The effects of reading on incidental vocabulary acquisition in EFL

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

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Master's Thesis

Supervisor: Dr. Višnja Pavičić Takač, Full Professor

Osijek, 2017

Sveučilište J.J. Strossmayera u Osijeku

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Studij: Dvopredmetni sveučilišni diplomski studij engleskog jezika i književnosti – nastavnički smjer i povijesti

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Utjecaj čitanja na slučajno usvajanje vokabulara u engleskom kao stranom jeziku

Diplomski rad

Mentor: prof. dr. sc. Višnja Pavičić Takač

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Abstract

This research study examined the effects of extensive reading on incidental vocabulary acquisition in learning English as a foreign language. Several factors were considered when conducting the research: the participants' age, the age they started to learn EFL, the final grade they received in English at the end of previous school year, as well as the overall reading habits of the participants and their perception of influence of reading on vocabulary acquisition. The research sample included 107 primary and high school students in Osijek, Croatia. Participants read the modified last chapter of George Orwell's *Animal Farm* and solved two vocabulary tasks, one focusing on word form, the other on word meaning. The questionnaire results showed that, while participants do not have positive reading habits as a whole, when they do read they perceive reading as beneficial to vocabulary acquisition. The vocabulary test results showed that there is a relationship between extensive reading and incidental vocabulary acquisition to a certain degree.

Keywords: word form, word meaning, occurrence, reading, language proficiency

Sažetak

Ovo se istraživanje bavi utjecajem ekstenzivnog čitanja na slučajno usvajanje vokabulara u učenju engleskog kao stranog jezika. Nekoliko je čimbenika uzeto u obzir pri provođenju istraživanja: dob ispitanika, dob kada su počeli učiti engleski kao strani jezik, njihova posljednja zaključna ocjena iz engleskog te opće čitalačke navike sudionika i njihovo mišljenje o utjecaju čitanja na usvajanje vokabulara. Istraživački uzorak uključuje 107 učenika osječke osnovne i srednje škole. Sudionici su pročitali izmijenjenu verziju zadnjeg poglavlja George Orwellove *Životinjske farme* te riješili dva zadataka provjere znanja vokabulara, od kojih se jedan odnosio na oblik riječi, a drugi na značenje riječi. Upitnik je pokazao da, iako sudionici nemaju naviku čitati, kada čitaju smatraju čitanje korisnim za učenje vokabulara. Rezultati testa iz vokabulara pokazuju da u određenoj mjeri postoji veza između ekstenzivnog čitanja i slučajnog usvajanja vokabulara..

Ključne riječi: oblik riječi, značenje riječi, pojavljivanje, čitanje, jezične vještine

Contents

1 Theoretical part:

1.1. Incidental vocabulary acquisition……1

1.2. The importance of word form for vocabulary acquisition…….…….....5

1.3. The importance of learners' involvement for vocabulary acquisition…….….....6

2 The quality of the text in extensive reading

2.1. Extensive reading…….…….....10

2.2. Coverage rate…….....11

2.3. Effects of word frequency on incidental vocabulary acquisition….....12

2.4. Contextual richness……...14

3 The effects of reading on incidental vocabulary acquisition in EFL:

3.1. Aim……...17

3.2. Methodology……...….17

3.2.1. Participants…….17

3.2.2. Instruments…….....17

3.2.3. Procedure…….....18

3.3. Results…….....18

3.3.1. Learners' Reading Habits…….……...18

3.3.2. Vocabulary Test Results.....19

3.4. Discussion…….…...29

3.5. Conclusion…….....31

Bibliography……..32

Appendices…….…...35

1 Theoretical part

Vocabulary learning is a process of gaining various aspects of knowledge of a word, primarily spelling and meaning. The knowledge is later further expanded until a learner can use the word accurately in both spoken and written form. Once this happens, the word has been successfully acquired.

1.1. Incidental vocabulary acquisition

Incidental vocabulary acquisition is defined as a process of learning new words without the intention of doing so and is a by-product of a cognitive activity, for example reading. It is opposed to intentional acquisition which is a conscious and intensive learning process where the main focus is vocabulary learning (Huckin and Coady, 1999). The effects of incidental vocabulary acquisition can be seen on the example of Dutch university students who have an average second language vocabulary knowledge of 11000 words. It is obvious that so many words could not have been learned solely by intentional word-learning activities. Many of those words must have been picked up, i.e. incidentally acquired, during listening and reading activities while the reader's or the listener's primary goal was text comprehension (Hulstijn et al., 1996).

When it comes to incidental vocabulary acquisition there are five major stages between the learner's initial encounter with a new word and the incorporation of the new word into the learner's vocabulary (Paribakht and Wesche, 1999). The first stage is apperceived input or some level of noticing new vocabulary and its association with prior knowledge. The second stage is comprehended input or assignment of meaning to new vocabulary. The third stage is intake or assimilation of new linguistic information which is limited by the initial comprehension. The fourth stage is integration of a part or all of the word into the learner's vocabulary. The final stage is output or active use of the new knowledge by the learner which can then aid new input comprehension in the future.

There are three main reasons why researchers believe the incidental approach is better for vocabulary acquisition than the intentional approach. The first reason is its contextualized nature. It is believed the learners get a richer sense of the word's use and meaning when it is presented in useful context. The second reason is it being pedagogically efficient as it enables two activities, vocabulary acquisition and reading, to be simultaneous. The third reason is that it is more individualized and learner-based because the acquisition is dependent on the learner's vocabulary level, but also on their own selection of reading material (Huckin and Coady, 1999). Additionally, when researchers choose to study incidental vocabulary

acquisition they should pay attention to certain factors that may promote it. Those factors are: deep elaboration on the word's meaning during inferencing, learner's perception of the words relevance for the understanding of the text, learner's higher language proficiency, higher unknown word frequency in the text, and use of dictionaries and marginal glosses if they are available (Hulstijn et al., 1996).

However, learners often fail to incidentally acquire unknown words they encounter in texts. There are several possible reasons why that is the case and those are: learners do not notice an unfamiliar word or believe they already know it, they do notice it but choose to ignore it, they do not connect word form and meaning due to overly informative context, they make incorrect inferences from context, they do not encounter an unknown word enough times, they make an incorrect guess due to L1 influence, and they do not use a dictionary if it is available (Hulstijn et al., 1996). Huckin and Coady (1999) further expand on this list. First, guessing from context may be imprecise because many reading tasks call for precise interpretation. Second, there are many deceptive lexical items that can mislead the reader in guessing. Third, guessing takes time and therefore slows down the reading process. Fourth, guessing is effective only when the contextual clues are adequate and learner's prior vocabulary knowledge is substantial. Fifth, guessing requires good reading strategies, which many learners lack. Sixth, guessing does not automatically mean a word is acquired. Finally, guessing is not a good strategy for multi-word lexical items.

The aforementioned problems and small vocabulary gains led some to believe that incidental learning is a questionable method. However, Schmitt (2008) proposes a reason for such disappointing results. The early studies had a number of methodological weaknesses, such as very small amount of reading, inappropriate measurement instruments, inadequate control of text difficulty, small number of target words, and the absence of a delayed post-test. A proof of these suggestions lies in the fact that studies that did not have these problems have increased the word gains in comparison to the previous studies. For example, Horst et al. (1998) found that one out of every five target words was learned and that this learning persisted for at least ten days. Moreover, Horst (2005) found that the participants learned around 50% of the target words. Pigada and Schmitt (2006) examined the learning of spelling, meaning, and grammatical aspects of words during a one-month period. They found that 65% of the words were acquired in at least one of the aforementioned aspects out of which spelling was largely enhanced, while meaning and grammatical knowledge were enhanced to a lesser degree.

The complexity of word knowledge is also an issue when it comes to incidental acquisition. The full knowledge of a word does not only include its semantic features, but also its orthographic, phonological, morphological, syntactic, collocational, and pragmatic characteristics. Researchers who focus primarily on meaning and do not find any significant gains may overlook the gains in other aspects of word knowledge (Pigada and Schmitt, 2006). However, due to practical reasons not every aspect of knowledge can be focused on, therefore it is advised that studies should focus on at least three aspects of knowledge: form, meaning, and use (Nation, 2001:27) which are presented in Table 1. The various characteristics of knowing a word are divided into receptive (R) and productive (P) knowledge.

Table 1 *What is involved in 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 or spelled?
	Word parts	R What parts are recognizable in the word? P What word parts are needed to express the meaning?
Meaning	Form and meaning	R What meaning does the word form signal? P What word form can be used to express the 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 occur with this one? P What words must we use with this one?
	Constraints on use	R Where, when and how often would we expect to meet this word? P Where, when and how often can we use this word?

Source: Nation, 2001:27

This division of word knowledge is important for the pedagogy of vocabulary acquisition. Some of these aspects, primarily form and meaning, are amenable to intentional acquisition, while the more contextualized aspects, such as collocations and constraints on use, are far more difficult to learn intentionally. It is believed that these aspects are best acquired through massive exposure to the second language. This means that the vocabulary acquisition program requires both an explicit component in teaching and maximized exposure to target words, for example extensive reading. Nation (2001) further highlights the necessity of encountering the

word many times in order to acquire it. This does not mean only consolidating the form and meaning aspects, but also enhancing the more nuanced aspects of word knowledge.

However, these aspects do not provide a strong definition of lexical knowledge which is necessary for researchers to know what they will investigate and which instruments they will use. For example, if lexical knowledge is defined as the ability to use words as well-written sentences or discourse, the researcher will not test the ability to recognize the meaning of words. A clear and unequivocal consensus about lexical knowledge does not exist. An L1 speaker may associate word knowledge with the ability to link form and meaning. On the other hand, an L2 learner may consider a word known if they know it exists, while others may be unsure about their knowledge of a word if they cannot use it in a sentence. Most researchers agree that lexical knowledge should be viewed as a continuum, starting with a vague familiarity with the word form and ending with the ability to use a word in free production (Laufer and Paribakht, 1998).

Nation categorizes word knowledge along the passive-active continuum. It is split into three parts: 1) a partial-precise knowledge continuum, which covers word comprehension, 2) a depth of knowledge continuum, which includes the word's syntagmatic relations, 3) a receptive-productive continuum. The first two are knowledge-related, while the third one reflects how well a learner can access and use a word (Laufer and Paribakht, 1998). Learners' receptive vocabulary is believed to be larger than their productive vocabulary. This is because vocabulary learning in a classroom is more likely to be receptive. Teachers may provide learners with the meaning of a word, its definition, or use the word in a sentence, but they are less likely to ask learners to use the item. Receptive activities, such as looking up words in a dictionary, guessing from context, or learning from word pairs are more common than productive activities, such as cloze-exercises and writing tasks (Webb, 2005).

Some studies examined the difference between the recognition of the word and the production of the word. For example, Brown et al. (2008) found that the participants were more successful in the recognition task, where they had to recognize word's form and meaning, than in the production task, where they had to translate. Waring and Takaki (2003) came to the same results where participants were able to recognize ten out of 25 words on a multiple-choice test, but were only able to translate four out of 25 words. Furthermore, after three months the researchers identified a retention drop where the recognition of meaning dropped to six words, while the translation rate dropped much more sharply to 0.9 words.

Based on the research data showing generally low vocabulary pick-up rates Schmitt (2008) came to the conclusion that, while vocabulary learning does occur through reading, the

learner is more likely to achieve partial rather than full mastery of words. Hill and Laufer (2003) made an estimate that a learner would have to read over eight million words of texts or 420 novels, in order to increase their vocabulary size by 2000 words. This piece of information diminishes, according to Schmitt (2008), the reliability of incidental learning as the primary source of learning new vocabulary. Therefore it is advised that the incidental approach should be used to increase the learners' knowledge of already familiar words and the intentional approach should be used to learn new words. But, if it is used to acquire new words it is advised that learners should follow up on incidental learning with intentional learning (Hulstijn et al., 1996).

1.2. The importance of word form for vocabulary acquisition

The initial step in vocabulary acquisition is creating a form-meaning link which is exactly what most of the vocabulary materials and activities attempt to do. However, when acquiring form and meaning of the word a common assumption is that the latter is of key importance, while the former is either downplayed or completely disregarded (Zahar et al., 2001). This has led to some studies indicating that L2 learners often have difficulties with the word form. For example, learners find certain word form similarities more confusing than others, especially those that differ in suffixes, such as *comprehensive* and *comprehensible*, and vowels, such as *adopt* and *adapt* (Zahar et al., 2001). Moreover, Bensoussan and Laufer (1984) analyzed word forms which look transparent, but are not and found that these also sometimes led to misinterpretation. For example, participants in their study interpreted *outline*, which looks like a compound, as "out of line" and *discourse*, which looks like it has a prefix, as "without direction". However, it is not just the form of the word itself that can create confusion. If a word, which is not difficult by itself, has several similar forms in L2, it is more likely to cause confusion. For example, the word *poll* is not difficult in itself, but the array of words with similar forms, such as *pool*, *polo*, *pollen*, and *pole*, can lead to confusion.

Word form learning in L1 occurs through the mind becoming attuned to the features and regularities, i.e. particular set of phonemes and graphemes and the ways in which they are combined. This is called developmental sharpening and while it makes L1 processing efficient, it can cause problems when the learner attempts to process words in L2 the same way, especially when the two languages have different characteristics (Schmitt, 2008). Learners, in addition to learning new oral and written forms in L2, have to develop a completely new way of processing those forms. What creates difficulties is that this new way may be in opposition to the automatic processes in one's mother tongue. The influence of L1

on L2 was studied by de Groot (2006) who found that L2 words that match L1 in written and spoken form are easier to learn and retain, unlike the words that differ in one or both types of form.

Some researchers argue that the best way of acquiring form is through exposure. However, the aforementioned studies name several problems that can occur with exposure and therefore it is advisable to give attention to learning form, especially since it can aid other aspects of vocabulary learning. This was suggested by Bogaards (2001) who found that knowing the word form facilitates subsequent vocabulary learning of those words, for example learning additional meanings of words. This means that word form needs to have a direct focus if it is to be addressed in vocabulary exercises, instead of being an accessory to meaning. Since the mind has a limited processing capacity, too much attention given to meaning will diminish the resources available for attention to form, and vice-versa (Barcroft, 2002).

1.3. The importance of learners' involvement for vocabulary acquisition

During incidental vocabulary acquisition learners decide whether to pay attention to an unknown word. This has led to a conclusion that learner factors play a role in predicting vocabulary acquisition. These factors include learner's motivation, anxiety, and mastery of strategies. These factors are all part of learner's involvement which is perceived as a "motivational-cognitive construct which can explain and predict learners' success in the retention of hitherto unfamiliar words" (Laufer and Hulstijn, 2001).

Learners' motivation is divided into extrinsic and intrinsic motivation. Extrinsic motivation refers to an involvement based on external values and demands, such as acquiring new words to improve one's grade in the language course, while intrinsic motivation refers to involvement based on personal interest in the task or the word while reading (Zhao et al., 2016). The roots of extrinsic and intrinsic motivation lie in instrumental and integrative orientation, or the underlying reason for L2 learning. Instrumental orientation covers practical value and advantage of L2 learning, while integrative orientation involves an interest in L2 because of the people speaking it and their culture (Laufer and Hulstijn, 2001). Extrinsic and intrinsic motivations are not necessarily mutually exclusive and both are typically possessed by L2 learners (Zhao et al., 2016). The two types of motivation were researched by Zhao et al. (2016). To the researchers' surprise, motivation proved not to be as significant to the vocabulary acquisition as they expected. This is because motivation is continuously changing,

evolving, and interacting with environmental and individual factors and therefore learner's motivation may fluctuate during the process itself (Waninge et al., 2014).

Learners' involvement with the text is of key importance for vocabulary acquisition. When they are reading for other purposes aside from lexical learning, the learners may be motivated to pay more attention to words they find to be essential to understanding the text (Zhao, 2016). Laufer and Hulstijn (2001) categorize motivation into the strong and moderate type. According to this categorization, learners with a self-imposed need to acquire vocabulary are strongly motivated, while those with an extrinsically imposed need are moderately motivated. Based on this, they argue that strong motivation will create more involvement than moderate motivation which will further lead to a more successful vocabulary acquisition. L2 motivation is also divided into three parts regarding the classroom setting. The first is the language level where motivation refers to the orientation toward the language, the people that speak it, and their culture. The second is the learner level where motivation is concerned with the need for achievement and self-confidence. The third is the learning situation level where motivation is affected by the syllabus and learning materials, teacher's attitudes and behavior, and cohesion and goal-orientation of the learners group (Laufer and Hulstijn, 2001).

Learners can feel motivated when reading a text with unfamiliar words, but they can also feel anxious when encountering words that can hinder their text comprehension. Anxiety is expected in vocabulary acquisition. Its lack is attributed to learners caring more about the text comprehension than unfamiliar words, i.e. they either do not notice or ignore the unfamiliar words and are fully dedicated to text comprehension (Zhao et al., 2016). Nassaji (2003) found that more than 75% of lexical inferences made by learners are either partially or completely wrong and this inability to determine the meaning of words might create anxiety which can influence incidental vocabulary acquisition, both negatively and positively. The former is characterized by attention deficits leading to learners' inability to obtain enough information about the words in order to process the form-meaning connection, therefore resulting in a detrimental effect on vocabulary acquisition. On the other hand, the anxiety created by unknown words can capture learners' attention, which is defined as the first step in incidental vocabulary acquisition (Hulstijn et al., 1996, Schmidt, 1993), thus having a positive effect on the process. In other words, learners in those situations worry about understanding the meaning of words and thus give them their full attention.

When dealing with new words learners use lexical inferring strategies and contextual clues, and apply semantic, grammatical, and syntactic knowledge. But usually learners'

linguistic knowledge is not sufficient enough or contextual cues are either too scarce or vague resulting in low inferring rate (Schmitt, 2008). There are various strategies learners can employ. First, when noticing unknown words, learners commonly use selective attention strategies, such as deciding if the unknown word is important to learn. Next is the search for meaning stage where various strategies are used. Some of those strategies are lexical inferring strategies, which rely on linguistic and contextual clues as well as learners' knowledge sources and are most commonly used. The other frequently used strategies are the use of dictionaries or asking teachers and peers for help (Zhao et al., 2016). Next stage is the elaboration on form-meaning connections where cognitive and memory strategies can be used. Some of those strategies are repeating, creating semantic networks, creating associations with known words, remembering the context, and using words in sample sentences. However, simply using many strategies frequently is not considered to be beneficial to vocabulary acquisition. It is believed that learners who have effectively and skillfully mastered the strategies are those who actively and creatively participate in the process, which then may be beneficial to vocabulary acquisition. This is particularly important since the strategy use is context-specific, meaning that learners should know how to adjust their strategy use to specific tasks, different learning contexts, and their perception of appropriate learning behaviors. This will lead to a reduction of cognitive load of the tasks and will facilitate vocabulary acquisition (Zhao et al., 2016). The reoccurrence of misidentifying or ignoring the target words prompted Huckin and Coady (1999) to conclude that certain strategies should be taught, while some should come naturally.

It has been suggested that students' processing of unknown words could be deepened through the use of dictionaries and tasks while reading a text. If a task contains one or all of the dimensions of *need*, *search*, and *evaluation* it is more likely for students to acquire unknown words (Laufer and Hulstijn, 2001). *Need* is defined as motivational, non-cognitive dimension of involvement and is concerned with the need to achieve. This need is based on a drive to fulfil task requirements which can be either externally imposed or self-imposed. Externally imposed need is categorized as moderate, while self-imposed need is categorized as strong. The other two dimensions are cognitive and are dependent on noticing and deliberately giving attention to the form-meaning relationship. *Search* is defined as an attempt to find the meaning of an unknown word by consulting a dictionary or another authority, e.g. a teacher. *Evaluation* entails learners comparing a given word with other words and a specific meaning of a word with other meanings. After the comparison the learners choose the appropriate word or word meaning based on whether they fit the context or not. An example

of evaluation is when a word that is looked up is a homonym, a learner has to compare all its meanings against the specific context and choose the appropriate one. Naturally, different words induce different involvement. It is therefore necessary for teachers to choose or construct tasks which will induce the same level of involvement for all target words. Also, Laufer and Hulstijn (2001) think that it is best for all three dimensions to be required in a task in order to induce a stronger involvement. Because of this they are against the use of marginal glosses which, according to them, simplify the task and exclude search and evaluation dimension, leaving only need.

Joe (1998) investigated the act of retelling as another possible method of facilitating and deepening the process of vocabulary acquisition. Her study included students ranging from low-intermediate to advanced levels and relied on tasks of reading a text and recalling what one read. The students were divided into two groups, one of which was able to practice the retelling of a related text with the help of cue questions used during reading. This was a pre-test task, after which the students were given a new text to read and retell. The study's results show that the students who had more time to practice produced more of the target words in their retelling of the text.

What all the aforementioned studies suggest is that the increased students' involvement in the assigned texts and tasks directly relates to vocabulary acquisition and processing. More motivated students will use dictionaries and do productive tasks, such as writing sample sentences and retelling the texts, which serve to deepen and intensify the whole process. This leads to a conclusion that teachers should implement these elements in order to increase their students' involvement (Zhao et al., 2016). There are several guidelines for both teachers and material developers in order to increase students' involvement. First, teachers should choose motivating and interesting texts if they want their learners to completely devote themselves to reading. Second, unless the goal is to read original unaltered texts, teachers should choose texts where target words appear several times. Third, teachers should give learners lists of important words for subsequent intentional learning and encourage them to review those lists regularly (Hulstijn et al., 1996). Fourth, teachers should choose the texts according to the individual learner's level because vocabulary gains may be miniscule or nonexistent if the weaker and stronger students read the same text (Zahar et al. 2001). However, some believe that excessively strict control over the vocabulary and structure of reading materials can be counterproductive. Children can learn new vocabulary from relatively uncontrolled materials, provided there is absorbing context and teacher guidance (Elley and Mangubhai, 1983).

A learner can be of high language proficiency, highly motivated, and can use various strategies correctly. However, successful incidental vocabulary acquisition through reading also depends on the quality of the text.

2 The quality of the text in extensive reading

2.1. Extensive reading

Extensive reading is one of the ways of incorporating incidental learning into the second language teaching. The studies researching this topic have come to a conclusion that a significant number of exposures are necessary for acquisition to take place (Schmitt, 2008). To make this happen Warzecha (2012) proposes an introduction of an extensive reading program where students would be given a chance to read on a daily basis. As was stated in the previous part most researchers agree that extensive reading does have a positive effect on incidental vocabulary learning. However, as Waring and Nation (2004) state, the vocabulary gains are low on average and only 10% of target words are acquired. That does not mean that learners never acquire more than the average percentage. Daskalovska (2014) found that learners acquired 24% of the target words. Despite low vocabulary gains, reading is still regarded as an effective way of acquiring vocabulary which can increase vocabulary gains after a longer period of time and through continuous reading (Mondria and Wit-de Boer, 1991). Some researchers believe that methods of intentional acquisition, such as bilingual lists, are inferior to extensive reading. Mondria and Wit-de Boer (1991) name several reasons why bilingual lists should be abandoned as a means to vocabulary acquisition and replaced with reading. First reason is the occurrence of "lumping" or learners mixing up the words on the list. Second, the lack of cognitive foothold makes learners easily forget what they have learned. Third, words known inside the list may not be known outside the list due to system separation. Fourth, the meaning of a word learned in a list is often not appropriate in the context encountered by learners. Lastly, isolated and listed words do not motivate learners to find out their meanings.

Authentic texts can be read by more advanced learners, but are not recommended for learners at elementary to intermediate levels where the vocabulary load is likely to be too high (Schmitt, 2008). Therefore the use of graded readers is recommended as the vocabulary load is adapted to the learners' level. Even though graded readers used to have a bad reputation for being boring and poorly written, they have been changed over the years into interesting and well-presented materials for acquiring vocabulary. Horst (2005) found that her participants acquired over half of the target words encountered in the graded readers, although it is not

mentioned how many times the words occurred in the texts. Al-Homoud and Schmitt (2009) found that during a ten-week course the learners increased their vocabulary levels, but also improved their reading speed and attitudes towards reading. But just like with authentic and adapted texts, extensive reading of graded readers should become a regular activity and according to Nation and Wang (1999) at least one graded reader should be read per week.

2.2. Coverage rate

It is not enough just to pick up a random text and simply acquire new words through reading; some conditions need to be met beforehand. The condition that is considered primary by researchers is the coverage rate, i.e. students should be on a certain reading ability level before even attempting to extensively read a text (Ramos, 2015). The question of the specific percentage of known words in a text has been debated for years until arriving at a relatively definitive answer. It is believed that the knowledge of the 2000 most frequent word families enables learners to recognize approximately 84% of the words in the wide range of texts (Huckin and Coady, 1999). However, this percentage is not enough for general text comprehension. Liu and Nation (1995) concluded that learners need to know at least 95% of the words in the text to understand it. To achieve this threshold the knowledge of 3000 most frequent word families is needed (Huckin and Coady, 1999). However, it is believed this is not enough for successful contextual guessing. Therefore Nation (2001) conducted several tests and came to a conclusion that, to achieve optimal learning and fuller level of comprehension, teachers should introduce texts with 98% coverage. To achieve this specific threshold the knowledge of 5000 word families is needed. Even though this number is considerably large, it is within reach of the vocabulary learning program and it is advised that teachers should spend more time teaching vocabulary directly. Once either the 95% or 98% coverage rate is reached, the learners can start acquiring vocabulary incidentally through reading (Huckin and Coady, 1999).

These studies provide teachers with enough information to choose texts appropriately if they hope for incidental acquisition to occur. However, coverage rate is not the only thing that is considered when choosing a text; the purpose of reading is also an issue. Reading activities where students focus on the text comprehension should be easier than when they focus on the individual word's meaning. To gain information about unknown words, it is more useful to read for comprehension rather than to spend too much time focusing on individual words (Warzecha, 2012). Moreover, coverage rate should be different based on whether the texts focus on language growth or fluency (Warzecha, 2012). For the former the

advised rate is between 95 and 98% and it is recommended for the texts to be shorter and more difficult to read, such as academic texts. For the latter it is between 99 and 100% and the chosen text should be longer, for example a novel (Nation, 2001), which is believed to help students develop a deeper understanding of the word's aspects of meaning rather than simply remaining on a form-meaning level.

However, the established coverage rate is different from the size of vocabulary needed to comprehend the text, and the needed vocabulary size differs according to the kind of text and the purpose of reading. Different vocabulary sizes are needed if one is reading for pleasure, for example an extensive reading of a novel, or doing academic reading. For pleasurable reading the advised number of known word families ranges between 3000 and 5000 (Warzecha, 2012) When it comes to academic reading the advised number of known word families ranges between 2000 with the addition of the *University Word List*, 3000, and 10000 (Warzecha, 2012).

2.3. Effects of word frequency on incidental vocabulary acquisition

It has been established in the previous chapter that extensive reading has an effect on incidental vocabulary acquisition. However, simple extensive reading does not lead to automatic vocabulary acquisition (Huckin and Coady, 1999). Since incidental acquisition is a complex process there are factors that affect it. Some of those factors are English reading proficiency and vocabulary size, the topic of reading materials, reading purposes, and student's ability of guessing words. Although these factors affect vocabulary acquisition, certain factors have garnered more attention and were given more importance. Those factors are word frequency and contextual richness (Ramos, 2015).

Word frequency refers to the number of times a word is encountered in the text. The question of how many times a word has to appear for vocabulary acquisition to be successful has been present for a long time and the researchers still have not discovered the definitive answer to the question (Schmitt, 2008). Saragi et al. (1978) researched the acquisition of Russian slang words in *A Clockwork Orange* and found that words occurring fewer than six times were learned by half of the participants, while the words occurring six or more times were learned by 93% of the participants. Moreover, it was discovered that the overexposure to a single word can impede the acquisition of other words by about 40%. In a word, the general results of the study suggest a threshold of six occurrences. However, Jenkins et al.'s (1984) study showed that only 25% of learners had acquired a word after ten occurrences, while Nagy et al. (1984) determined that the likelihood of acquisition after only one encounter was

about 15% with full acquisition occurring after six encounters. Nagy and associates later conducted a follow-up study and determined that full acquisition occurs after twenty encounters. Horst et al. (1998) used a simplified version of *The Mayor of Casterbridge* and found that words appearing eight or more times were far more likely to be learned, while the acquisition of those appearing less than eight times was unpredictable. What was done differently in this study was that the text was read aloud to the students who were following along in the text. However, Rott (1999) tested the acquisition of L2 words whose frequencies were two, four, and six. Her results put the threshold again at six occurrences. Waring and Takaki (2003) found at least eight occurrences to be necessary only to create a 50% chance of recognizing both the word's form and meaning in the multiple-choice test three months after the initial reading. But, as was previously stated, the chance of successfully translating the word is lower than a simple recognition. Therefore even after 15 to 18 word occurrences the chance of translating the target word after three months was less than 10%. Not to mention that after three months the participants were not able to translate any of the words that occurred less than five times. These results suggest that 20 occurrences should be sufficient for word retention. Pigada and Schmitt (2006) could not precisely determine how many encounters were necessary, but what they could determine was that after ten encounters there was a discernible rise in the learning rate. Webb (2007) tested the effects of one, three, seven, and ten encounters on various aspects of word knowledge such as syntax, grammatical functions, and association, as well as meaning and form. The results showed that in order to increase the chances of retaining all the aspects of knowledge one should encounter a word at least ten times. Sánchez (2016) conducted her study on the basis of the six occurrences as the threshold. However, she also proposed three as a sufficient number of occurrences if the threshold of six cannot be reached. Even though the words that occurred six times were acquired more successfully, Sánchez thinks that one should not ignore the fact that vocabulary gained from three encounters was higher than expected. The appropriate number of word occurrences is further complicated by the relative learning difficulties of different words. It seems some words require only one encounter while others require multiple encounters and dictionary consultations. Furthermore, it is possible that a learner will encounter words they will simply not remember despite the words' high frequency. A possible reason for this could be incorrect initial guesses (Pigada and Schmitt, 2006). The number of necessary encounters also varies according to aspects of word knowledge. Pigada and Schmitt (2006) found that improvements in spelling were significant even after only one encounter in the given readers. The meaning aspect also showed improvements, but not as significant as the spelling aspect.

After two or three encounters they saw improvement with meanings of verbs, while four to five encounters were necessary for meanings of nouns.

There are various answers as to why the definitive number of necessary occurrences needed for vocabulary acquisition is still not established. Those answers include the types of meaning of the word itself, the learners' cognitive process of recognition, and characteristics of individual learners, such as their level, age, and most importantly, learners' vocabulary size (Schmitt, 2008). In two separate studies (Horst et al., 1998 and Horst, 2000) the word frequency necessary for the acquisition was investigated. The studies yielded contradictory findings. While the first study showed a substantial correlation between the words learned and the number of occurrences, the second study showed no significant correlation. Upon closer examination, Horst concluded that the two groups were not compatible in their overall vocabulary size. The first group needed fewer word occurrences to acquire it, while the second group needed more occurrences. The reason why some learners require more and some less encounters with a word is that word frequency is just one of the factors affecting vocabulary acquisition (Horst et al., 1998). Out of those factors, context may be the one whose quality affects the word's acquisition more (Webb, 2008).

2.4. Contextual richness

One essential part of incidental acquisition is guessing a word's meaning with the help of contextual clues. The context is defined as the surrounding syntax and semantic environment in a text. It is believed that the method of learning a new word from context is superior to other methods of instruction based on categorizing, word association, and dictionary definitions (Beck et al. 1983). However, it is advised by Beck et al. (1983) that this method should not be interpreted too broadly since there are multiple types of contexts and not all of them are equally effective. Beck et al. (1983) propose two basic types of contexts: pedagogical and natural. Pedagogical contexts are specifically designed for teaching and provide a good idea of the meaning of target words. On the other hand, natural contexts are various contexts which surround an unknown word in a multitude of texts. Unlike the author of pedagogical context, the author of natural context does not intend to convey the meaning of the word. Beck et al. (1983) further categorize natural contexts into four types: directive, general, misdirective, and nondirective. Directive context helps students get the specific meaning of words and is the most similar to the pedagogical context, while general context serves to offer a vague or general meaning of words. Misdirective context is used to mislead the students in guessing the meaning of words, while nondirective context serves no purpose

in incidental acquisition. These types of contexts were studied by Webb (2008) who further proves the hypothesis that informative context specifically affects the knowledge of word meaning, while word form is affected by number of encounters. Webb came to a conclusion that informative contexts are more appropriate for vocabulary acquisition since uninformative contexts may lead to confusion, learners forgetting what they learned, and reassessment of knowledge. This does not mean that learners should never encounter words in uninformative or misleading contexts, but it is not advisable to overuse these kinds of contexts with words that are completely unfamiliar.

As was previously stated, Beck et al. (1983) claim that it cannot be true that every type of natural context is appropriate and effective when it comes to vocabulary development. In order to test this hypothesis they conducted an experiment where participants were given passages from basal texts in order to test the natural contexts. The researchers categorized the contexts into four aforementioned types and then blacked out all parts of the target words, except for morphemes that were common prefixes or suffixes. Participants were asked to read the text and fill out the blanks with either missing words or appropriate synonyms. The experiment showed that directive context was most helpful in identifying target words. Correct identification was significantly lower for general context, and it dropped even further for nondirective category. Finally, only one participant could identify any word in misdirective context. These results support the claim that not all natural contexts are equally helpful in vocabulary development of previously known words. Additionally, the authors believe that lower-level learners whose vocabulary is still not developed enough would find natural contexts even less helpful. For these learners direct instructions are much more advisable for the initial acquisition of a word's meaning than unreliable natural contexts.

It is thought that clear, rich, and supportive context contributes to vocabulary acquisition (Schouten-van Parreren, 1989). This led to a recommendation that teachers should design texts with clear contexts especially for word learning. This is based on the belief that learners should not struggle in the variable contexts of a natural text and that their learning should not depend on the quality of context. However, not everyone agrees with these assumptions. Mondria and Wit-de Boer (1991) discovered that clear and supportive contexts do facilitate vocabulary inferencing, but do not facilitate vocabulary retention. They believe that due to clear contexts the learners thought they knew the word already. This caused the learners not to make the maximum effort in remembering and retaining the target word. Mondria and Wit-de Boer believe that without deep processing and a certain level of inherent difficulty there can be no positive learning effect. This leads to a suggestion that less helpful

contexts could slow down the reading process but speed up vocabulary acquisition. However, this does not mean that every context should be uninformative if teachers and researchers hope for any inferencing at all (Mondria and Wit-de Boer, 1991)

Out of the previously mentioned strategies it is believed that lexical inferencing was the one most used by L2 learners (Nassaji, 2003) and is believed to be particularly helpful with low frequency words (Liu and Nation, 1985). Lexical inferencing is defined as informed guesses about the meaning of a lexical item based on available linguistic cues combined with the learner's general knowledge of the world, awareness of context, and relevant linguistic knowledge (Nassaji, 2003). Several studies were conducted in order to prove the overwhelming use of vocabulary inferencing. Paribakht and Wesche (1999) found that their university students used guessing from context in 78% of the cases where they were trying to identify the meaning of unknown words, while Fraser (1999) found that 58% of her students used guessing from context. Cooper (1999) found that learners most frequently use guessing from context when trying to decipher the meaning of phrasal vocabulary, mostly idioms. The fact that guessing from context is considered by learners a useful and preferred strategy strengthens the idea of improving the knowledge of context and how it is used.

However, simply using the strategy of guessing from context does not mean that vocabulary acquisition is going to be successful. There are various factors that affect vocabulary inferencing which Schouten-van Parreren (1989) divides into word and reader/learner factors. Word factors are: the nature of the word, the importance of the word to the comprehension of the text, information available in the text, and contextual cues. Reader/learner factors are: the degree of effort involved in the task, learners' prior knowledge, and their vocabulary recognition knowledge (Nassaji, 2003). Liu and Nation (1985) found that word classes vary in difficulty. According to them verbs are easier to guess than nouns and nouns easier than adjectives and adverbs. Liu and Nation found this fortunate since verbs and nouns were the most common in texts. They also found unknown word density to affect test results and proposed that texts should have lower unknown word density and helpful surrounding context. Nassaji (2003) found that out of 199 guesses only 25.6% were completely successful and only 18.6% were partially successful. He attributes the low success rate to the density of unknown words and their form. Nassaji, just like Liu and Nation, suggests that the ratio of known to unknown words should be more balanced for learners to use familiar words from context effectively. As for the word form, Nassaji claims that learners were misled by certain words' form and confused them with similar-looking, previously known words. This fact further stresses the importance of form when learning

vocabulary. Additionally, Nassaji proposes poor use of the word repeating strategy which proved to be ineffective since the words were completely unfamiliar to the participants and not much could have been gained from repeating it. This leads Nassaji to conclude that, while guessing from context can be useful, students should not rely on it too much to learn the meaning of new words. Instead, context is best used when consolidating and reinforcing already existing vocabulary knowledge. However, when it is used for vocabulary acquisition other strategies should be used. Some of those strategies are the previously mentioned skillful dictionary use, note taking, and paying attention to word formation. Learners are also advised to use wider context instead of just guessing from the immediate context.

3 The effects of reading on incidental vocabulary acquisition in EFL: research report

3.1. Aim

The main aim of this study is to explore the relationship between extensive reading and incidental vocabulary acquisition. The following three research questions are addressed:

1) What are the learners' reading habits and how do they perceive the relationship between reading and vocabulary acquisition?

2) Is there a relationship between reading and incidental vocabulary acquisition?

3) Is there a relationship between the learners' English language proficiency and incidental vocabulary acquisition?

3.2. Methodology

3.2.1. Participants

The sample included 107 learners. 32 participants were elementary school learners and 75 were high school learners. The average age of the participants was 15.6 (SD=1.6). 77 of the participants were female, while 30 were male. The average final grade in their English classes at the end of the previous school year was 4.1 (SD=.9). The average age when the participants started learning English was 6.2 (SD=1.4).

3.2.2. Instruments

Four instruments were used in the testing of participants: the modified last chapter of George Orwell's *Animal Farm*, the demographic questionnaire, the questionnaire on reading (see Appendix 1), and a vocabulary test consisting of two multiple-choice tasks (see Appendix 2). The demographic questionnaire probed participants' age, gender, the age at

which they have started to learn English, and the final grade they had received in English the previous school year. The second questionnaire contained three questions related to reading in a foreign language followed by a five point Likert scale, ranging from 1 (*never*) to 5 (*always*).

The multiple-choice tasks were used to measure vocabulary acquisition. The following thirteen target words included in the tests: *quarrel*, *hind*, *fulfil*, *comrade*, *suppress*, *dim*, *obedience*, *grumble*, *misunderstanding*, *frugal*, *morose*, *abolish*, and *subversion*. The words were chosen based on how they fit in the text and because they were not included in the 3000 keywords according to Oxford Advanced Learner's Dictionary. To test the importance of word occurrence, the target words occurred in the text between two and four times. The words that occurred two times are: *quarrel*, *hind*, *fulfil*, *grumble*, *frugal*, *morose*, *abolish*, and *subversion*. The words that occurred three times are: *comrade* and *suppress*. The words that occurred four times are: *dim*, *obedience*, and *misunderstanding*. The purpose of the first task was to test the recognition of spelling by circling the correct form of the target words. The purpose of the second task was to test the recognition of meaning by circling the correct Croatian translation of the target words. Aside from the distractors, the tests had an *I do not know* option in order to deter the participants from randomly guessing. Additionally, the second multiple-choice task contained a question asking whether the participant was familiar with the word or not.

3.2.3. Procedure

The session lasted 40 minutes. It consisted of three parts: completing the questionnaire, the reading of the modified last chapter of George Orwell's *Animal Farm*, and completing two multiple-choice tests. Before completing the questionnaire on reading participants filled out the demographic questionnaire. The second and longest part of the procedure was reading the actual text. Since reading the original final chapter would have taken too long, the text had been modified and shortened by the researcher to make the research possible. After the participants finished the text the multiple-choice vocabulary test was conducted.

3.3. Results

3.3.1. Learners' Reading Habits

Table 2 presents the results related to the first research question referring to participants' reading habits and their perception of the relationship between reading and vocabulary acquisition.

Table 2 *Summary of answers to the questionnaire on reading*

	How often do you read English texts in free time?		How often do you read English texts for English classes?		How often does reading English texts facilitate vocabulary acquisition?	
	f	%	*f*	%	*f*	%
Never	39	36.4	39	36.4	6	5.6
Rarely	27	25.2	24	22.4	8	7.5
Sometimes	21	19.6	30	28.	26	24.3
Often	11	10.3	10	9.3	41	38.3
Always	9	8.4	4	3.7	26	24.3
Mean	2.29		2.22		3.68	
SD	1.29		1.15		1.1	

f= number of participants

The results imply that the majority of participants did not have positive reading habits. When asked how often they read English texts in their free time, out of 107 participants 36.4% answered that they never read and 25.2% answered that they did read, but rarely. In a word, 61.6% of participants did not have positive reading habits. The remaining 38.4% that had positive reading habits did not read that often. 19.6% of participants answered that they read sometimes, while only 10.3% read often and 8.4% read always. Only 18.7% of participants stated that reading English texts became a part of their daily routine.

As to the question of how often they read English texts for English classes, the results are somewhat more favorable. Out of 107 participants 36.4% never read for English classes, while 22.4% answered that the rarely read. 58.8% of participants did not have positive reading habits in their schoolwork. The remaining 41.2% did read, but not that often. 28% of participants sometimes read for English classes, while 9.3% read often and 3.7% always read for school. Only 13% of participants said they read regularly for their English classes.

Despite the fact that participants did not have good reading habits, they believed that reading does facilitate vocabulary acquisition. The vast majority of learners (86.9%) found reading to be beneficial and only 13.1% did not.

3.3.2. Vocabulary Test Results

Vocabulary test results are presented in four different tables. Only the results for unknown target words as claimed by participants are presented. The correct answers are arranged in two categories; spelling and meaning. Tables 3 and 4 present the results related to

the second research question referring to the relationship between reading and incidental vocabulary acquisition. Table 3 shows the test results of all the participants who were unfamiliar with the target words.

Table 3 *Vocabulary test results*

Word	n	f	Aspect of knowledge	Number of correct answers	%
Quarrel	44	2	spelling	43	97.7
			meaning	19	43.2
Hind	69	2	spelling	57	82.6
			meaning	42	60.9
Fulfil	33	2	spelling	15	45.5
			meaning	14	42.4
Comrade	70	3	spelling	30	42.9
			meaning	18	25.7
Suppress	56	3	spelling	29	51.8
			meaning	37	66.1
Dim	71	4	spelling	31	43.7
			meaning	42	59.2
Obedience	47	4	spelling	38	80.9
			meaning	14	29.8
Grumble	30	2	spelling	19	63.3
			meaning	22	73.3
Misunderstanding	8	4	spelling	2	25
			meaning	6	75
Frugal	87	2	spelling	44	50.6
			meaning	32	36.8
Morose	93	2	spelling	41	44.1
			meaning	67	72
Abolish	67	2	spelling	50	74.6
			meaning	37	56.1
Subversion	83	2	spelling	70	84.3
			meaning	24	28.9

n= number of learners who were unfamiliar with the word
f= number of times the word occurs in the text

Even though 107 learners participated in the research, some of them were excluded from the analysis since they were familiar with the word prior to the research. Looking at the results it could be seen that the level of word unfamiliarity varied from word to word. However, some words, especially *frugal, morose,* and *subversion,* were far less familiar than the rest. Generally speaking, the spelling task was more successful than the meaning task. Out of the three aforementioned words, *frugal* proved to be the most difficult one: there were 50.6% correct answers on the spelling task and only 36.8% on the meaning task. However, the results for *morose* were one of the few where there were more correct answers on the meaning than the spelling task. Out of 93 participants who were unfamiliar with the word, 44.1%

guessed the correct spelling and 72% guessed the correct meaning. *Subversion* was unfamiliar to 83 participants and it was the most interesting case because the spelling task results were the best, while the meaning task results were the worst. 84.3% guessed the correct spelling of the word, while only 28.9% guessed its correct meaning. It is important to mention that all three words occurred twice in the text, yet the results were completely different. Another word where the test results are worth mentioning was *quarrel*, which also occurred twice in the text. Even though only 44 participants were not familiar with the word, they achieved impressive results on the spelling task where 97.7% of guesses were correct. However, there were only 43.2% correct answers on the meaning task. This was also surprising since the context the word appeared in did not leave much room for mistranslation. Another word that also occurred twice and that yielded better results on the meaning task is *grumble*. Even though only 30 participants were unfamiliar with the word, 73.3% guessed the word's correct meaning. The word's spelling results were also satisfactory with 63.3% correct answers. However, not every word that occurred twice had as satisfactory results as those previously mentioned. Two words worth mentioning were *fulfil* and *comrade*. The level of familiarity of these two words was different: 33 participants were not familiar with *fulfil* and 70 with *comrade*. For both words the spelling task results were better than the meaning task results. 45.5% of participants guessed the correct spelling of *fulfil* and 42.9% guessed the correct spelling of *comrade*. While the spelling task results were similar, that was not the case with the meaning task results. While 42.4% of participants guessed the correct meaning of *fulfil*, only 25.7% guessed the correct meaning of *comrade*, making it the word with the lowest meaning task results of this research.

Despite what is believed, words occurring more than twice did not give better results than the words that occurred only twice. The results for words that occurred three or four times were either similar or worse than some words that occurred twice. The words in question were *hind*, *suppress*, *dim*, *obedience*, and *misunderstanding*. *Hind* occurred three times in the text and the spelling and meaning task results were satisfactory. Out of 69 participants 82.6% guessed the correct spelling and 60.9% guessed the correct meaning. *Suppress* also occurred three times, but the results were different. Out of 56 participants 51.8% guessed the correct spelling and 66.1% guessed the correct meaning, making this word one of the few where more participants guessed the word's correct meaning. *Dim* occurred four times and is a short word, but these factors did not lead to satisfactory results. 43.7% out of 71 participants guessed the correct spelling and 59.2% guessed the correct meaning. *Obedience* also occurred four times and the results were similar to those relating to

subversion, where one aspect of knowledge had significantly better results than the other. 80.9% out of 47 participants guessed the word's correct spelling, but only 29.8% guessed its correct meaning. This was surprising considering the word's length, especially when compared to a short word such as *dim*. Another example of completely different results for the two aspects of knowledge was *misunderstanding*. This word was unfamiliar to only eight participants, occurred four times in the text, and was one of the words where the results were better on the meaning task. Out of eight participants, two guessed the word's correct spelling and six guessed its correct meaning.

Table 4 shows the test results of participants who were unfamiliar with at least eight target words. This table is presented in order to compare these results to low vocabulary gains reported in other studies.

Table 4 *Selected vocabulary test results*

Participant	n	Aspect	Number of correct answers (%)	Participant	n	Aspect	Number of correct answers (%)
1	8	Spelling Meaning	1 (12.5) 3 (37.5)	26	9	Spelling Meaning	8 (88.8) 6 (66.6)
2	9	Spelling Meaning	6 (66.6) 2 (22.2)	27	9	Spelling Meaning	6 (66.6) 6 (66.6)
3	9	Spelling Meaning	4 (44.4) 5 (55.5)	28	11	Spelling Meaning	9 (81.8) 6 (54.5)
4	9	Spelling Meaning	6 (66.6) 4 (44.4)	29	11	Spelling Meaning	9 (81.8) 5 (45.5)
5	9	Spelling Meaning	4 (44.4) 4 (44.4)	30	10	Spelling Meaning	10 (100) 9 (90)
6	9	Spelling Meaning	8 (88.8) 4 (44.4)	31	13	Spelling Meaning	6 (46.2) 6 (46.2)
7	9	Spelling Meaning	7 (77.7) 4 (44.4)	32	8	Spelling Meaning	3 (37.5) 7 (87.5)
8	9	Spelling Meaning	5 (55.5) 4 (44.4)	33	13	Spelling Meaning	1 (7.7) 0 (0)
9	8	Spelling Meaning	5 (62.5) 5 (62.5)	34	10	Spelling Meaning	5 (50) 1 (10)
10	9	Spelling Meaning	5 (55.5) 5 (55.5)	35	10	Spelling Meaning	4 (40) 4 (40)
11	8	Spelling Meaning	5 (62.5) 5 (62.5)	36	10	Spelling Meaning	7 (70) 7 (70)
12	8	Spelling Meaning	8 (100) 4 (50)	37	8	Spelling Meaning	6 (75) 3 (37.5)
13	8	Spelling Meaning	6 (75) 4 (50)	38	10	Spelling Meaning	8 (80) 6 (60)
14	8	Spelling Meaning	7 (87.5) 3 (37.5)	39	8	Spelling Meaning	6 (75) 5 (62.5)
15	8	Spelling Meaning	5 (62.5) 5 (62.5)	40	11	Spelling Meaning	4 (36.4) 0 (0)
16	8	Spelling	4 (50)	41	11	Spelling	7 (63.6)

		Meaning	2 (25)			Meaning	6 (54.5)
17	8	Spelling	3 (37.5)	42	11	Spelling	7 (63.6)
		Meaning	4 (50)			Meaning	7 (63.6)
18	9	Spelling	7 (77.7)	43	10	Spelling	6 (60)
		Meaning	3 (33.3)			Meaning	3 (30)
19	11	Spelling	5 (45.5)	44	11	Spelling	3 (27.3)
		Meaning	5 (45.5)			Meaning	1 (9.1)
20	8	Spelling	3 (37.5)	45	8	Spelling	5 (62.5)
		Meaning	6 (75)			Meaning	2 (25)
21	9	Spelling	4 (44.4)	46	11	Spelling	7 (63.6)
		Meaning	8 (88.8)			Meaning	5 (45.5)
22	10	Spelling	7 (70)	47	9	Spelling	6 (66.6)
		Meaning	5 (50)			Meaning	7 (77.7)
23	9	Spelling	5 (55.5)	48	10	Spelling	5 (50)
		Meaning	3 (33.3)			Meaning	0 (0)
24	8	Spelling	5 (62.5)	49	10	Spelling	5 (50)
		Meaning	2 (25)			Meaning	7 (70)
25	8	Spelling	5 (62.5)	50	12	Spelling	7 (58.3)
		Meaning	5 (62.5)			Meaning	7 (58.3)

n= number of words the participant was unfamiliar with

Out 107 participants 50 were unfamiliar with at least eight target words. The individual results were not different than the overall results from the previous table when it came to the aspects of knowledge. The success rate for the spelling task was in most cases higher than the success rate for the meaning task. The most significant differences between success rates occurred with participant 6, participant 12, participant 14, and participant 37. Participant 6 was unfamiliar with nine words and their spelling task success rate was 88.8%, which was significantly higher than the 44.4% success rate for the meaning task. Participant 12 was unfamiliar with eight words and their spelling task success rate was 100%, while their meaning task success rate was 50%. Participant 14 was unfamiliar with eight words and their spelling task success rate was 87.5%, which was significantly higher than the 37.5% meaning task success rate. Finally, participant 37 was unfamiliar with eight words and their spelling task success rate was 75%, while their meaning task success rate was 37.5%.

However, some participants achieved better results on the meaning task. The most successful were participant 21 and participant 32. Participant 21 was unfamiliar with nine words and their meaning task success rate was 88.8%, which was significantly higher than the 44.4% spelling task success rate. Participant 32 was unfamiliar with eight words and their meaning task success rate was 87.5%, while their spelling task success rate was 37.5%.

These results do not indicate that none of the participants achieved good results on both spelling and meaning task. Participant 36 was unfamiliar with ten words and they had the same success rate of 70% for both aspects of knowledge. Participant 30 achieved the best

result out of the selected participants. They were unfamiliar with ten words and had a success rate of 100% on the spelling task and a success rate of 90% on the meaning task.

As can be seen, these results were significantly higher than those reported in research studies. However, six participants showed a low success rate which was generally to be expected in incidental vocabulary acquisition. Participant 1 was unfamiliar with eight words and their success rate on the spelling task was 12%. However, their meaning task success rate was 37.5%, which was still lower than the rest of the presented participants. Participant 34 was unfamiliar with ten words and their meaning task success rate was 10%, while the spelling task success rate was 50%. Participant 44 was unfamiliar with eleven words and their success rate was lower for both aspects of knowledge. Their spelling task success rate was 27.3% and the meaning task success rate was 9.1%. The remaining three participants were participant 33, participant 40, and participant 48. They all had a success rate of 0% for the aspect of meaning. Their spelling task success rate was higher with participant 33 who correctly guessed 7.7%, participant 40 who correctly guessed 36.4%, and participant 48 who correctly guessed 50% of the target words' spelling.

The third research question probed the relationship between participants' English language proficiency and incidental vocabulary learning. The results are presented in table 5 and 6. Learners were divided into two proficiency levels based first on their level of education (Table 5) and then on their final grade in English (Table 6).

Table 5 *Vocabulary test results of elementary and high school learners*

Word	f	Aspect	Level	n	Number of correct answers (%)
Quarrel	2	Spelling	ES	3	2 (66.7)
			HS	41	41 (100)
		Meaning	ES	3	2 (66.7)
			HS	41	17 (41.5)
Hind	2	Spelling	ES	19	17 (89.5)
			HS	50	40 (80)
		Meaning	ES	19	12 (63.2)
			HS	50	30 (60)
Fulfil	2	Spelling	ES	21	9 (42.9)
			HS	12	6 (50)
		Meaning	ES	21	5 (23.8)
			HS	12	9 (75)
Comrade	3	Spelling	ES	26	9 (34.6)
			HS	44	21 (47.7)
		Meaning	ES	26	6 (23.1)
			HS	44	12 (27.3)
Suppress	3	Spelling	ES	23	11 (47.8)
			HS	33	18 (54.5)

Dim	4	Meaning	ES	23	13 (56.5)
			HS	33	24 (72.7)
		Spelling	ES	25	9 (36)
			HS	46	22 (47.8)
		Meaning	ES	25	16 (64)
			HS	46	26 (56.5)
Obedience	4	Spelling	ES	24	18 (75)
			HS	23	20 (87)
		Meaning	ES	24	6 (25)
			HS	23	8 (34.8)
Grumble	2	Spelling	ES	13	4 (30.8)
			HS	17	15 (88.2)
		Meaning	ES	13	8 (61.5)
			HS	17	14 (82.4)
Misunderstanding	4	Spelling	ES	6	2 (33.3)
			HS	2	0 (0)
		Meaning	ES	6	4 (66.7)
			HS	2	2 (100)
Frugal	2	Spelling	ES	29	9 (31)
			HS	58	35 (60.3)
		Meaning	ES	29	15 (51.7)
			HS	58	17 (29.3)
Morose	2	Spelling	ES	25	14 (56)
			HS	68	27 (39.7)
		Meaning	ES	25	19 (76)
			HS	68	48 (70.6)
Abolish	2	Spelling	ES	24	13 (54.2)
			HS	43	37 (86)
		Meaning	ES	24	7 (29.2)
			HS	43	30 (70)
Subversion	2	Spelling	ES	30	20 (66.7)
			HS	53	50 (94.3)
		Meaning	ES	30	6 (20)
			HS	53	18 (34)

f= number of times the word occurs in the text
n= number of learners who were unfamiliar with the word

Out of 107 participants 32 were elementary school (ES) learners and 75 were high school (HS) learners. It was expected that HS learners would be more successful on the vocabulary test since they were at the higher level of education. That, indeed, was the case with the majority of the target words, but surprisingly not all of them. ES learners achieved better results on two words in both spelling and meaning task, namely *hind* and *morose*. *Hind* was unfamiliar to 19 elementary school and 50 high school learners, while morose was unfamiliar to 25 ES and 68 HS learners. 89.5% of ES learners correctly guessed the spelling of *hind* and 56% correctly guessed the spelling of *morose*. The results were slightly worse for HS learners: 80% guessed the correct spelling of *hind* and 39.7% guessed the correct spelling of *morose*. When it came to the meaning task, 63.2% of ES learners correctly guessed the meaning of *hind* and 76% correctly guessed the meaning of *morose*. The results were slightly

worse for HS learners where 60% guessed the correct meaning of *hind* and 70.6% guessed the correct meaning of *morose*.

The results for *quarrel*, *dim*, and *frugal* were better for ES learners in the meaning aspect of knowledge, while *misunderstanding* was the only word whose spelling they guessed more successfully. *Quarrel* was unfamiliar to three ES and 41 HS learners. 66.7% of ES learners guessed the correct meaning of *quarrel*, which was significantly better than the 41.5% success rate of HS learners. *Dim* was unfamiliar to 25 ES and 46 HS learners. 64% of ES learners guessed the correct meaning of *dim*, which was slightly better than the 56.5% success rate of HS learners. *Frugal* was unfamiliar to 29 ES and 58 HS learners. 51.7% of ES learners guessed the correct meaning of *frugal*, which was significantly better than the 29.3% success rate of HS learners. Finally, none of the HS learners guessed the correct spelling of *misunderstanding*, while 33.3% of ES learners did. However, it is important to note that the number of participants whose results were taken into account was very small, because only six ES and two HS learners were unfamiliar with this word.

The results for the remaining target words show a higher success rate of HS learners. The most significant differences in the success rate were found for the words *quarrel*, *fulfil*, *grumble*, *frugal*, *abolish, and subversion*. Only the results for *grumble* and *abolish* showed a higher success rate in both aspects of knowledge. *Grumble* was unfamiliar to 13 ES and 17 HS learners, while *abolish* was unfamiliar 24 ES and 43 HS learners. 88.2% of HS learners guessed the correct spelling of *grumble*, while ES learners only had a 30.8% success rate. When it came to the word's meaning, 82.4% of HS learners and 61.5% of ES learners guessed it correctly. The results for *abolish* showed an even bigger success rate of HS learners. 86% of them guessed the word's correct spelling and 70% guessed its correct meaning, while 54.2% of ES learners guessed the correct spelling and only 29.2% guessed the correct meaning. Out of the remaining aforementioned words, the results for *quarrel*, *frugal*, and *subversion* were better for the spelling task, while the results for *fulfil* were better for the meaning task. All HS learners guessed the correct spelling of *quarrel*, which was significantly higher than the 66.7% success rate of ES learners. 60.3% of HS learners and only 31% of ES learners guessed the correct spelling of *frugal*. *Subversion* was unfamiliar to 30 ES and 53 HS learners. The results for *subversion* showed a big difference with 94.3% of HS learners and 66.7% of ES learners who guessed the word's correct spelling. *Fulfil* was unfamiliar to 21 ES and 12 HS learners. 75% of HS learners and only 23.8% of ES learners guessed the correct meaning of *fulfil*.

Table 6 shows the results of the participants divided into two groups according to their final English grade. The final grades are divided into lower grade (LG), which includes the grades 2 and 3, and higher grade (HG), which includes the grades 4 and 5.

Table 6 *Vocabulary test results of lower grade and higher grade learners*

Word	f	Aspect	Level	n	Number of correct answers (%)
Quarrel	2	Spelling	HG	30	30 (100)
			LG	14	13 (92.9)
		Meaning	HG	30	13 (43.3)
			LG	14	6 (42.9)
Hind	2	Spelling	HG	51	43 (84.3)
			LG	18	14 (77.8)
		Meaning	HG	51	33 (64.7)
			LG	18	9 (50)
Fulfil	2	Spelling	HG	26	12 (46.2)
			LG	7	3 (42.9)
		Meaning	HG	26	12 (46.2)
			LG	7	2 (28.6)
Comrade	2	Spelling	HG	52	21 (40.4)
			LG	18	9 (50)
		Meaning	HG	52	16 (30.8)
			LG	18	2 (11.1)
Suppress	3	Spelling	HG	43	24 (55.8)
			LG	13	5 (38.5)
		Meaning	HG	43	31 (72.1)
			LG	13	6 (46.2)
Dim	4	Spelling	HG	48	22 (45.8)
			LG	23	9 (39.1)
		Meaning	HG	48	30 (62.5)
			LG	23	12 (57.2)
Obedience	4	Spelling	HG	32	28 (87.5)
			LG	15	10 (66.7)
		Meaning	HG	32	12 (37.5)
			LG	15	2 (13.3)
Grumble	2	Spelling	HG	21	15 (71.4)
			LG	9	4 (44.4)
		Meaning	HG	21	18 (85.7)
			LG	9	4 (44.4)
Misunderstanding	4	Spelling	HG	3	1 (33.3)
			LG	5	1 (20)
		Meaning	HG	3	3 (100)
			LG	5	3 (60)
Frugal	2	Spelling	HG	62	32 (51.6)
			LG	25	12 (48)
		Meaning	HG	62	21 (33.9)
			LG	25	11 (44)
Morose	2	Spelling	HG	69	33 (47.8)
			LG	24	8 (33.3)
		Meaning	HG	69	49 (71)
			LG	24	18 (75)

Abolish	2	Spelling	HG	47	39 (83)
			LG	20	11 (55)
		Meaning	HG	47	28 (60.9)
			LG	20	9 (45)
Subversion	2	Spelling	HG	60	50 (83.3)
			LG	23	20 (87)
		Meaning	HG	60	16 (26.7)
			LG	23	8 (34.8)

f= number of times the word occurs in the text
n= number of learners who were unfamiliar with the word

There were 80 learners who received either a 4 or a 5 and were placed in the HG group, and 27 who received either a 2 or a 3 and were placed in the LG group. It was expected that the more successful learners would show better results in the vocabulary test. Again that was the case with the majority of the target words, but surprisingly not all of them. Compared to the results in the previous table, aspects of knowledge of four words were more successfully guessed by the LG learners. Those words were: *comrade*, *frugal*, *morose*, and *subversion*. Out of these four words only the results for *subversion* showed a higher success rate in both aspects of knowledge. Subversion was unfamiliar to 23 LG and 60 HG learners. 87% of LG learners and 83.3% of HG learners guessed the correct spelling of *subversion*. Even though they were less successful than the LG learners, the HG learners' success rate was still high. When it came to the word's meaning, 34.8% of LG learners and only 26.7% of HG learners guessed it correctly. Out of the remaining three words, the results for *frugal* and *morose* were better for the meaning task, while the results for *comrade* were better for the spelling task. *Frugal* was unfamiliar to 25 LG and 62 HG learners. 44% of LG learners and 33.9% of HG learners guessed the correct meaning of *frugal*. *Morose* was unfamiliar to 24 LG and 69 HG learners. 75% of LG learners and 71% of HG learners guessed the correct meaning of *morose*. Comrade was unfamiliar to 18 LG and 52 HG learners. 50% of LG learners and 40.4% of HG learners guessed the correct spelling of *comrade*.

The results for the remaining target words showed a higher success rate of HG learners. The most significant differences in the success rate were found with *suppress*, *obedience*, *grumble*, and *abolish*. Out of these four words the results for *obedience* and *grumble* showed a higher success rate in both aspects of knowledge. *Obedience* was unfamiliar to 32 HG and 15 LG learners. 87.5% of HG learners and 66.7% of LG learners guessed the word's correct spelling. Despite a significant difference, the LG learners' success rate was still high. That was not the case for the meaning of *obedience*. 37.5% of HG learners and only 13.3% of LG learners guessed the correct meaning. *Grumble* was unfamiliar to 21

HG learners and nine LG learners. 71.4% of HG learners and 44.4% of LG learners guessed the word's correct spelling. When it came to the word's meaning, 85.7% of HG learners and 44.4% of LG learners guessed it correctly. Out of the remaining two words the results for *suppress* showed a higher success rate in the meaning aspect of knowledge, while the results for *abolish* showed a higher success rate in the spelling aspect of knowledge. *Suppress* was unfamiliar to 43 HG and 13 LG learners. 72.1% of HG learners and 46.2% of LG learners guessed the correct meaning of *suppress*. *Abolish* was unfamiliar to 47 HG and 20 LG learners. 83% of HG learners and 55% of LG learners guessed the correct spelling of *abolish*.

3.4. Discussion

After analyzing the answers to the questionnaire it can be concluded that even though the participants do not have positive reading habits as a whole, there are those who have made reading English texts a part of their routine. Despite the fact that the minority of participants has positive reading habits, the majority thinks that reading is beneficial to vocabulary acquisition. Even though a majority of participants does not read longer English texts, they could still read shorter articles or texts on the Internet or in their text books, which has a possibility of facilitating vocabulary acquisition. Finally, participants value reading as a means of acquiring vocabulary, but their reading habits are not developed enough. This should be changed by encouraging reading, at least in their school work.

After analyzing the vocabulary test results of all participants it can be concluded that reading does affect incidental vocabulary acquisition. However, not all words were equally recognized in both aspects of knowledge. Looking at the results as a whole, the spelling task was more successfully solved than the meaning task. The words with most correct answers regarding the spelling aspect are *quarrel*, *hind*, *obedience,* and *subversion,* whose success rate ranges from 80% to 98% of correct answers. However, the high success rate for *quarrel* and *subversion* can be explained by the poor quality of distractors in the vocabulary test. The distractors for these two words may not have been distracting enough and the participants guessed the correct spelling through simple elimination. On the other hand, the distractors for *fulfil* were also not distracting enough, but the spelling results are not nearly as good as with the two aforementioned words. The words with most correct answers regarding meaning aspect are *hind*, *suppress*, *grumble*, *misunderstanding*, and *morose*, with a success rate between 60% and 75% of correct answers. These results show the importance of context over word frequency and length. Words that occur only twice are as or more successful than those occurring three or four times, while more complex words, such as *quarrel* or *obedience*, are

more successful than a short word, such as *dim*. This could be due to L1 interference. *Dim* shares the spelling of a Croatian word for *smoke*. The participants may have thought that an English word cannot share the spelling with a Croatian word so they opted for one of the distractors. The quality of distractors could also explain the low success rate of *comrade* on the meaning task. One of the distractors was *partner*, a word that in context could have been interpreted as a correct answer to the question. Previous word knowledge seems to have played a role in the success rate of words such as *misunderstanding* and *subversion*. The spelling success rate for *misunderstanding* is only 25% which can be attributed to participants being familiar with the verb *miss*, but not with the prefix *mis*. High spelling success rate for *subversion* can be attributed to participants being familiar with both the prefix *sub* and the noun *version*; therefore they easily combined the two.

A higher number of unfamiliar words was necessary to examine the individual vocabulary gains and compare it with the average of 10% that is reported in the studies. However, the purpose of the vocabulary test was to test the participants' word recognition, not the full word acquisition, so it is expected that the success rate would range from sufficiently to extremely high. These results only further showed that the aspect of spelling is easier to learn than the aspect of meaning. However, this is not a rule without exceptions and there are cases where the word's meaning was more successfully or as successfully recognized as the word's form. These results showed that reading provides the basic knowledge of a word, but the vocabulary gains seem to mostly depend on the learner's individual factors, most certainly foreign language proficiency.

When analyzing the vocabulary test results of more and less proficient foreign language learners it can be concluded that for the most part language proficiency does have an important role in vocabulary acquisition. The level of language proficiency was determined based on participants' level of education and their final English grades. High school learners were, for the most part, more successful in the vocabulary test. When compared to the elementary school learners high school learners show higher success rate in both aspects of knowledge of all words except for *quarrel*, *hind*, *dim*, *misunderstanding*, *frugal*, and *morose*. Out of these six words, only the results for *hind* and *morose* show a higher success rate in both aspects of knowledge. These results could mean that even though elementary school learners said these words were unfamiliar, that does not mean they did not cover them in class. Exposure to the words and clear context may have had a big effect on the process of remembering. Similarly, more successful learners that received either a 4 or a 5 as their final English grade were more successful in the vocabulary test. However, they did not solve every

task more successfully. Words that were solved more successfully by LG learners are *comrade*, *frugal*, *morose*, and *subversion*, while only the results for *subversion* show a higher success rate in both aspects of knowledge. These results could mean that success in school work is more important for vocabulary acquisition than level of education. However, when confronted with an unfamiliar word more successful learners will not always be better than those less successful. It would seem that the ability to read from context and the attention given to the text play a larger role in vocabulary acquisition.

3.5. Conclusion

Regarding the first research question, this research has shown that learners' reading habits are not as developed as they should and could be especially when taking into consideration that the vast majority of participants believe that reading does have a positive influence on vocabulary acquisition. Regarding the second research question, this research shows that generally there is a relationship between reading and incidental vocabulary acquisition, with the word's form being more easily recognized than the word's meaning. Regarding the third research question, this research has shown that there is a relationship between language proficiency and incidental vocabulary acquisition. However that does not mean that less successful learners cannot be as successful or even more successful in vocabulary acquisition. All these results show that incidental vocabulary acquisition is unpredictable and influenced by many factors. However, these results refer to participants' recognition of words, which is only a small step in vocabulary acquisition. In order to properly test the relationship between extensive reading and incidental vocabulary acquisition a more thorough study with a bigger sample should be conducted.

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Appendices

Appendix 1: *Questionnaire*

Utjecaj čitanja na incidentno učenje

engleskog vokabulara

Razred _____

Dob _____

Spol M Ž

S koliko si godina počeo/la učiti engleski jezik? _____

Zadnja zaključna ocjena iz engleskog jezika _____

Upitnik

Zaokruži broj pored odgovora koji najviše vrijedi za tebe (*1-nikad, 2-rijetko, 3-ponekad, 4-često, 5-uvijek*).

1. Koliko često u slobodno vrijeme čitaš knjige na engleskom jeziku?	1	2	3	4	5
2. Koliko često čitaš knjige na engleskom za sate engleskog jezika?	1	2	3	4	5
3. Koliko ti često čitanje olakšava učenje novih riječi?	1	2	3	4	5

Appendix 2: *Vocabulary test*

Zadatak 1) Zaokruži točan oblik riječi. Ako ne prepoznaješ ni jedan, zaokruži *Ne znam*.

1.	cuarrel	quarrel	qural	Ne znam
2.	hind	hynd	hinde	Ne znam
3.	fulfil	folfill	foulfil	Ne znam
4.	comrad	comerad	comrade	Ne znam
5.	suppres	surpress	suppress	Ne znam
6.	dim	dym	dyme	Ne znam
7.	obeedience	obedience	obeydience	Ne znam
8.	grumble	grumbel	gramble	Ne znam
9.	mysunderstanding	missunderstanding	misunderstanding	Ne znam
10.	fruggal	frugal	frugall	Ne znam
11.	morose	morouse	moroose	Ne znam
12.	obolish	abollish	abolish	Ne znam
13.	supversion	subversion	subvursion	Ne znam

Zadatak 2) Poveži riječ s odgovarajućim značenjem u a) i odgovori na pitanje u b)

1 a) quarrel =_____

a) razgovor
b) šala
c) svađa
d) ne znam

1 b) Znaš li riječ otprije? DA NE

2 a) dim =_____

a) star
b) mutan
c) umoran
d) ne znam

2 b) Znaš li riječ otprije? DA NE

3 a) frugal =_____

a) gladan
b) težak
c) umjeren
d) ne znam

3 b) Znaš li riječ otprije? DA NE

4 a) morose =_____

a) mrzovoljan
b) tužan
c) sretan
d) ne znam

4 b) Znaš li riječ otprije? DA NE

5 a) fulfil =_____

a) ispuniti
b) napuniti
c) pogriješiti
d) ne znam

5 b) Znaš li riječ otprije? DA NE

6 a) hind =_____

a) prednji
b) srednji
c) stražnji
d) ne znam

6 b) Znaš li riječ otprije? DA NE

7 a) misunderstanding =_____

a) razgovor
b) nesporazum
c) svađa
d) ne znam

7 b) Znaš li riječ otprije? DA NE

8 a) comrade =_____

a) drug
b) partner
c) protivnik

d) ne znam

8 b) Znaš li riječ otprije? DA NE

9 a) abolish =_____ a) dopustiti
b) ukinuti
c) ukrasiti
d) ne znam

9 b) Znaš li riječ otprije? DA NE

10 a) obedience =_____ a) poslušnost
b) ustanak
c) čistoća
d) ne znam

10 b) Znaš li riječ otprije? DA NE

11 a) grumble =_____ a) vikati
b) smijati se
c) gunđati
d) ne znam

11 b) Znaš li riječ otprije? DA NE

12 a) subversion =_____ a) prevrat
b) podgrupa
c) razvrat
d) ne znam

12 b) Znaš li riječ otprije? DA NE

13 a) suppress =_____ a) dopustiti
b) zapisati
c) suzbiti
d) ne znam

13 b) Znaš li riječ otprije? DA NE