

THE RELATIONSHIP BETWEEN TEXT COMPREHENSION AND SECOND LANGUAGE VOCABULARY ACQUISITION: WORD-FOCUSED TASKS

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ABSTRACT

There have been major influential views on the learning of L2 vocabulary through reading. One approach promotes explicit vocabulary learning through vocabulary activities. However, it is not clear whether there is an effect of text comprehension on vocabulary learning when reading and doing exercises for vocabulary learning.

The present study was designed to investigate the relationship between text comprehension and learning vocabulary through word-focused activities.

The participants were 100 first year students. They were given a vocabulary checklist before the treatments to make it sure that all participants were unfamiliar with the target words. There were four groups and all groups read one text each week during eight weeks. Each text contained one target word which appeared six times in the text. The treatment group read the texts, answered the comprehension questions and they completed the vocabulary activities. Then, they answered the form-recognition and meaning recognition tests as the last step of the process. On the ninth week, and tenth week, the participants were given the delayed post-tests to investigate whether they are familiar with the target words after treatments.

First, participants' answers to comprehension questions were analyzed. Then, means were calculated for form-recognition and meaning-recognition tests. Comprehension and vocabulary learning were compared for treatment and control groups.

The analyses showed that the treatments have an effect on learner scores and results when learning an unknown word. One of the aims of the study was to explore the effect of completing a variety of vocabulary exercises while reading. It seemed to have tapped different levels of processing capabilities such as recognition and interpretation. The analysis showed that there is not a significant correlation between vocabulary learning through word-focused activities and text comprehension. It is concluded that to learn vocabulary through reading, text comprehension is a necessary condition.

Key Words: Reading comprehension, incidental vocabulary learning, intentional vocabulary learning, word-focused activities.

INTRODUCTION

Learning vocabulary is an essential part of mastering a second language (Schmitt, 2008) and it has been one of the challenging topics in second language acquisition (SLA). There is agreement among vocabulary specialists that lexical knowledge is the heart of language learning (Coady, 1997; Coady and Huckin, 1997). One way of vocabulary learning both in the first language (L1) and second language (L2) is reading.

Reading has been accepted as a major way for vocabulary learning over the years (Dupuy and Krashen, 1993; Krashen, 1989, 1997). Krashen (1989) argues that reading promotes L2 vocabulary learning. In his study, Krashen (1989) emphasizes “comprehensible input” and states that reading provides comprehensible input for L2 vocabulary learning. Krashen (1989) notes that the results of incidental studies (Barnes, Ginther and Cochran, 1989; Herman, Anderson, Pearson and Nagy, 1987 cited in Krashen, 1989) support that comprehensible input alone can do all work for vocabulary. Krashen states his claim in the following way: “My suspicion is that reading is not simply a way to develop vocabulary, spelling, and other important aspects of competence, it is the only way” (p.455).

Coady (1993) supports Krashen by stating that reading is essential for L2 vocabulary learning because less frequent words are only encountered while reading.

Hulstijn (2003) substantiates by stating that incidental learning has been suggested as the explanation for how L1 and L2 learners acquire a large vocabulary.

The basis of this line of research is drawn on input-oriented language acquisition theory, arguing that learners will make meaning-form connections while processing meaningful and contextualized input (Min, 2008). Therefore, this argument results in suggestions for large amounts of reading material to expose learners to vocabulary that they are going to learn.

However; there have been other researchers who claim that it is not an easy task to learn vocabulary by reading alone. Nagy (1997), for example, states that not all contexts provide clues that can help L2 readers infer the meanings of unknown words. According to Hirsh and Nation (1992) in order to comprehend any text adequately and infer the meanings of unknown words, a reader should know as many as 4000 word families in academic texts.

Another form of opposition to Krashen’s (1989) claim that reading is the only way to develop vocabulary comes from Laufer (2003). Laufer (2003) opposes Krashen’s claim stating that:

“I challenge some basic assumptions underlying the claim that reading is the major source of vocabulary acquisition in L2... (p.567). Reading alone is unlikely to be the best source of vocabulary acquisition. Word focused activities, whether they are combined with reading or not, play a crucial role in building the learner’s lexical knowledge. Teachers have to look more critically at learning through reading and be more accepting of direct learning”. (pp. 583-584).

Rott (1999) claims that in order to ensure a basic lexicon to advance beyond the basic requirement; learners should read for meaning under an enhanced condition. The enhanced condition refers to reading plus word-focused activities.

Laufer (2003) notes that word-focused activities may be more effective and less time consuming for vocabulary learning because they force the learners to notice the word.

This argument is based on an explicit (intentional) rationale for vocabulary learning. Schmitt (2008) claims that intentional vocabulary learning leads to greater and faster gains.

Given the brief overview of previous arguments above, today, there have been researchers who support intentional vocabulary acquisition, they think that reading promotes L2 vocabulary learning, but there is a need for other activities that accompany reading to promote L2 vocabulary learning.

The previous research is concerned with whether learners can learn vocabulary intentionally while reading for comprehension. However, it is not clear how much role the text comprehension plays in intentional vocabulary learning.

Nagy (2007) claims in his “metalinguistic hypothesis” that there is a correlation between vocabulary knowledge and reading comprehension. He notes “In The National Reading Panel in 2000, it was concluded that we know a little about what sort of vocabulary instruction is most effective at improving reading comprehension and there is not yet enough rigorous research on the vocabulary-comprehension relationship to allow for a meta-analysis” (p.67)

In the light of the arguments and research above, the purpose of the present study is to investigate the relationship between text comprehension and incidental and intentional vocabulary learning through word-focused exercises.

Considering the ways of data collection, the study was designed to measure form and meaning recognition, therefore; form and meaning recognition levels are referred to as vocabulary learning in this study. Productive level of vocabulary learning is not in the scope of this study due to limitations in the data collection.

Significance of the Study

Many language learners identify vocabulary as a major source of difficulty during their learning process; so, teachers need a sensible program to promote vocabulary growth. The main purpose of this study is to test whether reading comprehension is necessarily the main or the best way of learning vocabulary as suggested by many researchers who claim that it is. It is aimed to extend previous research and to provide empirical evidence in order to determine the relationship between reading comprehension and EFL intermediate level learners’ incidental and intentional vocabulary learning and retention.

REVIEW OF LITERATURE

Research in the field of SLA has stressed the need for instruction that addresses not only the social language needs of the students but also the academic, cognitive and language development that is critical to success (Hickman, Pollard-Durodola and Vaughn, 2004). Central to academic language development are the related elements of vocabulary and comprehension. The research emphasized different dimensions and relations between reading comprehension and vocabulary acquisition and development.

SLA theories consider comprehension to be an important factor in language acquisition, arguing that L2 input must be decoded in some comprehensible fashion in order for learning outcomes to occur (e.g. Cook, 2001; Gass, 1997; Krashen, 1985; Sharwood Smith, 1986; VanPatten, 1996). Reading research has also reported on the significance of comprehension.

Concerning comprehension and factors that effect comprehension, there have been several studies and arguments. For example, prior knowledge about a topic or background knowledge affects reading comprehension (Stahl, Hare, Sinatra, & Gregory, 1991; Stahl & Jacobson, 1986; Stahl, Jacobson, Davis, & Davis, 1989). The findings indicate that the more learners know about a topic, the more likely they are to understand a text about that topic (Webb, 2009). Learners may know all the words in a text, but if they have little knowledge of the topic, this may affect their performance on a comprehension test.

Another factor that may affect learners’ comprehension when reading a text is the context (Mezynski, 1983; Stahl, 1990). Stahl reports three contextual factors that affect reading comprehension: (a) the overlap between the meaning of the context and the word’s meaning, (b) the amount of information available in the context,

and (c) the importance of the word in the passage. Mezynski reports that redundant information in the context and syntactic cues may provide enough information for learners to correctly answer comprehension questions.

The other factor is the density of unknown words in a passage (Mezynski, 1983). Vocabulary instruction may have little effect if there remains a large number of unknown words in the text. Similarly, Stahl and Fairbanks (1986) suggest that a text must contain a large proportion of taught words if vocabulary instruction is to affect reading comprehension.

On the other hand, there has been research focusing on conceptual and background knowledge in vocabulary development through reading (Diakidoy, 1998; Nagy, Anderson, & Herman, 1987). Another area dealt with lexical inferencing and it is considered to be one of the important component processes involved in vocabulary acquisition through reading (Ellis, 1995; Sternberg, 1987). Research conducted in this vein has reported different accounts of the role of background knowledge and comprehension. On the one hand, several studies with participants from various LI language backgrounds found that L2 learners of all levels used background knowledge to infer the meanings of unfamiliar words encountered in expository texts (e.g., De Bot, Paribakht, & Wesche, 1997; Haastrup, 1989; Paribakht & Wesche, 1999; Parry, 1993, 1997). These studies mostly dealt with the relation between reading comprehension and incidental vocabulary learning through reading.

Concerning explicit language learning, Long (1997) defines FonFS as instruction that focuses on specific grammar teaching where learners are engaged in linguistic structures in isolation. Explicit instruction is defined as direct and systematic instruction of new information and instruction that directly draws the awareness of learners to specific information to be learned (Lee, 2003).

According to Long (1997) FonF refers to form-focused activities which are not planned in advance but occur incidentally as learners' and teachers' predominant focus, during meaning-based lessons. Ellis, Baştürkmen and Loewen (2001) suggest that FonF can also be pre-planned.

Ellis (2001) also classifies form-focused instruction into three categories: a) FonFS where primary attention is paid to form (both explicit and implicit) b) planned FonF where primary attention is given to meaning but tasks are focused on specific L2 forms c) incidental focus on form where primary attention is devoted to meaning and attention can be paid to different L2 forms.

Doughty and Williams (1998) note that the term form must not be limited only to grammar points. According to them it should include all aspects of the L2, including vocabulary. In the case of L2 vocabulary learning, explicitness can be assumed when the learners are asked to pay attention or to use words that are new to them, or the underlined words, or the words learned in a previous learning session. These applications show explicitness in the sense that they are intentional, that is the teacher intentionally draws the attention of the learners to the learning of the unknown L2 words.

Laufer and Girsai (2008) propose that the notion of Form-focused instruction was developed in the context of grammar learning, but it can be extended to vocabulary as well. They provide the following examples: "When reading a text, or engaging in a group discussion, learners may come across unfamiliar words and look them up in a dictionary. This activity constitutes Focus on Form since the words, which are attended to, are necessary tools for task completion. Conversely, learners' attention can be drawn to words in non-communicative, non-authentic language tasks, as in the case of matching words that were taught and are listed in column A to their definitions in column B, or filling in these words in given sentences, one word in each sentence. These are examples of FonFs in the sense that they entail teaching and practicing discrete lexical items, which are treated as the objects of study and not as tools of language use" (Laufer and Girsai, 2008; 695).

A student's level of vocabulary has been shown to be an important predictor of reading ability and reading comprehension for language learners (Grabe, 1991; MacLaughlin, 1987). However, whether comprehension of the text has an effect on vocabulary learning is a matter that has not yet been investigated. One reason for the lack of significant findings on this matter is that there are many factors involved in understanding a text. Giving a brief overview of studies on reading comprehension and vocabulary development, there have been a few studies concerning the relation between reading comprehension and explicit vocabulary teaching. Webb (2009), for example, conducted a study investigating the effects of pre-learning vocabulary on reading comprehension and writing. The participants were Japanese students studying English as a foreign language who learned word pairs receptively and productively. In order to measure reading comprehension, writing, and receptive and productive vocabulary knowledge four tests were used. Webb (2009) found that pre-learning FL vocabulary may be an effective method of improving reading comprehension and writing.

Nagy (2007) proposed that there is a correlation between vocabulary knowledge and reading comprehension and he called his proposal "metalinguistic hypothesis".

In the light of the research above, there has been some evidence that vocabulary knowledge has an effect on reading comprehension. Moreover, the evidence suggests that teachers need to focus on intentional vocabulary teaching for better vocabulary learning results. However, whether comprehending a reading text results in better vocabulary learning scores is a matter that has not been investigated yet. Therefore, the purpose of the present study is to provide evidence on how much role comprehending a text plays in learning vocabulary intentionally.

METHODOLOGY

Procedures

The purpose of the present study is to investigate the relationship between reading comprehension and intentional vocabulary learning when reading for comprehension.

The study was designed to measure word gains as form and meaning recognition, therefore; productive level of vocabulary learning is not in the scope of this study due to limitations in the data collection.

Moreover, while reading the texts, learners encountered nouns and verbs as target words throughout the study. There may be an effect of grammatical class on word learning as previous studies have claimed that there is (Ellis and Beaton, 1993; Kweon and Kim, 2008). Therefore, in order to find out whether there is an effect of grammatical class, gain and retention of nouns and verbs were compared for each group.

Non-equivalent pre-test post-test design was used in the present study. There were six groups of first year students when the study was conducted. Four groups were asked to take part in the study. Two groups were randomly chosen to be WFT (Word-focused tasks) group. WFT group read the texts, answered the comprehension questions, completed a group of vocabulary exercises, and then completed vocabulary gain measures. The remaining two groups which are called RO (Reading Only) group acted as a control group. RO group read the texts and answered comprehension questions and completed vocabulary gain measures.

Before starting the study, in order to control dependent variables in the study, all participants were given a TOEFL test for the level and a Vocabulary Knowledge Scale to ensure that they are unfamiliar with the target words. Treatments lasted eight weeks. Each week, groups read a different text containing one target word which appeared six times in the text. During the study, the participants got their treatments and immediately after the treatments, they got immediate post-tests. In order to investigate whether the participants can recall the words and whether time plays an important role in recalling, nine weeks later a delayed post-form-recognition test and ten weeks later a delayed post-meaning-recognition test was given.

Participants

The research was conducted at Anadolu University Education Faculty English Language Teaching Department, during 2009-2010 spring semester. The participants were 100 first year students. The students were given a TOEFL test one week before the instructional treatments to make sure that all the participants are at the same level. The students were given structure and written expression part and reading comprehension and vocabulary part, i.e. sections II and III, of the TOEFL test. The students who got between 65 and 75 out of 100 questions of the TOEFL test were selected as the participants in the study.

Before starting the study, the students, who agreed to take part in a study that would take ten weeks, signed a consent form stating that they agreed to take part in this study. Then to avoid the use of name, the students were given codes to be used on each of their paper.

The students were also given a vocabulary checklist before the treatments to make it sure that all participants were unfamiliar with the target words. Besides, all the participants were at similar ages, between 17-19 and all of them were in their first year at Education Faculty. All the participants had the same L1 background, Turkish.

Materials

Selection of the texts based on readability: Eight texts were chosen from daily, weekly or monthly magazine, journal or newspaper web-sites such as the *BBC* website, *The New York Times*, *Science Daily* or books. For each text, a target word was selected (See selection of target words). Each text contained a target word and this target word appeared six times in the text because learners need to encounter unfamiliar words repeatedly in order to make effective use of reading as a source for vocabulary growth (Rott, 1999). Some non-target words that could be either familiar or unfamiliar to learners were replaced with high-frequency words to make text comprehension manageable for participants.

The texts were analyzed by using "Readability Index Calculator" at www.standards-schmandards.com/exhibits/rix/. Readability Index Calculator makes two types of analyses and gives two types of scores: Flesch-Kincaid Grade level and Flesch-Kincaid Reading Ease scores. Flesch-Kincaid Grade level was 12 for each text and Flesch-Kincaid Reading Ease scores were between 39 and 43.

Along with the analysis for text difficulty, the length of the texts were considered and all eight texts were about 415-445 words. The texts were selected considering student interest. Based on students' answers to what kind of texts they like reading and they think interesting, texts were selected from magazine, journal or newspaper web-sites. During the selection process of the texts it was important to find texts that dealt with up to date and interesting topics and such texts that would contain a target word which will be unfamiliar to the learners and which may occur several times in the text.

Concerning readability and unfamiliar words apart from target words, the texts were adapted. The following factors were taken into consideration while adapting the texts: It was important to have a text

in which the target word will occur six times

in which other words will be comprehensible for the learner so that their attention will be on unfamiliar target words not other words

which will be of interest to the participants so that they will want to read.

which will be suitable for their age and level.

Since it was difficult to find such texts in which target words appeared six times, all of the other words are familiar, eight texts that have the same length and reading difficulty level which is suitable to our learner

profile. Therefore, the texts were adapted and they were read and checked by two native speakers to make sure that they still sounded native and authentic.

Reading Comprehension Tests: Each reading comprehension test consisted of ten multiple-choice questions to measure students' ability of comprehending the texts. Each item had one point and the total score of the test was ten. The reading comprehension tests were first, checked by a colleague who has been teaching reading for fourteen years at the same department. Then, in order to determine whether each test is reliable Cronbach's Alpha was calculated for each test. The smallest score is .69, which is close to +1. These results show that the tests are reliable.

Selection of the Target Words: Target words were chosen from low-frequency words and checked from intermediate level textbooks to make sure that they are unfamiliar to the learners. Moreover, in order to determine the frequency levels of the words in the texts, the texts were submitted to an online version of lexical frequency profiles at <http://www.lextutor.ca/vp/>. created by Tom Cobb at the University of Quebec.

Vocabulary frequency profile is a text analysis program used to investigate the proportions of high-low frequency words in a written text. The program has performed a type and token analysis. A token is any occurrence of a word form in the text, regardless of whether it is occurring for the 1st time or many times. A type is any word form which occurs once; regardless of how many more times it might occur. Both numbers and percentages of occurrences are given. A word family is the base form of a word, such as might appear as a headword in a dictionary, plus all the derived and inflected forms of it. A word family is the base form of a word, such as might appear as a headword in a dictionary, plus all the derived and inflected forms of it.

This profile was developed and is used by Tom Cobb available at <http://www.lextutor.ca/vp/>. The web-site informs that Vocabulary Profilers break texts down by word frequencies in the language at large and divide the words of texts into first, second thousand levels, academic words, technical words and the remainder are offlist words. Offlist shows that the words are not in the first 3 lists and are therefore by definition low frequency.

In the present study, selected texts were analyzed for the target words to make sure all target words are at the same frequency level. All of the target words were off-list words.

Eight target words were formed of four nouns and four verbs to control any possible effect of the grammatical category of the unknown lexical items because previous studies claimed that there is an effect of word category in the learning of vocabulary. Concerning the number of words to be learned throughout one semester, other word categories were excluded from the study.

Moreover, the target words in the texts gave enough clues to the learners so that they can infer the meaning by using context clues but there is no direct definition of the target words in the text.

Word focused tasks: For each text, to be given to WFT group, vocabulary tasks were prepared. These contextualized exercises were given to participants after they read the text and answered the comprehension questions.

Paribakht and Wesche (1997) grouped tasks of vocabulary from the vocabulary teaching books and put the tasks into five distinct categories:

1. Selective attention: Providing learners with a list of target words in the beginning of a text and asking them to read the list and notice where the word appears. This category is used to draw the learners' attention.
2. Recognition: Matching the word with definition or synonym, recognizing the meaning from a multiple choice of meanings, choosing the correct picture after seeing the target word or choosing the right word to label a picture. This category is used only to recognize the target words and their meanings.

3. Manipulation: Giving derivations of words, using stems and affixes to construct words. These tasks draw on learners' knowledge of morphology and grammatical classes.
4. Interpretation: Finding the odd word in a series of related words, multiple-choice cloze exercises, guessing the meaning of target words in context. This category involves analysis of meanings of words with respect to other words that are given in the context.
5. Production: Open cloze exercises, labeling pictures, finding the mistake in an idiom. This category requires the learners to use the target words in appropriate contexts.

Referring to Paribakht and Wesche's (1997) categories of task types, recognition tasks were used in this study.

The tasks for each text were prepared by the researcher and were checked by one nonnative teacher of reading and two native teachers of English and one native-like expert to find whether they really draw learners' attention to target words.

Vocabulary Checklist Test: A vocabulary pretest in the form of a checklist was given to make sure that target words are unfamiliar to the participants. Anderson and Freebody (1983) introduced a yes/no format test asking participants to indicate if they are familiar or unfamiliar with the word in the list. This test has been found to be sensitive to partial word knowledge and it has been extended by Knight (1994) by requesting learners to supply the meaning of the word they check as familiar.

The vocabulary checklist test in this study asked participants to indicate if they are familiar with the word or not and request them to supply the meaning of the word they indicate as familiar. This vocabulary pre-test was adapted from Paribakht and Wesche (1997). It contained four parts.

1. I have never seen this word before.
2. I have seen this word before, but I don't know what it means.
3. I know what this word means.
4. The meaning of the word (either in English or in Turkish).

The first part asked students to indicate if they think they have never seen this word before. The second part asked participants to indicate whether they have seen this word before albeit without knowing its meaning. The third part asked participants to indicate if they know the meaning and fourth part asked participants to give the meaning if they thought they knew the meaning.

Vocabulary Gain Measures: To assess acquisition (form and meaning recognition) two types of tests were administered to measure different levels of word learning through reading texts and to receive more generalizable data.

The first test contained the same parts used in the pre-test. It was used as a form-recognition test. The participants were presented with a total of six words consisting of one target word. The participants were asked if they have seen the words before, and if they know the meaning of the words in the list.

The second vocabulary test was administered in the form of a meaning-recognition test to measure receptive gain of meaning at the level of recognition. This test presented six words including the target word in the form of a list and participants were asked to match the correct definition of the word on the next column which consisted of two distracters.

There is a receptive-productive continuum involved in learning a word. Receptive processing is for comprehension and productive processing is for production. These are two different types of cognitive processes. It is assumed that reception precedes production and probably develop in different ways (Laufer,1998). Therefore, these distinctions have important implications in designing vocabulary gain measures.

The purpose of the present study is to find out if there is correlation between text comprehension and vocabulary learning through reading, so it is preferred to measure receptive vocabulary learning.

After all the data was gathered, a scoring procedure took place before the analysis. In order to avoid the element of subjectivity which may be involved in the scoring procedure, another judge marked the tests, too. While determining whether a translation or synonym was appropriate in the form-recognition test, it was possible that different judges could have different judgments. To solve this problem, the other judge, who is a colleague and has been teaching at the same department with the researcher for 14 years, also marked the tests independently. Then the results of the researcher and the judge were compared and in the case of discrepancies, the judge and the researcher arrived at an agreement.

RESULTS AND DISCUSSION

First, comprehension test mean scores were calculated for each test to find out whether there are statistically significant differences among treatment (WFT) and control (RO) groups. The average mean score results are given in Table 1.

Table 1: Descriptive Statistics of the Students' Scores on Reading Comprehension

	N	Minimum	Maximum	Mean	SD
WFT scores on Reading Comprehension	80	70	80	75	3.56612
RO scores on Reading Comprehension	80	68	80	74	2.48420
Valid number (list wise)	80				

According to average calculations on reading comprehension tests, WFT group lowest score is 70 and RO group lowest score is 68. WFT group highest score is 80 and RO group highest score is 80. The mean score is and 75 for WFT group and 74 for the RO group. The results show that both treatment and control groups comprehended the texts.

Mean scores were calculated for each word in order to find whether there are statistically significant differences among WFT and RO groups in the immediate form-recognition and meaning-recognition tests. For the mean analysis of the form-recognition; the following scoring scale test was adapted from Paribakht and Wesche (1997) which was used to find the differences within the groups. The scoring scale was as follows:

Form-recognition

Word	I. I have never seen this word before	II. I have seen this word before, but I don't know what it means	III. I know what this word means (Correct definition)	IV. I know what this word means (Incorrect definition)
score	1	2	3	2

The key for the scoring scale was prepared before the data analysis. A colleague from the same department with the researcher checked the participants' answers independently and then the researcher and the judge

compared their results and got agreement on whether to accept the answer as correct or incorrect if the participants said they know the word and gave the definition.

The mean scores for each target word for the form-recognition test and for the meaning recognition test were calculated. Table 2 shows average mean scores for the form-recognition test and Table 3 shows average mean scores for the meaning-recognition test.

Table 2: Mean analysis results (Form-recognition test)

Factor		disentangle	expedite	altruism	demise	scrutinize	inculcate	deprivation	allure
RO	m	2,1000	1,7600	1,6400	1,9600	1,9600	1,8400	2,4200	2,2600
	n	50	50	50	50	50	50	50	50
	sd	,70711	,43142	,56279	,63760	,53299	,54810	,57463	,72309
WFT	m	2,8400	2,7200	2,7800	3,0000	2,8400	2,9000	3,0000	2,9600
	n	50	50	50	50	50	50	50	50
	sd	,37033	,45356	,41845	,00000	,37033	,36422	,00000	,19795
Total	m	2,5200	2,1467	2,2000	2,3933	2,3333	2,3000	2,7267	2,6000
	n	100	100	100	100	100	100	100	100
	sd	,64214	,60631	,67556	,65433	,59828	,66302	,47624	,61306

Table 3: Mean analysis (Meaning-recognition test)

Factor		disentangle	expedite	altruism	demise	scrutinize	inculcate	deprivation	allure
RO	m	5,0400	4,2000	5,6200	5,3600	6,0400	6,0000	6,4600	4,6400
	n	50	50	50	50	50	50	50	50
	sd	2,49865	2,14761	1,97835	2,08747	2,01990	1,90595	1,98165	2,31023
WFT	m	6,5400	7,1600	7,6600	7,8000	7,7600	7,9200	7,6800	7,5800
	n	50	50	50	50	50	50	50	50
	sd	1,45980	2,05397	,79821	,60609	,62466	,34047	,79385	,97080
Total	m	5,7067	5,5400	6,2400	6,3467	6,6400	6,7333	6,8400	5,9400
	n	100	100	100	100	100	100	100	100
	sd	2,27784	2,35913	2,06498	1,92471	1,83288	1,70930	1,70306	2,18976

The results of WFT group show that most participants say "I know the word" for TWs *disentangle*, *expedite*, *altruism*, *demise*, *scrutinize*, *inculcate*, *deprivation* and *allure* and given meaning for each of the TW is correct. These results indicate that WFT group recognizes and knows the meaning of TWs.

The results of RO group show that most of the participants say they have never seen the TWs *expedite*, *altruism* and *inculcate* although they have encountered these words six times in the texts while reading for comprehension. In the RO group, for the TWs *disentangle*, *demise*, *scrutinize*, *deprivation* and *allure* most of the participants say they have seen these words but they do not know what it means or they say they know these words but given meaning is not correct. This result shows that the participants in the RO group are able to recognize some of the form of the TWS.

The results of mean analyses show that on the meaning-recognition test, WFT group got an approximate score of 8 for each of the TWs. This highest score means that most of the participants in the WFT group matched the TWs with the correct definitions; however, RO group was not as successful as the WFT group in matching the correct definition of the TW.

An Independent T-test was run between WFT and RO groups' scores on immediate form-recognition test and meaning recognition-test for each TW. The highest value is .044 which is less than 0.05. The results of the t-tests for both form-recognition and meaning-recognition show that there is a significant difference between WFT and RO groups in their form-recognition and meaning-recognition.

In order to find out the relationship between vocabulary learning and reading comprehension, Pearson Correlation Coefficient scores were calculated for each TW for form and meaning-recognition tests and comprehension tests. The results of the analysis show that the highest score is .743 which is not very close to +1. The results show that there is not a significant relationship between reading comprehension and vocabulary learning through word-focused activities.

A further analysis compared immediate and delayed post-tests for each group in order to examine how much each group recalled the TWs one or eight weeks after encountering the words. Immediately after the treatments, each group got the form-recognition tests. After all the treatments ended eight weeks later, the participants in each group were given the delayed post-tests for the form-recognition and the meaning-recognition. Paired sample t-tests were run to compare immediate and delayed posttests. Paired-sample t-tests can be used to determine if two means are different from each other when the two samples that the means are based on were taken from the matched individuals.

The results of the post-tests show that RO group cannot recall the target words. This result proves that reading any text for comprehension does not result in vocabulary learning in the long term learning process. Although the participants in the RO group recognized both the form and meaning in the immediate post-tests, they failed to recognize these in the delayed post-tests.

The results of the study did not prove when learners comprehend better they learn vocabulary better by completing word-focused tasks because both WFT and RO groups comprehended the texts. So, the main finding of the study is that comprehension of the text is necessary in order to learn vocabulary. As Stahl and Nagy (2006) argue, words are tools we use to access our background knowledge, express ideas, and learn new concepts. The words the reader knows determine how well they can comprehend texts. Stahl and Nagy (2006) make a note of Stanovich's (1986) reciprocal hypothesis-that the relationship between vocabulary knowledge and reading comprehension goes in two directions. On the one hand, knowing more words would make one a better reader. On the other hand, being a better reader means that one reads more, and if person's vocabulary is gained through reading, better readers would develop larger vocabulary.

Moreover, the results of the present study provide evidence for the debate over incidental versus intentional vocabulary learning. It has confirmed that second language learners can acquire vocabulary through reading for comprehension. According to the supporters of incidental vocabulary acquisition, extensive reading which exposes learners to large quantities of material is beneficial because it is pleasurable and efficient.

However, more effective way proved to be giving learners word-focused activities as they read for comprehension. The study demonstrated that the most word gain is achieved when the learners read for comprehension and later complete a series of word-focused tasks. Completing a series of vocabulary exercises seemed to have tapped different levels of processing capabilities such as recognition and interpretation. WFT group completed a variety of exercises during the instructional period so; they had more opportunities to consciously go through an elaborated mental processing of these words.

As for the pedagogical implications of the study, learners should be given reading texts, encounter the intended vocabulary several times in the reading text to promote acceleration of incidental vocabulary. However, sole reliance on reading is a questionable reading strategy in terms of vocabulary learning. Many important words in the texts will not be learned incidentally. When learners are reading any text for comprehension, they may learn words which are unfamiliar to them if they are given word-focused activities to enhance their receptive vocabulary.

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