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Incidental Vocabulary Acquisition from Reading an Authentic Text

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ABSTRACT

A number of studies have demonstrated that second/foreign language learners can acquire vocabulary from reading. This study was designed to examine whether advanced EFL learners can acquire vocabulary incidentally from reading an authentic text. Eighteen first-year English major students read and listened to the first eight chapters of Pride and Prejudice. Fifty-one words that appeared between two and ten times in the text were selected as targets. The pretest showed that on average, the participants knew the meaning of 26.9 of the target words. Results showed that participants learned the meaning of 24% of the unknown target words, or one in four words. There were no significant differences in the acquisition rates between participants with different vocabulary sizes. The vocabulary learning gains were, to a certain extent, affected by the words frequency in the text and their general frequency.

INTRODUCTION

What are the best ways of learning vocabulary? is a question that has been a subject of many studies and discussions. Nagy and Herman (1987) claim that since the average high school seniors' vocabulary is about 40,000 words, children must learn about 3,000 words per year between grades three and twelve. However, surveys of classroom instruction have shown that the number of words learned in the classroom could only be a few hundreds a year, which means that the majority of vocabulary that children know must be acquired incidentally, from reading and listening. A number of L1 studies which have investigated the impact of reading on vocabulary acquisition have shown that L1 learners can learn word meanings incidentally while reading (Jenkins, Stein, & Wysocki, 1984; Krashen, 1989; Nagy, Anderson, & Herman, 1987; Saragi, Nation, & Meister, 1978).

Studies in second/foreign language acquisition have also found that reading can contribute to incidental vocabulary acquisition. In the study carried out by Horst, Cobb, and Meara (1998), 34 low-intermediate university students read and listened to the simplified version of *The Major of Casterbridge.* The results on the multiple-choice test showed that the participants learned the meaning of 4.62 out of 23 unknown words or about 22%. The correlation between the number of times the words appeared in the text and the relative learning gains was 0.49. Although the vocabulary size of the participants played a certain role in the acquisition rate, this relationship was not strong.

Waring and Takaki's (2003) study, in which fifteen Japanese university students read the simplified version of the book *A Little Princess*, showed that on the word-form

recognition test, the participants demonstrated learning gains of 61.2% of the target words, which was reduced to 33.6% after three months. On the multiple-choice test, 40% of the words were remembered at the immediate posttest, which decreased to 25% after three months. On the immediate meaning by translation test, 18.4% of the words were translated correctly, but after three months this figure dropped to 3.6%. This study showed that different test types produced different results, that reading had greater effect on recognition than on recall of previously unknown words, and that word learning effects were not long-lasting.

The different effect of reading on recognition and recall was confirmed in Brown, Waring, and Donkaewbua's (2008) study, which investigated the vocabulary learning gains from three input modes: reading, reading-while-listening, and listening. Results showed that while participants were able to recognize the meaning of 48% of the words in the reading plus listening mode, 45% of the words in the reading only mode, and 29% of the words in the listening only mode, they were able to translate only 16% of the words in the reading plus listening mode, 15% of the words in the reading only mode, and only 2% of the target words in the listening only mode.

Most of the L2 studies have used simplified texts, specially written texts or graded readers. Research has also shown that graded readers are better for foreign language learners as they offer better conditions for learning new words and consolidation of previously met words (Nation, 2001; Wodinsky & Nation, 1988). However, while graded readers can help learners acquire the most frequent words in the language, they do not offer opportunities for learning the words that are not so frequent, but are part of the vocabulary of more advanced students. Thus, since most graded readers series end at around 3,000 word level, reading only graded readers will not enable students to learn the less frequent words which are necessary for effective use of the language in authentic situations. As explicit instruction cannot cover so many less frequent words, in order to encounter the words above the 3,000 word level, learners need other sources of language input. In EFL contexts, these sources are extremely limited, so that one of the best options for enriching their vocabulary is reading authentic books. But, this raises another important question: can EFL learners read authentic novels with understanding in order to be able to infer the meaning of unknown words in the text?

A few studies have explored incidental vocabulary learning from reading authentic texts. Zahar, Cobb, and Spada (2001) investigated the vocabulary gains of 144 grade seven ESL students in Canada who read the text *The Golden Fleece,* which is an original text but graded for intermediate learners. Results showed that on average participants were able to learn the meaning of 2.16 words out of 10.34 unknown words or 22%. The correlation between the frequency of the words in the text and the absolute learning gains was 0.36, with the greatest effect for the participants with the smallest vocabulary sizes. In a replication study with 83 EFL secondary school students in Macedonia, the participants were able to learn the meaning of 3.02 unknown words or 25.16% (Daskalovska, 2010). The correlation between the relative gain scores and the frequency of the words in the text was 0.34, while the vocabulary size of the participants did not play any role in the rate of learning the meaning of the unknown words.

Two other studies that used authentic texts are the studies done by Ferris (1988, cited in Horst, 2000) and Dupuy and Krashen (1993). In the former study, 51 university ESL students at an intermediate level read George Orwell's *Animal Farm.* The results on the 50-item multiple-choice test showed that students learned seven words more than the the students in the control group. The correlation between the learning gains and the frequency of the target words in the text was 0.32, while the general frequency of the words did not prove significant. In the latter study, 15 university students enrolled in French courses saw the opening scenes of a French film and then read the script of the next five scenes. The results

on the 30-item multiple-choice test showed that participants learned six words more than the participants in the control group.

In one of the most recent studies, Pellicer-Sánchez and Schmitt (2010) investigated the acquisition of spelling, word class, and recognition and recall of meaning from reading the authentic novel *Things Fall Apart*. The results showed that after more than 10 exposures, the meaning and spelling could be recognized for 84% and 76% of the words respectively, while the meaning and word class could be recalled for 55% and 63%.

One of the problems with authentic texts is that less frequent words are not repeated often enough for acquisition to occur. Saragi et al. (1978) have found that in order for a word to be learned, it has to be met around 10 times. Horst et al. (1998) have estimated that 'sizable learning gains can be expected to occur consistently for items that are repeated eight times or more'. Waring and Takaki (2003) suggest that at least eight times are needed for some learning to occur, and that for full acquisition words need to be met over 20 or even 30 times. Conversely, Rott (1999) found that only two encounters were enough for some vocabulary growth to occur, and that six encounters 'resulted in significantly more receptive and productive word knowledge' than two or four encounters.

This study was undertaken with the aim of exploring the possibility for advanced EFL learners to learn new vocabulary from reading authentic texts, and the likelihood of acquiring words with low frequency in the text. The questions that are investigated in this study are as follows:

1. How much vocabulary can advanced EFL learners acquire from an authentic text?
2. Are there any significant differences in acquisition rates between learners with different vocabulary sizes?
3. Are the words that appear more frequently in the text more likely to be learned?

METHOD

Participants

The participants in this study were 18 first-year English major students studying at a university in Macedonia, 14 females and 4 males, aged 18-19; only one student was 30 years old. They had studied English for 8 years in primary and secondary school, and almost one year at the university. The participants were considered to be advanced learners of English, but there were significant differences in their vocabulary sizes, which was determined by the Vocabulary Levels Test (Nation, 1990). Table 1 shows the results of the Vocabulary Levels Test at the five levels.

Table 1. Vocabulary Levels Test Results

	Mean	s.d.	Range
2,000 Word Level	26.2	3.6	14
3,000 Word Level	21.6	6.2	19
5,000 Word Level	19.9	4.3	15
University Word List	24.2	3.2	10
10,000 Word Level	10.7	5.3	23

Materials

The text used for this study was the first eight chapters of the novel *Pride and Prejudice* by Jane Austen (1985), which contains 11,672 words (1,880 types). It has been estimated that in order to be able to infer the meaning of unknown words in context, the learners need to know at least 95% of the words in the text, with an optimal coverage being between 96 to 99% (Hirsh & Nation, 1992; Hu & Nation, 2000; Laufer, 1997). The text was run through a vocabulary profiler (Cobb, an adaptation of Heatley & Nation, 1994) which showed that 90.30% of the words belonged to the first 2,000 most frequent words, 1.53% were words from the University Word List, and 8.16% were off-list words, of which 4.2% were proper nouns. Since the participants were familiar with most of the words from the 2000 level and the University Word List, it was estimated that the coverage of known words was about 96%.

Fifty-one words that appeared between two and ten times in the text were chosen as targets. It was difficult to find frequent words that would be unknown to the participants, so that most of the words appeared between two and five times. The chosen words belonged to four types of content words: nouns (20), verbs (7), adjectives (13) and adverbs (6), two words appeared both as an adjective and as a verb, and three were used both as a noun and as a verb (Appendix A). The pretest showed that on average, participants knew the meaning of 26.9 of the words.

Instruments

In order to establish the vocabulary size of the participants in the study, Nation's (1990) Vocabulary Levels Test was used. The Vocabulary Levels Test is designed to measure 'the learners' basic knowledge of common word meanings, specifically, the extent to which learners know the common meanings of words at the 2,000, 3,000, 5,000, 10,000 and University Word List (Beglar & Hunt, 1999). It consists of ten sets of six words and three definitions at each level. Test-takers have to match three of the six words on the left with the appropriate definitions on the right.

The test used to measure incidental acquisition of the words the participants encountered in their reading was designed in the same way as the Vocabulary Levels Test (Nation, 1990), and contained 17 blocks of 6 words, three target words and three distractors on the left and three definitions on the right (Appendix B). The participants were already familiar with this test design, as they had already done the Vocabulary Levels Test. The same test was administered before and after the treatment, but the items in the posttest were in a different order than in the pretest.

Procedure

When the participant were asked to do the Vocabulary Levels Test (Nation, 1990), they were told that the purpose of the test was to determine their vocabulary size and that the results were of interest to their teacher. They were also asked not to guess as it would distort the results. As the test was administered during their regular classes by their teacher, who is the author of this paper, they did not find it unusual. The instructions and the completion of the test took one hour. The pretest was administered the next day, again during their regular classes. As it was the same format, they did not need any further explanations, and it was completed in 15 minutes. The reading session took place one week after the pretest. Participants listened to an audio recording of the text at the same time while they read it. Waring (2009) states that 'extensive reading (and listening) are primarily about *meaning*.'

Since reading consists of several processes, they 'must be carried out efficiently in combination if comprehension is to take place,' so that 'the more rapidly a text is read, the better the various components are likely to operate' (Grabe & Stoller, 2001). Conversely, if reading is slow and learners pay conscious attention to the words it would 'interfere with the construction of meaning' (Day & Bamford, 1998). Thus, it was assumed that listening to the text while reading it would serve three purposes: (a) all the participants would read the whole text at the same time, (b) reading the text at a normal speed would help them understand it better as the focus would be on meaning, and (c) there would be no opportunities for intentional word learning as the participants would have to follow the text, and they could not stop to focus on any particular word. The treatment lasted one hour, after which the copies of the text were collected, so that the participants had no opportunity to look back at the text. The posttest was administered the next day. As forgetting occurs most rapidly immediately after the initial learning (Nation, 2001, p. 76), it was assumed that a posttest administered immideately after the reading would show inflated results. Because incidental learning from reading does not involve a lot of effort and time spent on individual items and thus less possibility of retaining these items in long term memory after only one hour of reading, it was decided that a test administered one day after the reading would show more realistic results. Participants had not been told that there would be a posttest. It was then that they realized that the tests and the reading were connected. At this point the author explained the purpose of the pretests, the reading session, and the posttest, and asked students for their permission to use the results obtained in the study. They gave their consent and expressed a great interest in the results. The completion of the test took 15 minutes.

RESULTS

Research Question 1. *How much vocabulary can advanced EFL learners acquire from an authentic text?*

The pretest results show that on average, the participants knew 26.9 of the 51 target words, so that the number of unknown words for the group as a whole was reduced to 24.1. The average number of words learned was 5.8, or 24% of the previously unknown target words. A t-test for paired samples ($t=3.85$, $p<0.01$) showed that the difference between the pretest and the posttest was significantly greater than chance (Table 2). Participants were able to learn one in every four words tested.

Table 2. Pretest to Posttest Gains

	Mean	s.d.
Pretest	26.9	8.52
Posttest	32.7	8.76
Gain	5.8	6.36

Research Question 2. *Are there any significant differences in acquisition rates between subjects with different vocabulary sizes?*

In order to determine whether the learner's vocabulary size affects the learning gains, a relative gain percentage was calculated based on a method devised by Shefelbine (1990, cited in Horst et al., 1998), using the formula: *Gain = [(post-pre)/(51-pre)] x 100*, where the

number 51 is the number of the target words. While absolute gain scores show how many words the learners were able to acquire during reading, relative gain scores show the relation between the words learned and the words that were available for learning, so the formula 'captures growth in a way that absolute gain scores cannot' (Horst et al., 1998). For example, two participants had an absolute gain score of 4 words, but the relative gain scores were different because the number of unknown words was different. For one of the participants there were 15 unknown words, so the relative gain score was 26.7%, but for the second participant, who did not know 30 of the target words, the relative gain score was 13.3%.

The Pearson Product Moment Correlation Coefficient for the correlation between the relative gain scores and the total scores on the Vocabulary Levels Test was r=0.01, which suggests that the vocabulary size of the participants in this study did not play any role in the rate of learning the meaning of the unknown words. However, the correlations between the relative gain scores and the scores on each level of the Vocabulary Levels Test showed that while there was no correlation between the relative gains scores and the scores on the 2,000 and 3,000 level (r=0.05 and r=0.06 respectively), the higher levels showed increasing correlations (5,000 level: r=0.14; UWL: r=0.19; 10,000 level: r=0.32). This implies that the learners' knowledge of the less frequent words may be a better predictor of the effect of their vocabulary size on the learning gains from reading.

Research Question 3. *Are the words that appear more frequently in the text more likely to be learned?*

In order to determine the distribution of the words in the text, it was loaded into a software program (AntConc) which produced the frequencies of all the words in the text. The target words used in this study appeared from two to ten times, with most of the words appearing less than five times because there were not many words in the text that occurred more frequently and that would be unknown to the participants. In order to determine the relationship between the acquisition rate and the number of the times the words were met in the text, a relative gain percentage was calculated using the formula: *Gain = [(post-pre)/(18-pre)] x 100*, where the number 18 is the number of the participants in the study.

The Pearson Product Moment Correlation Coefficient for the correlation between the word frequency in the text and the relative gains was r=0.06, which suggests that in this study the frequency factor did not play any role in the acquisition of word meaning. Five of the words that appeared only twice in the text (*dispatched, engrossed, gown, polished, slighted*) were learned by five participants, one word that appeared three times (*neglect*) was learned by six participants, three other words that appeared three times (*complacency, disposition, haste)* were learned by five participants, one word that appeared four times (*fortnight)* was learned by seven participants. On the other hand, the word *accomplished* occurred nine times in the text, but was not learned by any of the participants; the word *agreeable* also occurred nine times, and it was learned by two participants; and the words *assembly and delighted* appeared seven times, and they were learned only by one participant.

It is not clear why these words were not learned, while other less frequent words were learned by more participants. Maybe they were not important enough for the participants to pay attention to them, or maybe because some words are more difficult to learn than others, they need to be met more times in different contexts in order to be acquired. Bolger, Balass, Landen, and Perfetti (2008) state that since individual words very widely in their semantic and syntactic properties, some of these factors may influence their learnability from context (p. 7). In the case of the word *accomplished,* it is likely that the participants had met the word used as a verb, but since in the text it was used as an adjective, their concept of the word did not fit the context and they 'aborted' the inferring process (Fukkink, 2005, p. 27). However,

as stated earlier, the number of target words that appeared more than five times in the text was very small, so that it could not show the difference between the learning gains of more and less frequent words.

In order to see if the general frequency of the target words had any influence on the learning gains, the Pearson Product Moment Correlation Coefficient for the correlation between the relative gains and the general frequency of the words in the British National Corpus (per million) was computed, showing a correlation of 0.13 for the spoken section, and 0.02 for the written section, which is again very low to be of any significance. As participants heard the text while reading it, it was assumed that the general frequency of the target words in the spoken discourse might have an influence on their acquisition rate.

However, if we look at the words that demonstrated the biggest and the smallest gains, a different picture emerges. The Pearson Product Moment Correlation Coefficient for the correlation between the relative gains of the 13 most learned words and their frequency in the text was r=0.41, and the correlation between the relative gains of these words and their general frequency in the BNC was r=0.73 for the spoken section and r=0.30 for the written section. The correlation between the relative gains of the 13 least learned words and their frequency in the text was r=0.05, and the correlation between the relative gains of these words and their general frequency in the BNC was r=0.11 for the spoken section and r=0.03 for the written section. It follows that a more detailed analysis is necessary here in order to gain better insights into the relationship between the word frequency and the acquisition rate.

Furthermore, if we look at the grammatical category of these words, we will notice that most of the words with the largest gains are nouns, followed by adjectives and verbs, and there are no adverbs, while among the words with the smallest gain there is almost an equal number of words from all four grammatical categories, which confirms the findings of previous studies that nouns are the easiest to be learned, while adverbs are generally the most difficult part of speech (Schmitt, 2000, p. 59). Taken together, these findings suggest that both the frequency of the words in the text and their global frequency may have certain influence on the rate of vocabulary acquisition, but also that many other factors come into play during the process.

DISCUSSION

The results from this experiment support the findings from other studies that learners can acquire vocabulary from reading an authentic text. The figures show that the participants learned the meaning of 5.8 words in one hour, or one in every four words, which is similar to the results of Horst et al.'s (1998) study, where the participants learned 22% of the tested words, or one in every five words, and Dupuy and Krashen's (1993) study where the participants also learned one in every five words, but much more than some other studies where the participants learned one in 10 words or even less (Day, Omura, & Hiramatsu, 1991; Pitts, White, & Krashen, 1989).

A few studies found even greater gains. In the study done by Waring and Takaki (2003), approximately 40% of the words were remembered at the immediate multiple-choice recognition test, which is similar to the results of Brown et al. (2008) study, where 48% of the words were learned in the reading-while-listening mode. However, it is worth noting here that during that hour participants met 11,672 words, while only 51 words were tested, of which they already knew the meaning of 26.9 words. It can be assumed therefore that the participants might have learned the meaning of many more words besides the tested words. What is more, this study focused only on learning word meanings, which is only one of the

several aspects of word knowledge (Nation, 1990), so that it could not show if learners were able to gain other word knowledge besides meaning.

An observation concerning the words which had negative gains is worth mentioning. When discussing the results of their study, Horst et al. (1998) maintain that 'the negative gain figures are based on small pre-post differences, and may not be very meaningful given the role for guesswork on the data (although forgetting or unlearning of words is possible, of course)'. It is interesting to look at the word *decline*. Before the treatment it was known by all the subjects, but on the posttest it had four negative gains. All four subjects had chosen the meaning 'dislike' instead of 'refuse.' The analysis of the contexts in which the word appears shows that the word *dislike* fits the sentences grammatically and to a certain extent semantically, thus although knowing the meaning of *decline* before the treatment, the subjects might have interpreted it as 'dislike,' and this meaning was retained in their memory. This may imply that for some students, depending on the degree of knowledge they have for certain words, even 'directive contexts' may serve as 'misdirective contexts' (Beck, McKeown, & McCaslin, 1983) and lead them to wrong interpretation of the word meaning. Fukkink (2005) has found that primary school students "do not pass through an invariable sequence of generating, checking and evaluating for each meaning: they often take shortcuts, thereby omitting an orientation and evaluation activity" (p. 38). Clarke and Nation (1980) describe a strategy for guessing word meanings from context and argue that "practice with this skill results in remarkable improvement over as few as five passages (p. 212). This indicates that spending a little time on practicing this skill may result in big gains for language learners, because "developing the skill of guessing meanings is in many ways developing the skill of reading' (Clarke & Nation, 1980, p. 218).

This study did not find any correlation between the overall vocabulary size of the participants and the acquisition rate. Strong relationship between prior vocabulary knowledge and the acquisition rates was not found in Horst et al. (1998) study either. Hulstijn (1993) also reports that there was no significant difference in inferring ability of unknown words from context between subjects with vocabulary scores above and below the mean. Horst et al. (1998) suggest that one reason for the low correlation between the learners' vocabulary size and the acquisition rate in their study may be that "measures were not sufficiently sensitive…and that the 45-item multiple-choice test did not offer the opportunity to demonstrate all the incidental growth that had actually taken place." Comparing the results of several experiments on vocabulary acquisition from reading with the results of their experiments using Latent Semantic Analysis to simulate learning vocabulary from textual context, Landauer and Dumais (1997) came to the conclusion that "much of what the children learned about words from the texts they read must have gone unmeasured in these experiments" (p. 31). Thus, the main reason for the absence of correlation between the learners' vocabulary size and the acquisition rate in the present study may be due to the inability of the test to measure the real learning gains from reading the text. Another reason may be that because of the small number of participants there was not enough variability in both the vocabulary sizes of the participants and the number of words that remained for learning. Finally, it may be due to the way the participants approached the task and respected the request not to guess, so that they only answered the items they were completely sure about. The comparison between the pretests and posttests revealed that some items that were answered correctly on the pretest were left unanswered on the posttest. The participant who had the highest scores on all levels of the Vocabulary Levels Test, and who knew 42 of the target words on the pretest, had a negative gain on the posttest. She had put question marks on the definitions and the correct words, but she had not written the number of the word next to the definition, probably because she was unsure and did not want to guess.

This indicates that there are many other factors that influence learning words from context such as textual, word, and learner and situational factors (Paribakht & Wesche, 1999). However, this study showed that the knowledge of less frequent words can give a clearer picture of the relationship between the learner's vocabulary size and the rate of acquistion of unknown words from reading, which means that studies investigating this factor should pay more attention to the learners' knowledge of the words above the 3,000 word level.

One of the factors that influence learning words from context is the number of times the words are met. Several studies have investigated the influence of word frequency on the acquisition rate, but the results are inconclusive. Horst et al. (1998) suggest that "with fewer than eight repetitions, growth is much less predictable and the role of other factors become more apparent." In this study, except for three words, all the other words appeared less than eight times, with more than half of the words appearing only two or three times, so that there were not enough more frequent words that could demonstrate the influence of the frequency factor more clearly. Zahar et al. (2001) found that the frequency effect is more evident in the learners with the smallest vocabulary sizes and concluded that "frequency plays a greater role in acquisition at the lowest level, and thereafter plays a consistently lesser role." This study demonstrated that advanced learners can acquire word meanings with only a few exposures.

LIMITATIONS AND CONCLUSION

This study has several limitations. First, there were only 18 participants and a small number of target words, which is not enough to draw firm conclusions from the findings. Second, the participants spent only one hour reading the text. In order to see the results of extensive reading participants have to read a bigger amount of text over a longer period. Third, there was only one posttest, which can only show the word gains after the reading but not the retention of these words over a certain period of time. Finally, there was only one test that measured the acquisition of meaning. The evaluation of the benefits of reading for vocabulary acquisition requires instruments that would measure more aspects of word knowledge, and not only full knowledge but partial knowledge as well. Further studies are needed here that would include a larger group of participants, more target words, more texts read over a longer period, and more sensitive instrument for measuring learning gains.

As the purpose of this study was to determine whether advanced EFL learners can acquire vocabulary from reading an authentic text, results obtained show that reading can indeed contribute to vocabulary learning, and that for some learners even two exposures are enough to acquire the meaning of previously unknown words. The study also shows that there is a complexity of factors influencing incidental vocabulary acquisition, which makes it difficult to predict how much vocabulary can be learned and to what extent. However, having in mind that explicit instruction cannot cover all the words that learners need to know in order to use the language effectively, extensive reading should be embraced as one of the sources of additional vocabulary learning.

Waring (2009) argues that "extensive reading (or listening) is the *only* way in which learners can get access to language at their own comfort level, read something they want to read, at the pace they are comfortable with, which will allow them to meet the language enough times to pick up a *sense* of how the language fits together and to consolidate what they know," which is especially important for foreign language learners. This means that reading in small quantities and only from time to time will not help learners acquire a lot of new vocabulary and retain it over a longer period. In order to benefit from reading, it has to become a habit and a regular activity, so that the knowledge gained from the initial meeting

of words can be enriched and consolidated through the subsequent exposures to these words in different contexts.

Hulstijn (2001) points out that only encouraging learners to spend time on reading and listening will not be enough, even though it may lead to some incidental vocabulary learning. He claims that "it is important to design tasks which focus learners' attention on vocabulary learning and to make them aware of the importance of efficient vocabulary learning strategies" (p. 269). Having a balanced approach is the key to success in vocabulary learning and language learning in general. However, most language programs do not have an extensive reading component. These and previous findings point to the need of including an extensive reading component in language learning programs. One cannot expect all learners to become eager readers, but at least those learners who are really interested in mastering the English language will be shown an additional and pleasant way of improving their English and enriching their vocabulary. This may well be the only way of continuing to learn and consolidate the language after learners finish their formal education.

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Appendix A. Target Words and the Number of Text Occurrences

Target Words	**No. of Occurrences in Text**
fortune (n)	10
accomplished (adj), agreeable (adj)	9
delighted (adj/v), assembly (n)	7
obliged (v), convinced (adj/v)	6
temper (n), purchase (n/v) , regard (n/v), vanity (n), carriage (n)	5
equally (adv), uncommonly (adv), scarcely (adv) , fortnight (n), acquaintance (n), sensible (adj), conceited (adj), credit (n), countenance (n), design (n)	4
felicity (n), evident (adj), gratitude (n), entirely (adv), astonishment (n), petticoat (n), eagerly (adv), neglect (n/v), haste (n), compassion (n), disposed (adj), merely (adv), civil (adj), disposition (n), complacency (n)	3
decline (v), disconcerted (adj), deficient (adj), detest (v), severe (adj), perceive (v), gown (n), dispatched (v), polished (adj), endeavour (v), slighted (v), fastidious (adj), composure (n), engrossed (adj)	2

Appendix B. Pre-post Test

Put the number of the word in the left column in the space beside the correct definition.

1. favourable
2. accomplished ___ happy
3. rightful ___ skillful
4. agreeable ___ pleasant
5. even
6. delighted

1. carriage
2. purchase ___ coach
3. package ___ wealth
4. weight ___ act of buying
5. train
6. fortune

1. hall
2. assembly ___ mood
3. return ___ respect
4. glove ___ gathering
5. regard
6. temper

1. patient
2. frightened ___ certain
3. obliged ___ arrogant
4. convinced ___ required
5. conceited
6. modest

1. acquaintance
2. countenance ___ face
3. fashion ___ praise
4. fascination ___ someone you know, but who is not a close friend
5. credit
6. bank

1. readily	
2. scarcely	___ anxiously
3. friendly	___ hardly
4. equally	___ identically
5. eagerly	
6. really	
1. fortnight	___ surprise
2. evening	___ period of two weeks
3. vanity	___ self-admiration
4. sight	
5. astonishment	
6. warning	
1. sensible	
2. civil	___ reasonable
3. sensitive	___ polite
4. responsible	___ inclined
5. disposed	
6. amazed	
1. impression	
2. vision	___ plan
3. compassion	___ pity
4. complacency	___ satisfaction
5. design	
6. creation	
1. uncommonly	
2. early	___ unusually
3. particularly	___ only
4. probably	___ completely
5. entirely	
6. merely	
1. danger	
2. disposition	___ speed
3. felicity	___ character
4. dislike	___ happiness
5. fence	
6. haste	
1. careful	
2. present	___ confused
3. evident	___ not having enough of something
4. disconcerted	___ obvious
5. deficient	
6. established	
1. gratitude	
2. composure	___ underskirt
3. opinion	___ thankfulness
4. boredom	___ calmness
5. petticoat	
6. revision	
1. expedition	___ dress
2. neglect	___ make an attempt
3. endeavour	___ ignore
4. gown	
5. shore	
6. anorak	

1. decline	
2. decide	___ refuse
3. perceive	___ observe
4. understand	___ dislike
5. explain	
6. detest	

1. announced	
2. engrossed	___ refined
3. changed	___ critical
4. enraged	___ absorbed
5. fastidious	
6. polished	

1. limited	
2. serious	___ sent
3. dispatched	___ cruel
4. severe	___ offended
5. slighted	
6. related	

Appendix C. Pretest-posttest Gains by Target Words

Target word	Freq. in the Text	Pretest	Posttest	Absolute Gain	Relative Gain %	General freq. (per million)	
						Spoken	Written
fortune	10	16	18	2	100	15.56	21.94
accomplished	9	8	8	0	0	1.51	10.61
agreeable	9	2	4	2	12,5	1.2	4.43
assembly	7	7	8	1	9,1	26.3	58.93
delighted	7	11	12	1	14,3	19.97	29.75
obliged	6	11	14	3	42,8	8.43	22.11
convinced	6	8	13	5	50	15.16	34.98
carriage	5	7	6	-1	-9,1	10.84	20.73
purchase	5	13	16	3	60	15.66	49.55
regard	5	13	13	0	0	24.29	44.26
vanity	5	7	13	6	54,5	0.9	4.17
temper	5	16	17	1	50	4.52	13.43
acquaintance	4	10	12	2	25	0.9	6.7
conceited	4	8	13	5	50	0.6	0.58
countenance	4	6	9	3	25	1.41	3.41
credit	4	8	9	1	10	32.62	80.77
fortnight	4	10	17	7	87,5	32.32	12.71
scarcely	4	11	8	-3	-42,8	1.1	18.06
equally	4	17	18	1	100	23.28	72.23
sensible	4	10	9	-1	-12,5	29.61	27.68
design	4	2	5	3	18,75	40.95	144.15
uncommonly	4	16	16	0	0	0	0.73
astonishment	3	12	15	3	50	0.8	5.85
civil	3	4	7	3	21,4	28.7	94.97
compassion	3	7	11	4	36,4	3.41	6.78
complacency	3	2	7	5	31,25	1.1	3.93
disposition	3	3	8	5	33,3	0.6	7.35
disposed	3	7	10	3	27,3	1.41	8.54
eagerly	3	11	7	-4	-57,1	0.4	7.81
entirely	3	15	17	2	66,7	41.65	73.28
evident	3	16	17	1	50	3.21	29.33
felicity	3	18	18	0	0	1.41	4.62
gratitude	3	16	17	1	50	1.41	8.52
haste	3	9	14	5	55,6	1	4.77
merely	3	5	7	2	15,4	18.77	83.85
neglect	3	9	15	6	66,7	2.61	13.45
petticoat	3	11	11	0	0	1	1
composure	2	3	2	-1	-6,7	0.3	3.14
decline	2	18	14	-4	0	8.53	53.24
deficient	2	14	16	2	50	0.5	2.93
detest	2	14	14	0	0	0.6	1.15
disconcerted	2	15	17	2	66,7	0.1	1.66
dispatched	2	6	11	5	41,7	0.8	3.58
endeavour	2	6	7	1	8,3	3.51	7.62
engrossed	2	2	7	5	31,25	0.2	1.94
fastidious	2	4	4	0	0	0.2	1.24
gown	2	7	12	5	45,4	4.72	8.48
perceive	2	10	13	3	37,5	4.52	9.79
polished	2	6	11	5	41,7	4.42	11.99
severe	2	11	13	2	28,6	14.91	51.1
slighted	2	5	10	5	38,5	0.1	0.39