

Ali Akbar Ansarin and Mohammad Reza Banan Khojasteh

Retention in Meaning-Based Vocabulary Instruction

Abstract

Vocabulary knowledge is said to play a prominent role in learning a foreign language (Schmitt 2008). There has been considerable debate about the most effective ways for developing learners' vocabulary knowledge. While researchers often claim incidental learning is slow and untargeted, it can supplement in the "contextual" types of word knowledge (Schmitt 2010). Other studies suggest that intentional acquisition is more effective than incidental acquisition (Nation & Meara 2002). There is little research on the effectiveness of various methods within the context of intentional vocabulary learning. In the present study, the effects of conveying meaning through synonyms, dictionary definitions, and context on acquisition and retention of vocabulary items were investigated. Eighty-one female intermediate students of English were taught forty-five vocabulary items using the three abovementioned methods. The results of two delayed post-tests showed that the context method yielded a higher rate of retention both in the immediate test and the delayed post-test compared to the other two methods. The findings of the study suggest pedagogical implications for the incorporation of effective ways of teaching the meaning of vocabulary items in syllabuses.

1. Introduction

Language learners are well aware that mastering a rich vocabulary of the target language is an important ingredient of successful language learning. Learners' needs and the usefulness of the vocabulary items generally determine which items are learned. The following two major types of vocabulary acquisition can be identified: incidental and intentional. Nation and Meara (2002) introduced the following three approaches to vocabulary acquisition: 1) meaning-focused input (listening and reading); 2) meaning-focused output (speaking and writing); and 3) deliberate vocabulary acquisition. Language instructors are tasked with identifying the most

effective way for teaching vocabulary (as well as other language skills) (Hulstijn 1992; de Groot 2006; Schmitt 2008). Therefore, this study aimed at investigating the effectiveness of meaning-based vocabulary instruction in enabling EFL learners to retain vocabulary items.

Researchers emphasize the effectiveness of explicit and intentional methods of vocabulary teaching compared to incidental ones (Schmitt 2008: 341). However, there has been a great debate regarding the most effective way to develop learners' vocabulary knowledge. Within the context of this debate, various pedagogical methods have been considered complementary rather than competing (Hulstijn 1992; Schmitt 2008).

Teachers must adopt a broader view of vocabulary knowledge in the process of vocabulary teaching and learning in an effective and principled way (Schmitt 2008). Among various kinds of word knowledge, teachers can refer to meaning, written form, spoken form, parts of speech, collocations, register, frequency, and associates. If you were to ask "What does it mean to know a word?", the average person might say it means knowing the meaning of the word and knowing how to spell it. At the initial stage, the form-meaning link is the primary aspect of vocabulary knowledge (Schmitt 2010). Laufer (1997) stated that learning a new word involves getting to know its form, word structure, syntactic pattern, meaning, lexical relations of the word with other words (such as synonymy), and common collocations. However, some factors affect the learnability of words, including pronouncibility, orthography, length, morphology, synformy (similarity of lexical forms), grammar (part of speech), and semantic features (such as abstractness, specificity and register, idiomaticity, and multiple meanings). Viewing the question from the perspective of receptive and productive knowledge, Nation (2001) asserted that knowing a word involves getting to know its form (spoken, written, and parts of speech), meaning (concept, referents, and association), and use (grammatical function, collocation, and constraints on use). Field (2003: 15) further argued as follows:

...every content word appears to have close links to others ... learning a new lexical item is not just a question of mastering the form of the item and associating it with a sense or range of senses. It is also linking the item to the whole network of previously learnt words.

It can be inferred that knowing a word is viewed as a continuum from word recognition to productive use. Several studies have examined retention in terms of inferencing from context, attention, conditions, L1 explanation,

incidental and intentional learning, and input modes. For example, Hulstijn (1992) compared the retention of words inferred from a context with words provided with glosses or sample sentences reporting that inferred words were better retained compared to given words, when certain cues were available. Joe (1995) found that attention to new words, retrieval, and especially use in novel contexts (“generation”) contributed to word retention. He emphasized the importance of language output in incidental learning. Hulstijn et al. (1996) compared retention of new words in the following three conditions of conveying the meaning of words: through gloss, availability of an electronic dictionary, and control. Their study demonstrated that word frequency contributed to learning when reading was supported by gloss or dictionary. In another study, Laufer and Hill (2000) provided explanations of words in English, L1 translation, sound, root, and “extra” information to learners. They showed that the use of multiple dictionary information such as word explanation in English, L1 translation, sound and root reinforced incidental acquisition. In line with previous research, Hulstijn (2001) conceptualized the notions of incidental and intentional learning, asserting that although the distinction between them could be operationalized in research, such a distinction had no significance for word retention. Webb (2007) examined the effects of context on grammatical functions, syntagmatic association, paradigmatic association, orthography, and meaning and form by measuring receptive and productive knowledge of orthography, meaning, paradigmatic association, syntagmatic association, and grammatical functions. Brown et al. (2008) studied L2 vocabulary acquisition using the following three input modes: reading, reading while listening, and listening to stories. The lowest uptake was in the listening mode.

As Schmitt (2008) and Hulstijn (1992) observed, there is a dilemma in the selection of an effective approach for vocabulary instruction. Hence, the present study intended to investigate the effect of three different ways of conveying meanings of vocabulary items – namely, using context, using dictionary definitions, and using synonyms – on acquisition and retention.

2. Purpose of the study

In order to ensure that the research was in line with the established goals of the textbook used nation-wide in schools, this study compared the effect of three instructive approaches of conveying meanings (using synonyms, definitions, and context) on vocabulary acquisition (through immediate

tests) and on retention of the items (through delayed post-tests). This study investigated the following research questions:

1. Is there any difference among the effects of conveying meaning through synonyms, dictionary definitions, and context on *short-term* learning of vocabulary items?
2. Is there any difference among the effects of conveying meaning through synonyms, dictionary definitions, and context on *long-term* retention of vocabulary items?

3. Methodology

3.1 The participants

The participants were 81 female high school students around the age of 17 studying English as a general course in an EFL context. They were divided into 3 groups of 27; group 1 as the context group, group 2 as the definition group, and group 3 as the synonyms group. The English proficiency level of the participants was assessed (which turned out to be at the intermediate level) using a homogeneity test (Lesley et al. 2005) for comprehension and production.

3.2 Materials

Forty-five vocabulary items were selected to be taught to the participants. Two criteria were taken into account to choose these words. First, the items were chosen from the students' pre-university English textbook which they were supposed to cover the following year; therefore, need and motivation requirements (Oxford & Scarcella 1994) were met. Secondly, the selected vocabulary items were chosen based on their frequency in accordance with the Oxford 3,000 keyword list to comply with the 3,000 most common words English learners need to study. The words on the list were chosen with respect to the three criteria of frequency, range, and familiarity (The Oxford 3000™ 2013).

For the experiment, the context was restricted to single sentences taken from *Oxford Advanced Learner's Dictionary* (Hornby & Turnbull 2008); for example, for the target word "value", the sentence "You'll find this map of great value in helping you to get around in Tehran" was provided; or for the word "urgent", the sentence "Look! That man doesn't

know how to swim and needs urgent help” was given. However, some sentences were modified so that they did not include unknown words for the participants. Dictionary definitions, regardless of their length, were also taken from the same source. For the abovementioned examples, the definitions “*the worth of something in terms of money or other goods for which it can be exchanged*” (for the word “*value*”) and “*requiring immediate attention or action*” (for the word “*urgent*”) were provided. Unlike the context, these definitions were not modified by the researchers. Finally, the synonyms used to convey the meaning were taken from *Oxford Dictionary of Synonyms and Antonyms* (Spooner & Whitcut 1999). For the same target words mentioned above, the synonyms “*worth*” and “*necessary*” were provided.

The selected vocabulary items were divided into three parts (each containing 15 words). Three single-page handouts were constructed and given to students during the treatment. The handouts contained the same vocabulary items for each group; however, each handout used a different way of conveying meaning for the same word across the groups.

3.3 Procedures

Having verified the homogeneity of the groups, the instruction started by randomly assigning the classes to one of the three learning conditions of context, definition, and synonyms. A brief introduction on the importance of vocabulary and the use of respective methods was provided for the participants. Participants were told that they would be asked to learn 45 new English words; however, they were not informed about the immediate and delayed post-tests. The treatment was administered in three sessions; fifteen vocabulary items were taught to the participants during each one of these sessions. Each instruction session lasted for 30 minutes.

After the vocabulary items were taught, a test containing 15 multiple-choice questions was constructed and administered. It must be noted that the participants were not informed that they would be tested on the items being taught to them. The time allotted for each test was 15 minutes for each group.

Two delayed post-tests were administered to investigate the effect of teaching methods on retention of vocabulary items. The tests (each consisting of 15 multiple-choice questions) were constructed as a delayed post-test of the study and were administered 4 weeks and 8 weeks after the

immediate test. Similar to the immediate test, the time allotted for the delayed post-tests was 15 minutes for each group.

4. Results

4.1 Effect of different instructive approaches of conveying meanings

The first objective of the study was to compare the effect of three instructive approaches of conveying meanings (context, dictionary definition, and synonyms through an immediate test).

As Table 1 shows, in the immediate test, the context group outperformed the definition group and the synonyms group with a mean of 12.57 out of 15. The synonyms group also gained better results compared to the definition group with a mean of 10.26. The definition group scored the lowest with a mean of 8.41.

Table 1. Descriptive statistics of the independent groups on tests

Groups	N	Immediate Test Mean	Delayed Post-test 1 Mean	Delayed Post-test 2 Mean
Context	27	12.57	11.53	8.13
Definition	27	8.41	6.56	4.33
Synonyms	27	10.26	5.26	5.04
Total	81			

The mean differences among groups were statistically significant, i.e., the p-value for the groups was less than 0.05 probability of chance, and thus there was a statistically significant difference among the effect of instruction on vocabulary acquisition. See Table 2 for the details.

Because the differences in the immediate test were statistically significant, post hoc comparisons were applied. Based on Scheffé's post hoc analysis (1959), a method for adjusting significance levels in a linear regression analysis to account for multiple comparisons (as summarized in Table 3), the difference between the definition group and the synonyms group was not statistically significant. However, the difference between the context group and other groups was significant, as the p-values are less than 0.05.

Table 2. ANOVA Test for the significance of differences across the groups on the immediate test

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	328.988	2	164.494	21.771	.000
Within Groups	589.333	78	7.556		
Total	918.321	80			

Table 3. Scheffé's post hoc comparison of results among the groups (immediate test)

(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.
Context	Definition	4.159*	.806	.000
	Synonyms	2.307*	.806	.020
Definition	Context	-4.159*	.806	.000
	Synonyms	-1.852	.827	.088
Synonyms	Context	-2.307*	.806	.020
	Definition	1.852	.827	.088

*) The mean difference is significant at the 0.05 level.

4.2 Retention of vocabulary items

The second phase of the research dealt with whether there was a difference among the effects of the selected methods of conveying meaning on retention of vocabulary items. Table 4 shows that the mean difference among groups on the delayed post-test 1 was statistically significant.

Table 4. ANOVA Test for the significance of differences across the groups on the delayed post-test 1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	690.840	2	345.420	74.049	.000
Within Groups	363.852	78	4.665		
Total	1054.691	80			

Similar to the immediate test, the context group outperformed the definition group and the synonyms group with a mean of 11.53. The definition group also achieved better results than the synonyms group with a mean of 6.56. The synonyms group scored the lowest with a mean of 5.26. These data were already depicted in Table 1. The data were analyzed and revealed a significant difference across the groups in that there was a statistically significant difference among the effect of instruction on (short-term) retention of vocabulary items.

The delayed post-test 1 provided the answer for the second research question regarding whether there was any statistically significant difference among the effects of conveying meaning through synonyms, dictionary definitions, and context on the retention of vocabulary items. However, another delayed post-test was administered to further check the results.

In the delayed post-test 2, the context group outperformed the definition group and the synonyms group with a mean of 8.13 out of 15. The synonyms group also achieved better results than the definition group with a mean of 5.04. The definition group scored the lowest with a mean of 4.33. The results of the one-way ANOVA test, as shown in Table 5, confirmed the mean difference among groups in delayed post-test 2 with a significance value of 0.000.

Table 5. ANOVA Test for the significance of differences across the groups on the delayed post-test 2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	241.407	2	120.704	18.367	.000
Within Groups	512.593	78	6.572		
Total	754.000	80			

The significant differences across the groups in all three phases of the research can be explained by the fact that there was a statistically significant difference among the effect of selected methods on long-term retention of vocabulary items. Since the mean differences in the immediate delayed post-tests were significant, post hoc comparisons were applied.

As mentioned before, in both delayed post-tests, the p-values for the groups were less than 0.05 probability of chance, so the difference among the effect of the types of instruction on vocabulary acquisition was confirmed statistically. Similar to the immediate test, the results for the context group was significantly different from the results for the definition group and the synonyms group, both in the delayed post-test 1 and the delayed post-test 2. Even though in the ANOVA test there was a mean difference between the definition group and the synonyms group, based on the post hoc analyses, the difference between these two groups was not statistically significant.

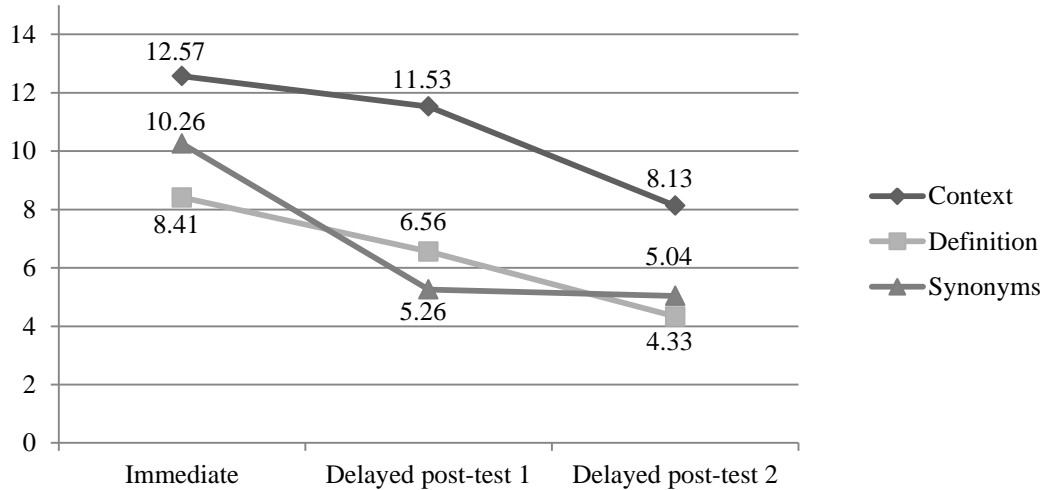
Figure 1. Performance in three methods of vocabulary instruction

Figure 1 presents an overall view of the means of the immediate test and two delayed post-tests of the current study among the three experimental groups. Compared to the definition and synonyms methods, the context method produced a significant difference. The result indicates the effectiveness of this method of instruction in terms of vocabulary acquisition. Similar gains were observed on the delayed post-test, which is a sign of a durable learning.

3. Discussion

Vocabulary researchers are concerned with both short-term and long-term attrition (language loss that is gradual rather than sudden). According to Schmitt (2010), lexical knowledge is more likely to experience attrition compared to other linguistic aspects, such as phonology or grammar. Attrition happens during an invariant time period but in a systematic way when explicit engagement outperforms incidental engagement.

This study tested the vocabulary knowledge of the learners at recognition level, where learners were asked to choose the meaning of certain words on multiple-choice tests (rather than recalling or producing the target words). All three methods of conveying meaning (through synonyms, context, and dictionary definitions) had an effect on the acquisition of vocabulary. Along these same lines, Hulstijn (2001: 711) observed as follows:

...an important element of fluent language use is automatic word recognition (in listening and reading) and automatic word retrieval (in speaking and writing). Words cannot be recognized if they are not known. The acquisition of a large vocabulary should, therefore, constitute a key element in any L2 curriculum.

Hence, it can be concluded that the learners knew the words on the tests, a result which demonstrated the effectiveness of instruction.

The results indicated that the context method had a more significant effect compared to dictionary definitions and synonyms. This can be interpreted as real and durable learning, suggesting the potential value of using the context method for higher retention of vocabulary items. Unlike Hulstijn (1992), where meaning explained by synonyms was the least effective task, in the present study the meaning explained by dictionary definitions, though not statistically significant, was the least effective task based on the comparison of means. This might be due, at least in part, to the length of the definitions learners had to keep in their minds compared to single-word synonyms and single-sentence contexts. The fact that the synonym method resulted in a relatively lower mean in the immediate test could be attributed to the effect of discreteness of the given word. The fact that the definition method resulted in the lowest mean in the immediate test can be due to the length of the provided dictionary definitions imposing a greater cognitive load on memory.

The results were also dissimilar to Webb (2007) in that there was no significant difference between the scores of subjects who met target words in a single glossed sentence and those who learned word pairs, suggesting that single glossed sentence context may have little effect on vocabulary knowledge. However, the present study defined vocabulary learning by a subject's ability to demonstrate knowledge of meaning and form as a word recognition activity.

The obtained results confirmed that learning did occur as a result of all three methods; that is to say, the instruction could be considered effective because the vocabulary items were taught by the researchers while conducting the study. The overall superiority of the context method can be attributed to the fact that words are not stored in the mind independently but are connected to previous knowledge (Field 2003).

The fact that the mean scores obtained in the delayed post-test dropped compared to the immediate test can be attributed to the loss of access to the meaning (Field 2003). The results of this study on the delayed post-test confirmed that forgetting (attrition) also occurred, although the degree to which this happened varied. On the immediate test, the students

in the context group were able to retain nearly 1.2 to 1.4 times as many correct words as students in the synonyms and definition groups, respectively. Moreover, the students in the synonyms group were able to retain nearly 1.2 times as many correct words as students in the definition group.

An overall comparison of the means showed a gradual loss for the context method, while the other two methods experienced a sharper loss on the delayed post-tests. In the first delayed post-test, the definition group achieved slightly better (though statistically insignificant) results.

4. Conclusion

This study compared the effects of three instructive methods of conveying meaning – namely, synonyms, dictionary definitions, and context – on acquisition (effectiveness of the method) and long-term retention of English vocabulary items among female third-grade high school students.

In general, the ANOVA test revealed a statistically significant difference among the three instructive approaches. Scheffé's post hoc comparison of the results among the groups in both the immediate and delayed post-tests showed that the context group outperformed the definition group and the synonyms group (with significant p-values).

Overall, it appears that the reason the definition group had the lowest mean was due to the length of the dictionary definitions presented to the learners. The synonyms group achieved a relatively higher mean compared to the definition group due to the fact that the provided meanings were in the form of single words (the shortest among the three groups). Finally, the context method proved to be the most effective method in vocabulary instruction. In other words, conveying meaning through context is a more effective way of teaching vocabulary than dictionary definitions and synonyms.

Emphasizing the role of vocabulary knowledge in an EFL context, it is speculated that recycling and revision activities should be included in vocabulary acquisition programs. Moreover, syllabuses should be designed in a way that recycling occurs within the retention period so that the amount of vocabulary loss is reduced. It is believed that learners are likely to welcome various activities in their classes, assuming these activities are relevant and appropriately contextualized. It is further suggested to include recycling activities – including vocabulary games, explicit review sessions,

and the incorporation of previously taught vocabulary in example sentences – into vocabulary learning curricula.

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Contact information:

Ali Akbar Ansarin
Department of English
University of Tabriz
Tabriz, Iran
e-mail: aa-ansarin(at)tabrizu(dot)ac(dot)ir

Mohammad Reza Banan Khojasteh
Department of English
University of Tabriz
Tabriz, Iran
e-mail: reza(dot)banan(at)gmail(dot)com