

The Effects of Context Richness and Different Task-demands on Incidental Vocabulary Acquisition and Retention

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Abstract—Incidental learning in reading is an effective way to expand vocabulary acquisition and there are many factors influencing the effect of it. This proposed paper will make an attempt to explore how and to what extent different kinds of tasks based on reading and different contextual richness affect the recognition and retention of vocabulary encountered in reading. 50 sophomore English majors at the same English proficiency level from a university in Xi'an will be selected and be asked to complete different reading processes, which aim to investigate the role of context richness and task demands respectively in incidental learning. The data will be collected from the scores from every task and be analyzed with one-way ANOVA and multi-way ANOVA through SPSS.

Index Terms—incidental learning, vocabulary acquisition, context richness, task-demands, involvement load

I. INTRODUCTION

Second Language Vocabulary Acquisition and Reading

In recent years, the relationship between reading in second language and vocabulary acquisition has been one focus of SLA studies. Some scholars (Lewis, 1993) believe that the words acquisition is the center of L2 acquisition since it supports the practice of almost every kind of language skills such as reading, listening, writing, etc. With the increasing concern on the role of words in L2 acquisition, more and more relative researches were undertaken in this field, for example, we know something about at what rate learners can learn new words from their reading, how many words we need to read effectively in a second language, the frequency of a word we need to learn in reading and how well the reading is retained, etc. (Laufer & Hulstijn, 2001; Hulstijn, 1996; Joe, 1998; Newton, 1995; Pulido, 2003).

According to Elley (1991), extensive reading coming from the “Book Flood” studies has significant effects. In these studies, students are exposed to large amount of extensive reading materials chosen from various fields of interests. These studies (Elley & Mangubhai, 1981) lasted eight months and brought about dramatic improvements in wide range of language skills including reading comprehension, knowledge of grammatical structures, word recognition, oral repetition and writing (Paul, 2004). Although these improvements could have not occurred without substantial vocabulary growth, it can be sure that there are two variables in these studies which provide much insight for the further researches. One is focusing on meaning rather than form and the other is the incidental learning.

Contrasted with intentional learning, incidental learning is defined by Schmidt as “a learning strategy through which learners learn words unconsciously when doing other duties instead of intentional learning which is a conscious and intensive learning process.” (Li, Tian, 2005, p.52) The use of the term “incidental learning” dates back to the beginning of the twentieth century, being used in experimental psychology for a long time. In the relevant empirical studies of incidental learning, subjects usually are told to complete some activities involving the process of some information without being told in advance that they will be tested afterwards on their recall of that information (Laufer & Hustijin, 2001). Joe (1998) also mentioned that in the process of incidental learning, learners pay their attention on the comprehension of other activities rather than specific words, though they can still “pick up” certain words, which can be seen as the by-product of other cognitive processes. From this point of view, it can be seen that incidental learning can be used to investigate where the subjects have paid their attention on their own selection in the process. Given a more general, educational meaning, incidental learning refers to the learning without an intention to learn, however, it should be noticed that such kind of learning cannot be confusing with the notions of implicit and explicit learning process since the implicit learning occurs only incidentally while the explicit learning can occur both incidentally and intentionally.

When the incidental learning is applied in vocabulary learning, its effects prove to be significantly evident. To some extent, the incidental vocabulary learning occurs in activities training other language skills, however, according to Ge Shuhua (2003), the incidental vocabulary acquisition is generally accepted to occur in the process of reading for comprehension, which is seen as a good way to broaden the vocabulary size (Pitts, White & Krashen, 1989; Zahar et al., 2001, etc).

Contrasted with the direct instruction on vocabulary learning, or the intentional learning, the incidental vocabulary acquisition has several advantages as followed:

a) It is contextualization, giving the learner a richer sense of a word's use and meaning than can be provided in traditional paired-associate exercises, b) it is pedagogically efficient in that it enables two activities----vocabulary acquisition and reading ----to occur at the same time, and c) it is more individualized and learner-based because the vocabulary being acquired is dependent on the learner's own selection of reading materials (Huckin, 1999, p. 182).

However, according to Huckin (1999), the simple extensive reading for meaning does not lead automatically to the acquisition of vocabulary. Since incidental acquisition is a complex psychological process, there are kinds of factors that can influence the effect of incidental vocabulary acquisition to different extent, such as the individual's English reading proficiency, the topic of reading materials, the frequency of the target words in reading, reading purposes, the vocabulary size, students' ability of guessing words, different reading tasks and different context, etc.

Since there is growing interest in the field of incidental learning in SLA, this paper aims to explore how and to what extent different kinds of tasks based on reading and different contextual richness affect the recognition and retention of vocabulary encountered in reading. 50 sophomore English majors at the same English proficiency level from a university in Xi'an were selected and be asked to complete different reading processes, which aimed to investigate the role of context richness and task demands respectively in incidental learning. In order to make sure that these participants are at the same level of English vocabulary proficiency, a test will be undertaken before the real study. The test adopts the Nation's (1990) Vocabulary Levels Test, which has 90 test words, representing 5 different levels. This study is carried out with three research questions:

1) How and to what extent are students aware of the target incidental words in the reading before they read the questions followed?

2) To what extent does the contextual richness affect the recognition of incidental vocabularies? How long can students retain the words in different contexts?

3) How do different kinds of tasks influence the effect of incidental vocabulary acquisition? What kinds of tasks facilitate the incidental vocabulary acquisition?

The data were collected from the scores from every task and be analyzed with one-way ANOVA and multi-way ANOVA through SPSS. With the final results, it can be seen that tasks which involves more attention and efforts from learners will facilitate the acquisition and retention of vocabulary than those which involves less, meanwhile, the contextual richness is not that significant in the process of incidental learning.

II. LITERATURE REVIEW ON RELEVANT RESEARCHES OF INFLUENCING FACTORS

As mentioned above, there are many factors influencing the effect of incidental vocabulary learning, and generally researchers treat them as the focuses of studies. Pulido (2003) investigated topics of reading materials and learners' English reading proficiency's effect on the incidental vocabulary learning. The subjects are 99 adults whose mother-tongue is Spanish. There are four passages tested, two of them are familiar topics while the others are not. The students are examined by the preliminary learning test for adults to test the English reading proficiency. After the study, Pulido adopted the F-test and regression analysis to analyze the data. The conclusion is 1) learners who has high-level proficiency can learn more incidental vocabularies and can retain them well; 2) learners can learn more words and retain them better when the passage is familiar with them. So there exists a positive correlation between these factors and the effect of incidental learning.

On the aspect of the frequency of unknown words in reading, several researchers have conducted relevant studies to explore how many times we need to learn them. According to studies of Saragi, Nation & Meister (1978), subjects can learn 93% of words that had been presented to them six times or more but words represented to learner fewer than six times were learned only by half. Jenkins, Stein & Wsocki (1984) discovered that only 25% of their learners had learned words after 10 meetings. Nagy, Herman & Anderson (1985) showed that the likelihood that a word would be learned after one meeting was 0.15. Rott (1999) concluded that six encounters was an adequate number. And according to Zahar, Cobb & Spada (2001) found that low-level learners needed more encounters to learn a word than more proficient learners, which may be in line with the discovery mentioned when discussing the influence of language proficiency.

Ge Shuhua (2003) investigated how reading purpose affects the incidental vocabulary learning. 50 sophomore English majors were divided into two groups according to different reading purposes. Group A were asked to answer questions after reading while group B were required to restate the main idea of this passage. Results showed that the scores got in group B were higher than that of group A in tests and posttests, which means students who were required to restate the main idea learned more words and retain them better and longer. What can be inferred is that reading purposes can affect the incidental vocabulary learning.

Considering all these factors and studies, researchers should notice the cognitive process, in which the effort and attention is clearly connected to final results of incidental learning (Huckin, 1999).

Attention is governed by task-demands to large extent. For different task demands, learners should select information encountered in reading and then decide how and to what degree they should pay attention on them. Laufer & Hulstijn (2001) investigated the influence of different tasks on incidental vocabulary learning. They claimed that there was a close relationship between these variables. For different reading task-demands, learners should pay different amount of involvement, which is known as the "involvement load hypothesis", claiming that the learning new words during

vocabulary-focused tasks is dependent on the degree of cognitive processing required of a L2 learner by a given task. The construct of involvement is composed of three components: need, search, and evaluation. The component “need” refers to the motivational, non-cognitive dimension of involvement, which depends on whether the word is required for completion of the given task. “Search” and “Evaluation” consist of the cognitive dimension of involvement while both need attention to word meaning and word form. “Search” happens when the learner tries to find the meaning of an unknown L2 word in a dictionary or from teachers or peer students while the evaluation occurs when students should judge and use the words encountered in reading. If the scores for need, search, and evaluation are summed up, the final value can be used to predict the level of the involvement load. The higher the level of involvement load, the more effective the task is in promoting vocabulary acquisition.

However, the Hebrew-English Experiment and the Dutch-English Experiment’s respective results made by Hulstijn and Laufer (2001) showed different inferences towards the involvement hypothesis. The former one was proved to be in line with the involvement load hypothesis: the composition group scored significantly higher than the gap-filling group on both posttests, and the gap-filling group scored significantly higher than the reading group. In the contrary, the results of the Dutch-English Experiment lent only partial support to the involvement load hypothesis. In the experiment, scores obtained for the composition group and the gap-filling group was consistent with what was predicted by the hypothesis. But the gap-filling group did not achieve significantly higher scores than the reading group on either posttest. According to this, more relevant studies on how different tasks influence the incidental learning are expected since they can provide more implication on pedagogy.

One important process to facilitate incidental learning is guessing words’ meaning through contextual clues. The context in vocabulary acquisition refers to the surrounding syntax and semantic environment in text. The target words can be located in different contexts. Researchers like Beck (1983) claimed out four types of contexts: directive context, undirective context, misdirective context and general context. Directive context helps students to get the specific meaning of words while the general context can only help students to know the general or vague meaning of words. In the misdirective context, the guessing or prediction of unknown words will be misled while the nondirective context has nothing to do with the acquisition of unknown words; there are always researchers who aimed to find out what kind of contexts can facilitate or hinder the incidental vocabulary learning. Beck, McKeown and McCaslin’s (1983) claim that “it is not true that every context is an appropriate or effective instructional means for vocabulary development.” They conducted an experiment involving subjects who were given passages from basal readers. The researchers “categorized the contexts surrounding target words according to their four-part scheme and then blacked out all parts of the target words, except morphemes that were common prefixes or suffixes...Subjects were instructed to read each story and try to fill in the blanks with the missing words or reasonable synonyms.” Their finding is that natural texts contain a high proportion of contexts that are unsupportive or even misleading for word learning purposes. Rapaport (2005) maintained that the purpose of contextual vocabulary acquisition should be taken into consideration. If its purpose is thought of as getting a meaning sufficient for understanding the passage in which the unfamiliar word occurs, it can be very effective, even with an unproved “misdirective” context. However, there is no complete agreement on the issue of what kind of context can facilitate the acquisition of new words till now. Some researchers and teachers believe that rich and supportive context can facilitate the incidental vocabulary learning, some even design an especially clear context for word acquisition. However, some other researchers (Cross, 2002) disagree with this kind of view. They claim that learners will not acquire and retain a word if they get or guess the meaning easily. Without a deep processing, these words cannot be part of the second language knowledge of the learners.

Mondria and Wit-de Bore investigated which contextual factors influence the guess ability of words, how these factors affect receptive retention, and what the relationship is between correctly or incorrectly guessing and retention. According to their study, it can be inferred that factors that are helpful to guess the words’ meaning may not be helpful to remember the words. And when referring to the conclusion of studies made by Zahar et al. (2001), what can be inferred is that learners do not really remember or get the new words if the context is redundant for them to understand the words’ meaning. In the contrary, although the mix of kinds of contexts may hinder the reading comprehension, to some extent it facilitates the incidental words acquisition through deeper cognitive processing. When Zahar et al. replicated Horst et al.’s (1998, 2000) research, they have found that frequency needs was related to learner level while contextual richness was unrelated to learning.

When the relevant researches on the influences of different task-demands and different contextual richness are reviewed, it can be found that there are few studies exploring the correlation and connection between these two factors and the combined effect on incidental vocabulary learning in reading. According to this, the proposed paper aims to explore the effect of different kinds of task based on passage and to investigate to what extent the contextual richness affects the recognition and retention of vocabulary encountered in reading.

III. METHODS

A. Participants

The participants in this study will be 50 sophomore students who have just completed their TEM 4 test. They will be selected from a university in Xi’an and they have an average of 7 to 8 years of experience to learn English as second language. In order to make sure that these participants are at the same level of English vocabulary proficiency, a test

will be undertaken before the real study. The test adopts the Nation's (1990) Vocabulary Levels Test, which has 90 test words, representing 5 different levels. These five levels are 2000 words level, 3000 words level, 5000 words level, university level, and 10000 words level. According to the requirement of TEM 4, students passing this exam may have around 8000 words, thus the 2000 words and 3000 words levels will be deleted. Every student was scored for each of these three levels. The correctly matched answer will be scored one point but those mismatched or ignored words will not be scored. After summing up the total scores and being divided by the total number of words, the average English vocabulary proficiency will be inferred. If there is significant differences between the students' vocabulary proficiency, they should be sub-divided into groups according different proficiency level while if not, they will be treated as a whole group.

B. Instruments

1. Reading text

It is significant to find a proper reading text which is at an appropriate vocabulary level which is challenging for students to encounter words at 10000 words level. From this perspective, an article named *Internet and Education* is selected, which is above the level of TEM 8 with 1208 words. In order to test whether this text is within the range of the participants, it will be read by computer and analyzed with concordance. Since the context richness is a main variable in the proposed study, the text should contain four types of contexts claimed above.

2. Target words

Target words selected should be unfamiliar with most of the students and at least fall into one type of context richness mentioned in the previous part. There will be twenty words with 75% coming from 10000 words level, 20% from university level list and 5% from 5000 words. These words should be pretested in advance to make sure that students are unfamiliar with them, however, it should be noticed that the time between the pretest and the study should be long enough. These 20 words should be divided into two groups, group A with 10 words for task 1 and group B with 10 words for task 2. When the words are grouped, it should be guaranteed that both groups should contain the four types of contexts mentioned above.

3. Tasks

There will be two kinds of tests for students after reading. Task 1 aims to test students' receptive knowledge of words encountered in reading, only requiring students to match these words to Chinese meaning or synonyms listed in corresponding column. The expected results are that there will be great increasing in vocabulary gain from the pretest to task 1.

Task 2 tests students' productive knowledge after reading. There are two sub-tests in it. The former asks students to replace words in sentences with words or phrases they have learned in the text while the latter requires them to make sentences using the rest target words. These can test students' knowledge and ability to use these words, through score of which it can be inferred how different task demands affect the learning of target words.

Task 3 will be taken to test students' words retention respectively after two days, one week and 15 days. The test will also be a matching form, in which the correct answer will be scored one point while the wrong or ignored ones will not be scored. The sum score of these words are expected to show how effective different context richness and different tasks influence incidental vocabulary retention.

C. Procedure

1. Before undertaking the study, researchers will test participants' vocabulary ability with Nation's Vocabulary Levels Test. The results will determine whether these participants should be divided into sub-groups according to their different vocabulary levels, or they should be treated as a whole group. Researchers will make it clear to students that they should ignore the unknown words and do not look for the help from dictionary or other students, which will guarantee that the scores can reflect their true vocabulary ability.

2. After the vocabulary test determined how to group participants, a pretest will be undertaken to test the degree of similarity of these words to participants. Researchers will hand out test papers to students and ask them to finish in 5 minutes. After this process, scores will be calculated immediately.

3. 10 days after the pretest is undertaken, the real study will begin. In order to make sure that students can complete the reading without being disturbed by other factors, they will all be required to read in 15 minutes all together in a classroom. After reading, students will be presented two tasks. First they should finish task 2, which contains 10 sentences. Students will be expected to replace five words in five sentences with the similar words they have encountered in reading and make five sentences with five words. This process will last 12 minutes. After that, task 1 will be completed by students, requiring them just to match the meaning of 10 targets words, which is similar to the pretest but in different order. If the task 1 is undertaken before task 2, there will be possibility that students will be influenced by hints of answers provided in task 1. After both tests are finished, scores will be calculated by researchers.

4. The re-test will be taken respectively after two days, one week and 15 days. All these 20 words will be mixed together no matter which tasks they belong to in the previous sections. This re-test is just to ask students to match the correct meaning to words listed and the only purpose is to test how well the words can be retained. Scores can be calculated and analyzed by researchers to judge how different tasks and context richness affect words recognition and retention.

D. Data Collection and Analysis

In these tests, one correct answer will be scored with one point while the wrong or ignored ones will not be scored. Researchers will calculate scores for every test and analyze through the SPSS software. For task 1 and 2, the multi-way ANOVA test of scores the within group A and group B will show how different context richness affect the incidental vocabulary learning while the One-way ANOVA analysis between group A and B test analysis will reflect how different task-demands make differences to learn words incidentally. Similarly, scores for task 3 will be helpful to analyze how different tasks and context richness affect words retention.

IV. RESULTS AND DISCUSSIONS

The following table lists the descriptive statistics of the three tasks and presents a general idea about the results.

Tasks	M	S.D.	Gains (%)
T1	7.71	1.72	77.1
T2	7.06/3.97	1.51/1.58	70.6/39.7
T3	7.20	1.73	72.0

*Descriptive statistics of the results

As shown in the table, from the pretest to task 1 the students demonstrate a very good command of the meanings of vocabulary. It is easy for them to find their Chinese meaning and synonyms. Hence, a very good vocabulary gain can be found in T1. While as for T2, we can easily find two opposite results. In T2, we have two sub-tests. In the former the students are supposed to replace the words with what they met in the reading, in which they did very well. But in the latter when they are required to make sentences with what they dealt with, they found much difficulty in doing so. So we do find that different tasks would exert different influences on vocabulary acquisition. In T3, since there are four types of context in the reading text *Internet and Education*, gains in this task show another good result on incidental vocabulary retention. To summarize, these findings can be proof of the role of context richness and task demands respectively in incidental vocabulary learning.

V. CONCLUSIONS

The above analysis and discussion show that task types and contextual richness affect the acquisition and retention of vocabulary to varying degrees. Specifically, different tasks presented to the language learners have a different influence on vocabulary acquisition and use. Those tasks that need learners to get the main idea help to understand the spelling and meaning of vocabulary, while, unfortunately, for those tasks requiring learners to use vocabulary correctly, the learners tend to show a poor command of vocabulary usage. In contrast, contextual richness contributes to acquisition of lexical meaning, which entails not only attention but also explicit processing by the learners.

Important implications can be drawn for language teachers and learners. Language teachers can focus their instruction on those tasks that encourage learners to get the main idea of the texts so as to make learners full of sense of achievements. Then the teachers would go further to lead the learners to pay more attention to how to use vocabulary. On the other hand, language learners are recommended to concentrate on key words to get general meaning of the material, so that they may make the salient input unconsciously, hence acquiring vocabulary knowledge through different tasks. Future research is suggested to design more strict instruments and procedures to determine how to combine different tasks to help learners to grasp overall knowledge of vocabulary.

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