Incidental EFL Vocabulary Learning and Reading

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During the process of first language development, children learn new vocabulary incidentally from listening and reading situations. While it has been claimed that the same is true for second language learners, there is a paucity of empirical evidence. This paper reports the results of an investigation whose purpose was to determine if Japanese EFL students could learn vocabulary incidentally while reading silently for entertainment in the classroom. The findings demonstrate that such incidental vocabulary learning did occur for both high school and university students.

INTRODUCTION

It has been well established that children acquiring their first language learn words at a rapid rate. Nagy and Herman (1987:21), for example, claim that, for children learning English as a first language, as many as 3,000 words may be learned per year between grades three and twelve. However, only a small percentage is generally acknowledged to be learned via direct instruction (cf. Jenkins and Dixon 1983; Durkin 1979). It is believed that children learn new vocabulary incidentally from listening and reading.

There have been numerous investigations to support the belief about reading and indirect vocabulary learning, including Saragi, Nation and Meister (1978), Jenkins, Stein and Wyoski (1984), Konopak, Sheard, Longman, Lyman, Slaton, Atkinson and Thames (1987), and Nagy, Anderson and Herman (1987). These studies found evidence showing that children could learn vocabulary indirectly in context while reading. Nagy, Anderson and Herman (1987:261) claim that the results "demonstrate beyond reasonable doubt that incidental learning of word meanings does take place during normal reading".

Krashen (1989) extends this claim to second language learning. In a detailed review of both first and second language literature on reading and vocabulary, he states that reading will result in vocabulary acquisition. Krashen bases his claim on the input hypothesis (IH): Comprehensible input may result in second language acquisition. IH claims that second/foreign language is acquired by a focus on the message and not on the form of the message. However, the evidence for second language students learning vocabulary while reading is not as well established as it is for first language learners.

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Wodinsky and Nation (1988) investigated the potential contribution that graded readers could make to vocabulary learning. They studied the word frequency of two graded readers and, on the assumption that ten repetitions were needed for learning, found that it would be possible for EFL students to learn the vocabulary at a particular level but to do so would require reading several texts at that level. They also found that it would not be necessary for a student, when moving to the next higher level, to learn the new vocabulary introduced at the new level. They claim that graded readers allow for readers to learn unknown words from context. This study, while helpful, is limited in that it did not attempt to determine if indeed such vocabulary learning takes place. Wodinsky and Nation acknowledge this, and suggest (1988:160) that future research should be done "to test to see if such learning and coping actually occurs and what factors influence learning".

This question is addressed by two studies. In the first, Pitts, White and Krashen (1989), in a replication of the study by Saragi et al. (1978), asked adult second language learners of English to read the first two chapters of the The Clockwork Orange. The novel contains slang words of Russian origin, so-called nadsat words. After reading the chapters, the subjects took a 30-word multiple choice test on the nadsat words. Their results shows a small increase in knowledge of the nadsat words.

The second study, cited by Pitts et al., is Ferris (1988) in which adult ESL subjects read *Animal Farm.* These subjects demonstrated greater gains on the post-test vocabulary measure than did subjects who had not read the novel.

To our knowledge, these are the only two investigations of the incidental learning of vocabulary from context while reading by ESL learners. We were motivated to see if students studying English in a foreign language context – in a country where English was not the first language – could also learn vocabulary incidentally while reading.

METHOD

There were two groups of subjects, high school and university. The 191 high school students were enrolled in a private school that stressed English. The students not only studied English grammar in the traditional approach to the teaching of English in Japanese high schools, but they also received instruction from native speakers of English in listening, speaking, reading and writing. The 397 university subjects were either first or second year students in three institutions in western Japan.

Our operational definition of reading for this investigation was sustained silent reading of a short story in the EFL classroom. Sustained silent reading is similar to extensive reading (reading for pleasure over time), differing primarily in the length of time. Vocabulary learning was operationally defined as correct scores on a vocabulary test of the target words.

The reading passage was a short story with vocabulary items and grammatical structures appropriate for the reading competence of the subjects. This was determined by a pilot test of the story with a similar group of senior high school subjects. From the pilot test, we determined that it could be read in approximately 30 minutes by high school students and less than 30 minutes by first and second year university students.

We adapted the story "Mystery of the African Mask," from Swinburne and Bank (1985:29-36) The text originally contained Cloze deletions, which we restored. We then shortened it, from 1,502 to 1,032 words, in order to ensure that our subjects could read it in 30 minutes or less. We also changed the setting to a Japanese one, using Japanese names. The final version of the story (see Appendix A) contained 17 target words that we identified, through a pilot test of a vocabulary measure (see below), as words that the subjects did not know or found difficult. We edited the story to provide opportunities for the 17 words to occur with ample frequencies and in sufficient contexts to allow for reasonable guesses about their meanings. Finally, the selection of the story was also determined by its interest for the subjects. We felt that the topic – an attempted murder – should hold the attention of the subjects.

We designed a multiple-choice vocabulary test with five choices per item: 1 key, 3 distractors, and 1 choice "I don't know." The test initially consisted of 27 items; it was reduced to 17 items after a pilot administration on the basis of correct responses by 40% or more of subjects. The results of the pilot administration were subjected to the M-Scale Rasch Program (Wright, Linacre and Schulz, 1989), which indicated that item separation reliability was r=.90 for the 27-item pilot version. (See Appendix B for the final version of the vocabulary test.)

The university subjects were randomly assigned by class to either a control or a treatment group; the high school subjects were randomly assigned individually. The university subjects were placed by class because they had originally been placed in classes randomly, not by a placement test, as had been the high school subjects.

The treatment group subjects were given the short story and asked to read it. The story was then removed and the subjects were given the vocabulary test. The control subjects were simply given the vocabulary test. None of the subjects was told in advance that there would be any kind of a test on the reading afterwards. They were

told not to guess, but to choose the option "I don't know" when they did not know the meaning of a word. Dictionaries were not allowed at any stage of the investigation.

The results of the vocabulary text were scored as the number of target items correctly identified. The scoring procedure was taken from the study done by Pitts et al. (1989:272):

    correct = 1
    incorrect = –0.33
    I don't know = 0

The procedure was based on the formula:

Score = right – (wrongs/n-1), where n is the number of choices.

Pitts et al. claim that this procedure corrects the score for guessing.

We posited the null hypothesis, that there would be no statistically significant difference between the treatment and control groups in the mean number of target words answered correctly on the vocabulary test. The results from both the high school and university subjects were subjected to a two-tailed *t*–test with a .05 level of significance necessary to reject the null hypothesis.

RESULTS AND DISCUSSION

Tables 1 and 2 present the results of the vocabulary tests and the *t*–tests for the high school and university subjects. Looking at Table 1, we see that the treatment group subjects scored higher on the vocabulary test that the control group subjects (5.2 and 4.1, respectively). The *t*–test shows that this difference is significant at greater than .01, so the null hypothesis must be rejected.

For the university subjects, Table 2, there is a similar picture. The treatment groups subjects' mean score on the vocabulary test was 9.34, compared to 6.28 for the control subjects. This difference is significant at greater than .01, causing us to reject the null hypothesis.

Table 1: Comparison of High School Subjects on Vocabulary Test Scores Assessed by Means of the Independent Samples *t* Test

Group	N	Mean	SD	*t*
Control	89	4.1	2.48	
Treatment	92	5.2	3.21	
				–2.55 p < .01

Table 2: Comparison of University Subjects on Vocabulary Test Scores Assessed by Means of the Independent Samples *t* Test

Group	N	Mean	SD	*t*
Treatment	200	9.34	3.41	
Control	197	6.28	2.97	
				9.48 $p < .01$

In both groups of subjects, those in the treatment groups – those who read the story – knew significantly more vocabulary than those subjects who had not read the story. The results of this investigation demonstrate that exposure to previously unknown or difficult words through sustained silent reading for entertainment by Japanese EFL students has a positive effect on their ability to recognize these words in a vocabulary test. We have no reason to doubt that these results cannot be generalized to similar populations.

We do not know the extent to which any of the vocabulary items became long-term receptive vocabulary. Given the nature of the investigation, we would not expect many of the words to enter into the subjects' long-term receptive knowledge because the words were only encountered in one story. In an actual extensive reading program, students would encounter unknown vocabulary items over and over again, in a variety of contexts. In this way, EFL students would actually learn vocabulary that would become receptive vocabulary knowledge.

The finding of a causal relationship between reading and indirect vocabulary learning in an EFL context is consistent with research into vocabulary learning by children in their first languages. Like children reading in their first language, the subjects in this investigation attempted to get meaning from the story. Since they were not fluent readers in English, undoubtedly they *did* focus on individual words as they read but, in general, they paid attention to the meaning of the story.

This finding that Japanese high school and university students learning English as a foreign language can learn vocabulary simply by reading is of particular importance given the role which vocabulary plays in foreign language learning. In addition to the findings of research that demonstrate the importance of vocabulary knowledge, students spend a great deal of time, both in and outside the classroom, attempting to learn vocabulary.

One of the curricular implications of this research is that EFL programs should include a great deal of extensive reading in order to improve their students' English vocabulary. We should seriously consider including in our reading classes opportunities for our students to read for pleasure.

CONCLUSION

The investigation reported here provides empirical evidence for the claim that foreign language students can learn target vocabulary through reading. We claim that this is support for including pleasure reading in a foreign language curriculum. It is important to bear in mind that this investigation was not concerned with extensive reading as it is generally understood. Thus the next step should be a longitudinal research project into the relationship between extensive reading and the learning of vocabulary by foreign and second language learners.

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APPENDIX A

The Mystery of the African Mask.

Osamu Matsumoto had once been a good doctor. For years he had been interested in medicine, the study of disease. He had kept up with every idea in medicine. Then something happened that changed him.

One night, Dr. Matsumoto went to help a very sick patient, a young woman named Yukiko Shimazaki, but when he arrived, she was dead.

"How terrible, " Dr. Matsumoto said. "Such a young woman who had wanted to become a nurse."

The young woman, Yukiko Shimazaki, lay with her eyes open. She had no heartbeat or breath. Dr. Matsumoto stared at her. As he stared at her, he thought he saw her move. He listened for her heartbeat. Nothing. But then he heard a faint beat. Yukiko began to breath! Her heart began to beat stronger and stronger. Right before Dr. Matsumoto's eyes, a dead woman came back to life!

"Was she really dead?" he wondered. "Was her heartbeat too faint for me to hear? And her breathing too faint for me to notice?"

Dr. Matsumoto believed Yukiko had been dead. From then on, he was a changed man. Now he almost never read about medicine. He read about the dead who returned to life. He had only one thought: Can the dead come back to life?

When Yukiko became a nurse, Dr. Matsumoto hired her as his assistant in his office. He had to fire his old assistant, Masumi Kawasaki, to give the job to Yukiko.

Masumi Kawasaki was very unhappy. "Fire me because of her! How can you fire me? I have worked for you for years. What will happen to me? And Yukiko . . . she was dead once, and she will be dead again soon. With her faint heart . . . "

"Just get out," said Dr. Matsumoto. "I don't care what happens to you."

Later that month, there was a loud knock on Dr. Matsumoto's door. "Osamu, help me, help me!" cried Yukiko. He ran to the door, "Yukiko, what happened?" Yukiko was shivering from cold. And she was shivering from fear.

Dr. Matsumoto said, "Try to relax, Yukiko. Please calm yourself. What's wrong? Don't strain your heart."

"The mask, the mask!" sobbed Yukiko. "It's come for me. It's after me. It's terrible. It's the mask of death!"

Yukiko tried to relax. "I was in my apartment. When I turned off the lights, I heard a strange sound, a whirring sound. Then on the wall an old mask appeared. It appeared out of nowhere – an African mask. Then I heard a voice chanting:

'Yukiko, Yukiko Shimazaki, hear me.
I am the face of death. I have come
from Africa for you. You will soon die.'

Then it just went away. Osamu, what can it be?" sobbed Yukiko.

"I don't know," replied Dr. Matsumoto. "Are you sure the mask and the chanting were real?"

"Yes, they were real," replied Yukiko. She was still shivering from the strange mask and chanting.

Dr Matsumoto tried to calm her. "Don't worry, Yukiko. It must have been a dream. Try to relax. I'll take you home."

The next night was even worse. It happened when Yukiko turned off the lights. First the whirring sound and then a bright spot appeared across the room. The spot became clearer and clearer. It was the terrible mask! It began to chant:

'Whoever sees my face will die. It is
the face of death. Yukiko, you will die soon.'

Yukiko was very scared. "Please, please go away. Le me live," she sobbed, and tears were in her eyes. She began to shiver. The terrible mask and the singing scared her terribly. The mask and the chanting became fainter and fainter, and even the whirring sound stopped.

The next morning, Yukiko told Dr. Matsumoto about the second visit of the terrible African mask and chanting. She told him about the whirring sound and how the mask became clearer.

"Don't be scared. Try not to strain your heart. You must relax. This is very strange. I don't think the mask is dangerous. I have a book on African masks. Let's look at it."

They looked at pictures of African masks in the book. There were many masks, from different places. Suddenly Yukiko saw it! Dr. Matsumoto stared at it. As he looked fixedly at it, he said, "You stay alone tonight. But don't worry. I will be there to help you."

That night, Yukiko turned off the lights. Suddenly the mask appeared and the singing began. This time, the chanting was even worse:

'Yukiko, this is your last night.
Now is the time for your death.'

The mask suddenly jumped to the ceiling. Then it was gone and the singing stopped too.

"Turn on the lights!" shouted Dr. Matsumoto. He appeared at the window. He was holding a slide projector and pushing Masumi Kawasaki.

"When I saw the mask in the book, I knew it was not real but a fake," he explained. "The book says it is an old African mask, but not a mask of death. So the mask was a fake. It was not a mask of death, just an old mask."

"When you said," Dr. Matsumoto continued, "you heard a whirring sound and saw a light becoming clearer, I thought of a slide projector and the sound of its fan. Masumi worked the slide projector and spoke from outside the window. She was trying to scare you, Yukiko."

Masumi was sobbing "My job as your assistant was my whole life, Dr. Matsumoto. You fired me. If I could scare Yukiko to death, I could get back my job." Masumi hung her head in shame. "I wanted to strain her heart so she would die."

Dr. Matsumoto felt shame, too. "I am sorry. I didn't think of you after all those years. All I thought about was the dead coming back to life. Now I know that Yukiko was not really dead, but only in a coma. Come back as my assistant. Yukiko really wants to be a nurse in a hospital."

Yukiko put her arm around Masumi and said, "Yes, that's right. I really want to be a hospital nurse. After the mystery of the African mask, I know my heart is not faint, but strong."

APPENDIX B

下記の問いに答えなさい。

A. 下線の単語を説明するものとして、最も適当なものの記号を1つ選び、解答欄の〔A〕～〔D〕に印をつけなさい。　わからない場合は〔E〕の I don't know に印をつけなさい。

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―――――――――解答例―――――――――
Sushi is

    A) a food     B) an airplane  C) a book     D) a desk     E) I don't know

            *正解は A) a food  です。
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1. Medicine is

   A) the study of history B) a person who helps   C) the study of disease D) a person who takes
                               a doctor   care of children
   E) I don't know

2. A fake is

   A) something not real   B) something not clean   C) something to eat   D) something to wear
   E) I don't know

3. A slide projector

   A) shows slides   B) colors slides   C) copies slides   D) takes slides
   E) I don't know

4. Shame is the feeling of

   A) gentleness   B) wrongness   C) happiness   D) lonliness
   E) I don't know

B. 下線の単語を説明するもの、または同じ意味を持つものの記号を1つ選び、解答欄の〔A〕～〔D〕に印をつけなさい。　わからない場合は〔E〕の I don't know に印をつけなさい。

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―――――――――解答例―――――――――
To repair is

    A) to cut  B) to fix   C) to burn   D) to regret  E) I don't know

            *正解は B) fix です。
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5. To fire someone is

   A) to cook someone food B) to teach someone   C) to help someone   D) to remove someone
                                                                                  from a job
   E) I don't know
   E) I don't know

6. To sob is

   A) to spin   B) to cry   C) to scream   D) to laugh
   E) I don't know

7. To chant is

   A) to speak   B) to dance   C) to win   D) to sing
   E) I don't know

8. To appear is

  A) to refuse   B) to drink   C) to come into sight   D) to go away
  E) I don't know

9. To scare is

  A) to frighten   B) to lose   C) to boil   D) to worry
  E) I don't know

10. To strain is

  A) to escape   B) to frustrate   C) to damage   D) to tie
  E) I don't know

11. To stare is

  A) to walk carefully B) to look fixedly   C) to break roughly   D) to comb slowly
  E) I don't know

12. To happen is

  A) to peel   B) to lay   C) to develop   D) to occur
  E) I don't know

C. 下線の単語と反対の意味を持つものを1つ選び、解答欄の〔A〕〜〔D〕に印をつけなさい。
   わからない場合は〔E〕の I don't know に印をつけなさい。

┌──────────────────────── 解答例 ────────────────────────┐
│ cold   │
│   │
│   A) narrow B) thick   C) heavy   D) hot   E) I don't know │
│   │
│   *正解は D) hot です。   │
└──┘

13. faint

  A) dead   B) hopeless   C) strong   D) weak
  E) I don't know

14. clear

  A) bright   B) vague   C) dirty   D) dull
  E) I don't know

15. terrible

  A) fearful   B) delightful   C) very bad   D) attractive
  E) I don't know

16. strange

  A) dangerous   B) familiar   C) smooth   D) abnormal
  E) I don't know

17. worse

  A) strong   B) darker   C) better   D) sleepy
  E) I don't know