim u neke grupe (npr. prema značenju ili vrsti riječi).	1	2	3	4	5
15.	Riječ lakše zapamtim ako je sretnem više puta.	1	2	3	4	5
16.	Više puta u sebi izgovorim riječ da je zapamtim.	1	2	3	4	5
17.	Kad učim riječi, nastojim zapamtiti dvije-tri riječi, a onda prelazim na novu skupinu od dvije-tri riječi.	1	2	3	4	5
18.	Riječi lakše pamtim ako ih prevedem na hrvatski jezik.	1	2	3	4	5
19.	Riječi pišem u posebnu bilježnicu samo za riječi.	1	2	3	4	5
20.	Kad se ispitujem riječi prekrijem stupac s riječima na hrvatskom i pokušam se sjetiti engleske riječi (i obrnuto).	1	2	3	4	5

Appendix 2

Ovo je test iz vokabulara. Trebaš odabrati riječ koja se slaže sa značenjem te riječi. Napiši broj kraj njenog značenja. Pogledaj primjer

l	business	
2	clock	_____ part of a house
3	horse	_____ animal with four legs
4	pencil	_____ something used for writing
5	shoe	
6	wall	

Odgovaraš na sljedeći način:

l	**business**	
2	**clock**	**___*6*__ part of a house**
3	**horse**	**___*3*__ animal with four legs**
4	**pencil**	**___*4*__ something used for writing**
5	**shoe**	
6	**wall**	

Neke riječi se nalaze u testu kako bi ga otežale. Ne moraš tražiti značenje tih riječi. U primjeru iznad, te riječi su business, clock i shoe.

Ako ne znaš značenje riječi, nemoj pogađati. No, ako ipak misliš da znaš značenje riječi, ali nisi siguran, tada trebaš pokušati pronaći odgovor.

Version 1 The 2,000 word level

1 birth	
2 dust	_____ game
3 operation	_____ winning
4 row	_____ being born
5 sport	
6 victory	

1 adopt	
2 climb	_____ go up
3 examine	_____ look at closely
4 pour	_____ be on every side
5 satisfy	
6 surround	

1 choice	
2 crop	_____ heat
3 flesh	_____ meat
4 salary	_____ money paid regularly for doing a job
5 secret	
6 temperature	

1 bake	
2 connect	_____ join together
3 inquire	_____ walk without purpose
4 limit	_____ keep within a certain size
5 recognize	
6 wander	

1 cap	
2 education	_____ teaching and learning
3 journey	_____ numbers to measure with
4 parent	_____ going to a far place
5 scale	
6 trick	

1 burst	
2 concern	_____ break open
3 deliver	_____ make better
4 fold	_____ take something to someone
5 improve	
6 urge	

1 attack	
2 charm	_____ gold and silver
3 lack	_____ pleasing quality
4 pen	_____ not having something
5 shadow	
6 treasure	

1 original	
2 private	_____ first
3 royal	_____ not public
4 slow	_____ all added together
5 sorry	
6 total	

1 cream	
2 factory	_____ part of milk
3 nail	_____ a lot of money
4 pupil	_____ person who is studying
5 sacrifice	
6 wealth	

1 brave	
2 electric	_____ commonly done
3 firm	_____ wanting food
4 hungry	_____ having no fear
5 local	
6 usual	

Version 1 The 3,000 word level

1 belt
2 climate
3 executive
4 notion
5 palm
6 victim

_____ idea
_____ inner surface of your hand
_____ strip of leather worn around the waist

1 acid
2 bishop
3 chill
4 ox
5 ridge
6 structure

_____ cold feeling
_____ farm animal
_____ organization or framework

1 bench
2 charity
3 jar
4 mate
5 mirror
6 province

_____ long seat
_____ help to the poor
_____ part of a country

1 boot
2 device
3 lieutenant
4 marble
5 phrase
6 vein

_____ army officer
_____ a kind of stone
_____ tube through which blood flows

1 apartment
2 candle
3 draft
4 horror
5 prospect
6 timber

_____ a place to live
_____ chance of something happening
_____ first rough form of something written

1 betray
2 dispose
3 embrace
4 injure
5 proclaim
6 scare

_____ frighten
_____ say publicly
_____ hurt seriously

1 encounter
2 illustrate
3 inspire
4 plead
5 seal
6 shift

_____ meet
_____ beg for help
_____ close completely

1 assist
2 bother
3 condemn
4 erect
5 trim
6 whirl

_____ help
_____ cut neatly
_____ spin around quickly

1 annual
2 concealed
3 definite
4 mental
5 previous
6 savage

_____ wild
_____ clear and certain
____ happening once a year

1 dim
2 junior
3 magnificent
4 maternal
5 odd
6 weary

_____ strange
_____ wonderful
_____ not clearly lit

Version 1 The 5,000 word level

1 balloon
2 federation
3 novelty
4 pail
5 veteran
6 ward

_____ bucket
_____ unusual interesting thing
_____ rubber bag that is filled with air

1 alcohol
2 apron
3 hip
4 lure
5 mess
6 phase

_____ stage of development
_____ state of untidiness or dirtiness
_____ cloth worn in front to protect your clothes

1 apparatus
2 compliment
3 ledge
4 revenue
5 scrap
6 tile

_____ expression of admiration
_____ set of instruments or machinery
_____ money received by the Government

1 bulb
2 document
3 legion
4 mare
5 pulse
6 tub

_____ female horse
_____ large group of soldiers or people
_____ a paper that provides information

1 concrete
2 era
3 fiber
4 loop
5 plank
6 summit

_____ circular shape
_____ top of a mountain
_____ a long period of time

1 blend
2 devise
3 hug
4 lease
5 plague
6 reject

_____ mix together
_____ plan or invent
_____ hold tightly in your arms

1 abolish
2 drip
3 insert
4 predict
5 soothe
6 thrive

_____ bring to an end by law
_____ guess about the future
_____ calm or comfort someone

1 bleed
2 collapse
3 precede
4 reject
5 skip
6 tease

_____ come before
_____ fall down suddenly
_____ move with quick steps and jumps

1 casual
2 desolate
3 fragrant
4 radical
5 unique
6 wholesome

_____ sweet-smelling
_____ only one of its kind
____ good for your health

1 gloomy
2 gross
3 infinite
4 limp
5 slim
6 vacant

_____ empty
_____ dark or sad
_____ without end