The Effects of Word Guessing Strategy Instruction on Reading Comprehension

未知語の推測ストラテジー訓練が読解力に与える影響

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Abstract

Recently many learning theorists have advocated teaching students to use a variety of reading strategies or skills in order to read better. The success of recent studies involving the explicit training of children in the comprehension strategies in L1 reading suggests the feasibility of improving L2 students' reading comprehension. This study aims to explore the effects of word guessing strategy instruction on reading comprehension. 76 Japanese high school students (29 boys and 47 girls) in two groups engaged in different reading lessons for three months: one group took reading lessons planned by grammar translation method and the other got the explicit word guessing strategy training. The results of the post-reading comprehension test and the post-word guessing test indicated that the word guessing strategy training had an influence on reading comprehension and that the ability of guessing the meaning of unfamiliar words extended significantly at .01 level. This suggests that word guessing strategy training can be a facilitative approach to improving Japanese students' reading comprehension.

Key Words: reading comprehension, word guessing strategy, learner strategy training

1. Introduction

Many language learning theorists have evaluated teaching students various reading strategies and skills useful for them to read better. For example, Barnett (1988) finds that L2 students who use efficient reading strategies understand more than those who do not. As Kern (1989) indicates that explicit reading strategy trainings have good effects on reading comprehension, reading strategy instruction seems to have a lot of feasibility of improving Japanese EFL (English as a Foreign Language) learners' reading comprehension.

On the other hand, it has been recognized that reading comprehension involves the active participation of the reader, because of the influence of psychologists such as Goodman (1971), who describes reading as a "psycholinguistic guessing game". Carrell (1983: 105) explains the reading process as follows:

> A text only provides directions for listeners or readers as to how they should retrieve or construct meaning from their own previously acquired knowledge and comprehending a text is an interactive process between the reader's background knowledge and text.

Before the application of schema theory was discussed, reading had been assumed to be a

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passive skill and so called "bottom-up" process in reading had been a main theory. It is, however, unfortunate that EFL teaching in Japanese high schools has not changed even though EFL researchers began to consider reading as an interactive process theory. The general practice of English instruction in high schools in Japan has emphasized words, sentences or texts. As the main procedure in the English lessons, students have been required to tell the meaning of each sentence in Japanese.

New reading theory and learning theory suggest that reading is never passive but very active. EFL teaching in Japan should be diverted into the new instruction that helps students think what an active reading is and learn how to read more actively. This paper is an empirical study of new reading instruction, in which teachers encourage students to become more autonomous language learners and more proficient readers of English.

2. Literature Review

Learning strategies are keys to greater autonomy and more meaningful learning. Rebecca (1990:1) emphasizes the value and the importance of language learning strategies.

> Learning strategies are steps taken by students to enhance their own learning. Strategies are especially important for language learning because they are tools for active, self-directed involvement, which is essential for developing communicative competence. Appropriate language learning strategies result in improved proficiency and great self-confidence.

It is only recently that language learning strategies are formally discovered and named, but they have actually been used for a long time. We sometimes use them unconsciously and learn them naturally, especially, in L1 activities. Their true contribution to English education begins when teachers start to apply strategies-based instruction to their daily EFL classes.

Barnett (1988) investigates whether the use of reading strategies is effective or not in reading comprehension. The results show that students, who effectively use reading strategies, understand more of what they read than those who do not use them.

Kern R. G. (1989) evaluates the effects of reading strategy instruction (word analysis, sentence analysis, discourse analysis and reading for specific purposes) on intermediate level of French students' reading comprehension and inferential ability. The results indicate that reading strategy training has a strong positive effect on L2 reader's comprehension. In the case of the comprehension measure, low and middle French ability subjects in the experimental group rise in their inferential ability to the range of score of the high ability after strategy training. This indicates that strategy training in second language instruction has a positive effect on subjects' ability to infer the meanings of unfamiliar words from context.

Since some researchers discovered language learning strategies, the usefulness of them has become widely recognized in the world. However, strategy instructions seem not to be known to most Japanese EFL learners. There should exist a lot of Japanese EFL learners who are trained to use learning strategies so as to be successful language learners. The following are some researches that investigate the influence of reading strategies on Japanese EFL learners' reading behavior.

Mitsumochi (1994) addresses what factors differentiate good guessing, what factors differentiate good guesser in Japanese EFL learners and what factors affect the difficulty of guessing the meaning of unknown words from context. The results indicate that limited knowledge on lexical and syntactical levels of L2 and guessing ability in L1 are factors to differentiate good guessers from poor guessers in L2, and that unknown word density is related

to the guessing scores, especially for lower level students.

Shimamoto (1999) investigates the relationship among Japanese EFL learners' vocabulary size, reading comprehension, word guessing strategy, and English proficiency. She concludes that vocabulary size could be one of measures to know one's English proficiency level, but there is no co-relationship between vocabulary size and word guessing ability.

From the results of the studies mentioned above, it can be safely assumed that the vocabulary size, English proficiency level, and word guessing strategies have a great deal to do with reading comprehension. Although reading has been considered an interactive process, the bottom-up process of reading seems to be more important for L2 readers than L1 ones. This is because L2 readers tend to use the bottom-up process of reading in order to activate background knowledge (McLauglin 1990).

Actually if there is more unfamiliar words in a text, it would be understood less. A clue to overcome this kind of problems might be gained from what some researchers indicate. They find that the unknown word density is related to English comprehension, and that explicit instruction of learning strategies can improve students' ability to infer the meanings of unfamiliar words from context. These findings provide us with a certain of assumption that the explicit instruction of word guessing strategies will enhance reading comprehension.

3. Purpose

From the discussion so far, there seems to be a great possibility that a strategy for guessing unfamiliar words in a text has a positive influence on reading comprehension. The problem is what is the best instruction to enrich word guessing ability and how it should be incorporated in the English lessons.

There are a lot of aims in English lessons. The most important aim should be to give a skill to make students read all kinds of texts by themselves without any instructors. In daily English lessons, the instructors will give readers a lot of aids: having oral introductions, giving the pictures related to the texts, asking some questions related to the texts, giving background knowledge to understand texts and checking the meaning of new words and phrases. On the contrary, when there is no instructor with them, how should readers find aids to read a text by themselves? English dictionaries, grammar books, and encyclopedias would help them, but nothing is more useful than appropriate learning strategies.

This study aims to explore the effects of word guessing strategy instruction on reading comprehension in the actual classroom settings. We offer an experiment which addresses the effects of word guessing strategy training. In order to fulfill the purpose of this study, the following research hypothesis is formulated for verification:

Word guessing strategy instruction enhances reading comprehension.

4. Method

4. 1. Subjects

76 senior high school students (29 boys and 47 girls) were involved in this experiment. After learning English for three years in junior high schools, they were in the first year at a Japanese senior high school with false beginner to high beginner levels of English.

They were enrolled in two different classes regardless of their English proficiency before this experiment. Class A (13 boys and 23 girls) was assigned to the experimental group (Group A), while Class B (16 boys and 24 girls) to the control group (Group B). There was no significant difference in the mean score of the English proficiency test between the two groups ($t=. 35 \ p=. 72$

df= 77).

4. 2. Materials

In this experiment, two kinds of tests are used: an English proficiency test (Part A) and a reading comprehension test (Part B).

Part A, which is used to measure subjects' English proficiency, consists of a grammar test (ten questions), a composition test (ten questions), and a reading comprehension test (ten questions). They are adopted from the exercise books for the 3rd grade of STEP (Society for Testing English Proficiency) test.

Part B is used for the pretest and the posttest in order to measure the effects of the experimental lessons. The reading comprehension test consists of three passages: two expository passages (one of them is written about culture specific), and one story passage. Each passage has three multiple-choice comprehension questions (four alternatives for each of them) and four word guessing tests. Passage 1 is adopted from Morita (1990), whose topic is a young man who has long wanted to be a novelist. Passages 2 and 3 are adopted from Sagawa (1981). Passage 2's topic is "*allowance*". Passage 3's topic is "*sneezing*" (culture specific). These three materials are revised in order that the material's readability may be the same level (Flesh-Kincaid 1975, Spache 1943). Table 1 indicates the characteristics of the materials. We originate reading comprehension questions and word guessing tests, which are given in Japanese.

Table 1. The characteristics of the materials used in the experiment

Material	Readability		Length (words)
	Flesh-Kincaid	Spache	
Passage 1	7. 0 grade	4. 5 grade	188
Passage 2	6. 8 grade	4. 6 grade	191
Passage 3	6. 6 grade	4. 4 grade	188

The material used for the main experimental lessons for Group A is a government authorized textbook for *English I, Daily English Course I* (*2002*). To be more precise, a lesson sheet, which serves as a new device for the direct introduction of new words and phrases in each lesson, is given to the students at the beginning of each experimental lesson. The instruction is divided into four stages: 1) Finding where the new word and phrases are used in the textbook and guessing their meanings. 2) Guessing the meaning of each new word and phrase in a sentence which is different from the sentence used in the textbook. 3) Checking English-English dictionary definitions of the new words and phrases. 4) Trying to use each new word and phrase in a new sentence.

For the other experimental lesson, the students are also provided with short passages with four blanks, which are adopted from Sagawa (1981) and Hill (1980). They are asked to fill in each blank with an appropriate new word. This performance is considered to enrich the ability to guess the meanings of unfamiliar words from the context.

4. 3. Procedure

In total, 6 experimental lessons for Group A (the experimental group) have been performed for three months. In the same way, 6 passages have been given as sub materials, which are used in order for the subjects to be accustomed to using this reading strategy.

76 subjects, who belong to the experimental group (13 boys and 23 girls) and the control group

(16 boys and 24 girls), take the pretest and the posttest to measure reading comprehension and word guessing ability, before and after experimental lessons.

Both tests are conducted in the same procedure. 10 minutes are given to solve reading comprehension questions and word guessing questions concerning each passage, and any student who finishes reading a certain passage before the limit time, is not allowed to go to the next passage without permission from the instructor.

One score is given to an accurate answer for each multiple question about each passage, and a total of nine scores reflect the reading comprehension test. One score is given to an accurate Japanese translation for each word, and a total of 12 scores reflect the word guessing test.

The effects of the treatment are measured with the use of a *t*-test, comparing the scores of the pretest and the posttest of the two groups. The relationship between the reading comprehension and the word guessing ability is measured with the use of an analysis of variance (ANOVA) and a Fisher's PLSD Test, comparing the mean scores of reading comprehension test and word guessing test. The influence of the difference of the text's genre on reading comprehension is also measured with the use of ANOVA and a Fisher's PLSD test.

5. Results

Table 2 shows the results of the *t*-test conducted for the analysis of the scores of reading comprehension test of the two groups in posttest. The t-test reveals no significant differences between the two groups, except in passage 3.

Table 2. Difference between the two groups in the mean score in post-reading comperhension test

Passage (Maximum)	Group	N	M (%)	SD	df	t (two-tailed)
Total	A	36	6.20 (68%)	1.69	74	0.57
(9)	B	36	1.58 (53%)	2		n.s
Passage 1	A	36	5.97 (66%)	0.99	74	0.85
(3)	B	36	1.76 (59%)	0.94		n.s
Passage 2	A	36	2.13 (70%)	0.68	74	1.176
(3)	B	36	2.12 (70%)	0.88		n.s
Passage 3	A	36	2.50 (83%)	0.74	74	2.02
(3)	B	36	2.07 (70%)	1.04		*

$* < .05$

Table 3 shows the results of the t-test conducted for the analysis of the scores of word guessing test of the two groups in posttest. The *t*-test reveals significant differences between group A and group B, except passage 3.

Table 3. Difference between the two groups in the mean score in post-reading guessing test

Passage (Maximum)	Group	N	M (%)	SD	df	t (two-tailed)
Total	A	36	6.05 (50%)	2.55	74	3.05
(9)	B	40	4.30 (36%)	2.47		**
Passage 1	A	36	1.29 (43%)	1.05	74	2.83
(3)	B	40	0.62 (20%)	0.83		**
Passage 2	A	36	2.35 (78%)	1.92	74	2.17
(3)	B	40	1.85 (62%)	1		*
Passage 3	A	36	2.40 (80%)	1.72	74	1.77
(3)	B	40	1.83 (61%)	1.73		0.08

$* < .05 \quad ** < .01$

Table 4 shows the results of t-test conducted for the analysis of the gain scores of the experimental group. The *t*-test reveals no significant differences between the pretest and the posttest, except passage 3.

Table 4. Difference in the mean score between pre-and post-reading compregension tests for Group A

Passage (Maximum)	Group	N	M (%)	SD	df	t (two-tailed)
Total	Pretest	36	6.00 (67%)	3.67	35	0.52
(9)	Posttest	36	6.20 (69%)	2.86		n.s
Passage 1	Pretest	36	1.87 (62%)	1.96	35	1.64
(3)	Posttest	36	1.58 (53%)	1.99		0.054
Passage 2	Pretest	36	2.12 (71%)	1.44	35	0.45
(3)	Posttest	36	2.13 (70%)	1.46		n.s
Passage 3	Pretest	36	2.00 (67%)	1.1	35	3.26
(3)	Posttest	36	2.50 (83%)	0.74		＊＊

＊＊＜.01

Table 5 shows the results of *t*-test conducted for the analysis of the gain scores of the experimental group. The t-test reveals significant differences between the pretest and the posttest in all the passages.

Table 5. Difference in the mean score between pre-and post-word guesssing tests for Group A

Passage (Maximum)	Group	N	M (%)	SD	df	t (two-tailed)
Total	Pretest	36	3.40 (28%)	1.94	35	5.13
(12)	Posttest	36	6.05 (50%)	2.55		＊＊
Passage 1	Pretest	36	0.35 (12%)	0.26	35	4.49
(4)	Posttest	36	1.29 (43%)	1.05		＊＊
Passage 2	Pretest	36	1.59 (53%)	0.87	35	4.07
(4)	Posttest	36	2.35 (78%)	0.92		＊＊
Passage 3	Pretest	36	1.43 (47%)	1.22	35	4.19
(4)	Posttest	36	2.40 (80%)	1.31		＊＊

＊＊＜.01

Table 6 and Table 7 show the results of Fisher's PLSD Tests for Group A in post-reading comprehension test and post-word guessing test. There is a significant difference except between passage 2 and passage 3 in both posttests.

Table 6. Fisher's PLSD Test for post-reading comprehension test for Group A

	Passage 1	Passage 2
Passage 2	＊	
Passage 3	＊＊	n.s

F＝131.53　df＝107　　　＊＜.05　＊＊＜.01

Table 7. Fisher's PLSD Test for post-word guessing test for Group A

	Passage 1	Passage 2 .
Passage 2	＊	
Passage 3	＊＊	n.s

F＝11.75　df＝107　　　＊＜.05　＊＊＜.01

Table 8 shows the comparison between the reading scores and word guessing scores for the upper level students and the lower level students of the experimental group.

Table 8. Comparison between the two posttests of Passange 3 for Group A

Proficient Level	Reading Score	Word Guessing Test Score			
		sneeze	custom	worried about	catch a cold
Total (N＝36)	2.5 (83%)	72%	27%	58%	83%
Upper (n＝9)	3 (100%)	100%	78%	100%	100%
Lower (n＝9)	1.4 (47%)	33%	11%	33%	67%

Table 9 shows the comparison between the reading scores and the word guessing scores for the two groups in Passage 3.

Table 9. Comparison between the two posttests of Passange 3 for Group A and B

Group	Reading Score	Word Guessing Test Score			
		sneeze	custom	worried about	catch a cold
A (N=36)	2.5 (83%)	72%	27%	58%	83%
B (N=40)	2.1 (70%)	50%	23%	35%	68%

6. Discussion

It is noteworthy that there is a significant difference between the pre- and post-reading comprehension tests in Passage 3 for Group A, and that there is a significant difference between Groups A and B in the reading comprehension test of Passage 3. We want to know the reason why the experimental lesson has an effect on the reading comprehension only in passage 3. Tables 8 and 9 might give us a clue to solve the question.

Passage 3's topic is about how the people around him/her behave when someone sneezes in the U. S. In order to understand the main idea of the passage, it is useful to know the meaning of the word 'sneeze' and the phrase 'worried about'. The lower level students cannot guess the unfamiliar words efficiently, which might cause lower level students' reading scores much lower than upper level students'. Moreover, Table 9 indicates that Group B's word guessing score of the word 'sneeze' and the phrase 'worried about' is lower than Group A's. It can be concluded that the accurate word guessing ability of the key words in order to understand the passage might have an influence on reading comprehension in Passage 3.

In the same way, the wrong word guessing of the meaning of the key words explains why there is no significant difference between the pre- and post-reading comprehension tests in Passage 2 for Group A. In detail, in Passage 2, the students are asked to guess the word 'neighbor'. Only one student can guess the accurate meaning of this word both in the pre- and post-word guessing tests. In addition, most of them guess the wrong answer "car", so that they cannot guess the accurate answer "some one who lives next to you". It is predictable that this wrong word guessing leads to misreading. It is understandable that the average score of the second reading comprehension in this passage is very low.

As Tables 3 and 5 show, there is a significant difference between Group A and Group B in the post-word guessing test at .01 level and there is a significant difference between the pre- and post- word guessing tests for Group A. The results should be interpreted to suggest that the experimental lessons work for the improvement of the subject's word guessing ability as is expected.

The results of Tables 6 and 7 might suggest that there is a significant difference in reading comprehension test when there is a significant difference just in the word guessing test. The other suggestion of Tables 6 and 7 might be that the difference of the genre of the passage has an effect on reading comprehension. Passage 1's reading comprehension score does not extend but decreases. The reason might be because its genre is different from those of the other two passages. Passage 1 is a story, which is a fiction or a creation made by a writer. It is natural that the subjects should not have background knowledge on it. Generally, it is said that background knowledge has an influence on reading comprehension. Passages 2 and 3 are expository passages. Passage 3 is different from Passage 2 in the view that Passage 3's topic is culture specific. Some researchers (Johnson 1981, Carrell, 1983, Carrell et al 1983) find that it is difficult to understand culture specific passages. On the contrary, as for passage 3, the

experiment group extends the reading comprehension scores more significantly than both the control group and itself in pretest, after the experiment lessons. There is no reason to explain the result but that the word guessing strategy has an effect on reading comprehension, as noted above.

7. Conclusion

This study has explored the effects of word guessing strategy training in the EFL classroom at a Japanese senior high school. The word guessing strategy training as a remedial approach to reading instruction has some beneficial effects on learner's reading ability and enhanced their word guessing ability significantly. These findings suggest that we should adapt word guessing strategy training to the daily English lessons more actively.

When we make teaching plans for reading instructions, it should come in first to fulfill the lesson's aim. If the aim is different, the process should be different. This study indicates the difference of the main ideas and the genres of passages should have an influence on reading comprehension. The cause of the results is not clear, but probably the process of understanding each passage might be different, which suggests that the instrumentation of teaching English should be changed according to the reading materials used in each lesson.

When we look for materials for daily English lessons, what should give an indication of the suitable materials for students? The answer also depends on the aim of the lesson, or the reason why the materials should be selected for the lesson. If the aim of the lesson is to learn new words through reading, we should look for the materials which fulfill the following conditions: students can make use of background knowledge on it; the number of the unfamiliar words in the text should not be too many; the students' interests in the contents of the texts should be high; topics on them should be current events. If the aim of the lesson is to train the word guessing strategies, we should look for the materials that students should have enough background knowledge on it with moderate unfamiliar words.

The new words introduction is one of the most important procedures in the lesson. As the results of this study indicate, word guessing strategy can have effects on reading comprehension. This strategy training can have an influence on every learning skill as well as reading skill (Shimamoto 1998). No one would deny that the ability to guess the meaning of the unfamiliar words from context demand the other learning strategies, which suggests that learning strategies training has the feasibility of the learners' English proficiency development.

This study leaves several questions unanswered, which suggest a number of directions for future study in the area of Japanese EFL learners' reading comprehension. It is only for three month that the instrumentation for the word guessing strategy training has been conducted. More longitudinal instruction might provide us with more reasonable data, which explain how and why guessing the meaning of unfamiliar words has good effects on reader's reading comprehension. Multiple choice questions are used to assess understanding of the passages. Instead of collecting such statistical data, it might be more useful to record other kinds of data from which the reading process or the relationship between word guessing strategies and reading comprehension can be analyzed. We hope that our study will be a kind of aid for developing new approaches to improving Japanese EFL learner's reading comprehension.

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