【研究論文】

The Correlation of Summarizing Strategy and Reading Proficiency, And Its Application in Language Learning

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Abstract

This study contains two consecutive processes and the purpose was to investigate some effective and applicable summarizing methods on L2 learners' reading proficiency. First, the relevance between subjects' (Japanese speakers) reading proficiency in English to their use of summarizing strategies was investigated. Then the strategies adopted by the stronger readers in the first-tier study were taught in reading classes and subsequent effects were analyzed statistically. As the first step in the process of this study, twenty subjects were examined to investigate the relevance of their reading proficiency in English to their use of summarizing strategies. Their summarizing strategies were identified through the application of six parameters. TOEIC reading sub-scores were used as an objective basis of comparison of reading proficiency among those subjects. As the next step in the process, ninety college students took part in this research over a four-month semester, to examine how summarization training employing the strategies that had been adopted by the stronger readers affected their English reading proficiency. The G-TELP (General Test of English Proficiency) reading section was used as the pre- and post-test to evaluate the subjects' reading proficiency. From the results of the statistical analysis, significant differences were found in the reading proficiency of certain subjects after four months.

1. Introduction

Over the past few decades, summarizing strategies have come to be considered one key aspect of reading performance, and many researchers have confirmed its influence on the reading process and comprehension (Lehnert, 1982; McNeil & Donant, 1983; Muramoto, 1998). During this time period, researchers focused on finding the effects of summarization tasks, and their relationship to reading skills (Rinehart, Stahl, & Erickson, 1986; Johns & Mayes, 1990; Wood & Carney, 1995; Riley & Lee, 1996). Johns and Mayes (1990) also examined the relation between combined idea units and

reading ability in the summarizing process.

According to prior researches (Katori, 2008; Katori, 2010), human summarizing processes were diverse, and they are connected with such factors as cultural backgrounds, first languages, age, and gender. Additionally, summarizing processes can be divided broadly into two types. One is the so-called "text-dependent method" (shortening an original text without changing order or content), and the other is the "event-dependent method" (understanding context and restating main ideas through paraphrasing). In general, Japanese speakers are inclined to adopt the "text-dependent method". However, the detailed strategies readers might use to summarize a reading passage or the relationship between these strategies and reading proficiency in L2 have not been analyzed, nor was any attempt made to apply summarizing strategies in actual L2 classes.

As some researchers have stated (John & Mayes, 1990; Rinehart & Thomas, 1993), the summarizing process is regarded as a very complex operation and is one of the important aspects of reading performance. I hope that this research will further such investigations, particularly in applications to practical reading education.

2. Method

2.1 Participants

Twenty Japanese speakers of different ages and different proficiency levels in English took part in the first process of this research. All the subjects had taken the TOEIC SP test within the previous two years. Their TOEIC reading sub-scores are shown in Table 1. Next, ninety Japanese college students participated in the second step of this research. All ninety subjects took the G-TELP reading section test twice, at the beginning and the end of the semester, as the pre- and post-test. Almost all of the ninety subjects were first-year students who attended 90-minute English classes twice a week. Although they were divided into three groups, the same instructor was in charge of all their reading classes for the semester. Sixty of the ninety subjects participated as an experimental group, assigned to do summarizing tasks regularly. These sixty subjects were further divided into two groups (higher- and lower-level) when they were analyzed statistically. The remaining thirty of the ninety subjects functioned as a control group, and were not assigned any special summarizing tasks.

2.2 Materials

As many researchers have used established tests with known validity and reliability,

in this study, the TOEIC and the G-TELP standardized tests were used in order to establish the subjects' reading proficiency. Although the TOEIC tests were well known as an evaluator of "Business English" ability, the score report form illustrates that the reading section is designed to measure ability in grammar, vocabulary, inference, scanning and other areas. Thus, the TOEIC reading sub-score can be presumed to be an index of the examinee's general reading proficiency. The G-TELP, likewise, is a reliable English proficiency test, produced by the ITSC (International Testing Service Center). The G-TELP contains three parts, namely, grammar, listening, and reading & vocabulary. Only the reading & vocabulary score was considered in this research. Regarding the texts used for the summarization assignments, most of the prepared texts were essays or stories containing 400 words or less, nearly filling one A4-sized sheet of paper.

3. Procedure

First, the subjects were requested to read an original text and to summarize it at around 50 percent or less of the original quantity. The optimum quantity was determined by the results of a pilot study that had been carried out beforehand (Katori, 2010). Subjects were not allowed to consult a dictionary when they found words or phrases that they did not understand. After generating the summaries, each was analyzed by the six parameters identified by Jing and McKeown (2000). The six parameters are as follows:

1. Sentence reduction: Removing sentences and phrases from the original.
2. Sentence combination: Merging materials from the original sentences. This can be used together with sentence reduction.
3. Syntactic transformation: In both sentence reduction and combination, syntactic transformation may be involved. For example, the position of the subject in a sentence may be moved from the end to the front.
4. Lexical paraphrasing: Replacing phrases.
5. Generalization or specification: Replacing phrases or clauses with more general or more specific descriptions.
6. Reordering: Changing the order of extracted sentences.

Since the generated summaries were expected to be diverse, two examiners were asked to assist in identifying sentences. When the examiners had different opinions about how to identify certain sentences, the author decided how to classify them, after discussion. Then, the relevance between summarizing features and reading

proficiency was examined statistically, by a simple linear regression procedure.

As the next process, according to the results of the relevance between reading proficiency and the strategies adopted by good readers, sixty of the ninety subjects were given examples of summarizing strategies, and they were assigned summarizing tasks for every class until the end of the semester. Concretely, syntactic transformation, lexical paraphrasing, and generalization or specification were specifically introduced and emphasized to use. Concurrently, the thirty students in the control group were not asked to accomplish any summarizing tasks during the research period.

After the first set of 60 summaries was generated, each of them was analyzed and returned to the subjects as feedback. The first summaries could be broadly classified into three types: the "cut and pasted type" (in which subjects just took some sentences from the original and pasted them into their summaries), the "paraphrased type" (in which subjects mainly rewrote every part of the original, using other words or phrases), and the "mixed type" (in which some parts were cut and pasted, and some parts were paraphrased).

As a part of the instructions for writing summaries, the structure of the English paragraph was introduced. The reason is that, according to previous interviews carried out by Katori (2010), many Japanese college students, especially first-year students, have little idea about the structure of the English paragraph, such as main idea or concluding sentence. However, in order to maximize the summarizing training procedure, knowledge in these areas was presumed to be indispensable. Referring to Rinehart, Stahl, & Erickson (1986), the following summarization operations were explained.

1. Identifying / selecting main idea information, then paraphrasing it.
2. Deleting trivial / redundant information.
3. Relating main idea and important supporting information.
4. Restating the main point with another expression in the concluding sentence.

As for the control group, likewise, the structure of the English paragraph and the above-mentioned operations were introduced as one clue for improving English reading proficiency. Both at the beginning and at the end of the semester, the G-TELP reading test was administered as the pre- and post-test for all ninety subjects. Finally, the results of the two sets of G-TELP scores were compared and analyzed by the *t*-test, to confirm whether the summarization training, accompanied by the summarizing strategies that had been used by the better readers in the first-tier study, had an effect on reading proficiency in this sample of L2 college students.

4. Results and Discussion

4.1 The relevance between summarizing strategy and reading proficiency

The methods employed for summarizing and the reading sub-score of each subject appear in Table 1.

Table 1. Summarizing strategies and reading sub-scores, by subject

Subject No.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
TOEIC Reading sub-score(Max. 495)	140	190	190	195	210	235	250	285	420	430
Adopted strategy	①	①	①	①	①	①	①	①②	①②③⑤	①②④⑤
Subject No.	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
TOEIC Reading sub-score(Max. 495)	225	120	235	265	220	130	315	360	200	155
Adopted strategy	①	①	①②④	①	①	①④⑤	①②④	①②③④	①	①

① sentence reduction ② sentence combination ③ syntactic transformation
④ lexical paraphrasing ⑤ generalization or specification ⑥ reordering

As indicated by Table 1, subjects who obtained rather high reading sub-scores seemed to adopt various summarizing strategies, especially ②, ③, ④, and ⑤. On the contrary, subjects who scored around 250 or lower scores seemed to use a very limited number of strategies. Those subjects mainly adopted only strategy ①.

To confirm the correlation, the above results were analyzed by a simple linear regression procedure. In this research, the summarizing strategies adopted were each represented by numbers. For instance, when a subject adopted two of the six strategies referred to, such as sentence reduction and sentence combination, 20 points (2×10) were awarded. In the same manner, when a subject used three strategies, the subject simply earned 30 points. Figure 1 shows the relationship between the summarizing strategies as a dependent variable and the TOEIC reading sub-score as independent variable. According to the results of this calculation, the correlation coefficient was 0.73. Therefore, it may be said that as far as the results of this research extend, a significant correlation was found between L2 summarizing strategies and L2 reading proficiency.

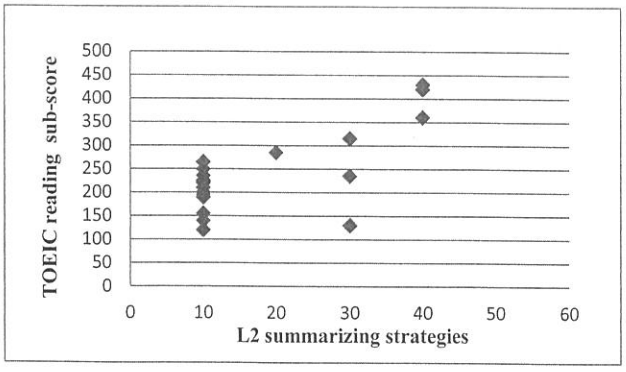

Figure 1. Summarizing strategies and reading proficiency

4.2 The effect on reading proficiency

Figure 2 illustrates changes in the subjects' averages of reading scores (averages of the April pre-test and the August post-test), for each group. In addition, Table 2 shows the results of the *t*-test for each group, compared between April and August.

For the entire experimental group, reading score averages increased from 74.4 to 80.1 in four months, a significant difference as indicated by the *t*-test. For the experimental group, it seems that the summarization training employed in this research was effective in improving reading scores for most subjects. However, to analyze the results further, when the experimental group was divided into two groups (30 upper-level subjects and 30 lower-level subjects), an interesting feature emerged. The increase in the reading averages for Group B (the lower level) was 11.2 points, a change that reveals a clearly significant effect (see Table 2). On the contrary, in Group A (the higher level), no significant difference was found between the pre- and post-test, although their averages did increase s

lightly, from 82.6 to 82.9. These results indicate that summarization training can be an effective method for improving reading skills for lower-level learners in L2. However, it may not serve as effectively for higher-level learners.

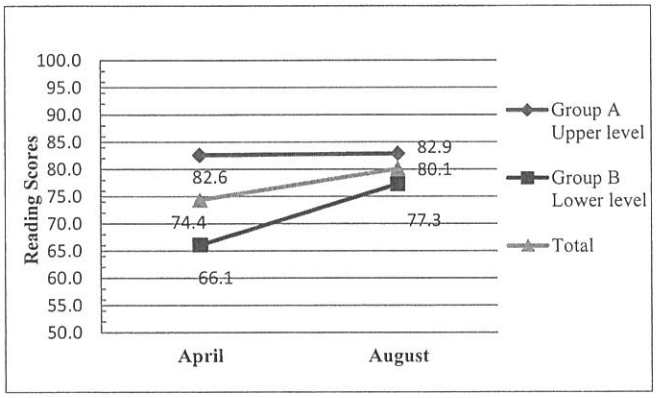

Figure 2. Change in reading scores for the experimental group, by levels

Table 2. *t*-test results, experimental groups

Group	Results of the *t*-test	Significant Difference
A	0.182	—
B	2.12E-07	†
Total	3.12E-05	†

*† = Significant difference

Here, the question might arise whether Group B's improvement is an actual effect of the summarizing training, or whether this group simply had a greater potential for increasing their reading ability, even without any summarizing training because of their lower level at baseline.

To address this question, the reading scores of thirty subjects in Group B and the thirty subjects in Group C (the control group) were analyzed and compared. First, Groups B and C were analyzed by the *F*-test, in order to determine whether any distinct differences would be seen between those two groups or not. No clear difference was seen (see Table 3). Furthermore, the pre-test averages of the two groups were very close (see Figure 3). Therefore, it is safe to say that there was no obvious difference

between the two groups in April. The results four months later are also shown in Figure 3 and Tables 3 and 4. As can be seen, Group B's improvement in reading scores is significantly higher than that of Group C. As mentioned above, although Group C was given instruction on the structure of the English paragraph and summarizing operations in their English classes, as well as Group B, they were not assigned any summarization training during the semester. Actually, Group C took the whole G-TELP, which also contained Grammar and Listening sections, and they achieved an increase in the total score. In other words, this suggests that the subjects in Group C could improve their general English proficiency after the four months of English learning at college, but particularly in reading ability no significant improvement was made.

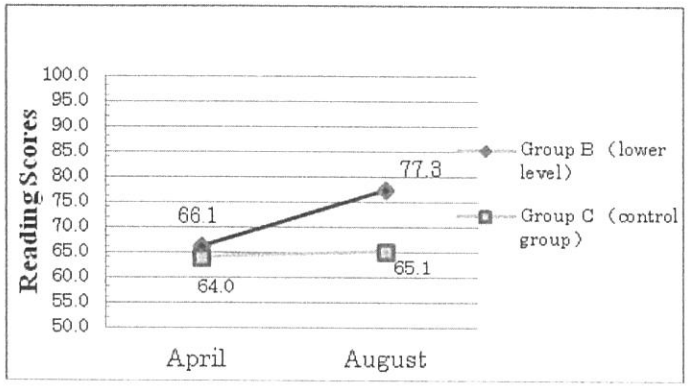

Figure 3. Change in reading scores, by groups

Table 3. *F*-test results

Month	Results of the *F*-test	Significant Difference
April	0.3931	—
August	0.0003	†

* † = Significant difference

Table 4. Results of the *t*-test for Groups B and C

Group	Results of the *t*-test	Significant Difference
B	2.12E-07	†
C	0.8166	—

* † = Significant difference

4. 3 Other results

As mentioned above, regarding the upper-level subjects, no clear statistical effect was identified. However, through the research period, the summaries submitted by the subjects in Group A gradually changed. When they were introduced to the information on the structure of the English paragraph and some summarizing operations, they appeared to apply that knowledge right away. At the end of the semester, many subjects in both levels had become more skillful in identifying the main idea of an essay, and they used a wider range of vocabulary to paraphrase original sentences. In addition, by the end of the semester, Group A's average reading speed certainly became faster, and the required period to generate their summaries was surely shortened. These changes have not been substantiated by clear evidence or quantitative results now. However, it might be said that we cannot rule out other potential influences of summarization training on reading proficiency for the upper level subjects. This might be applicable for learners of all levels, as well.

5. Conclusion

The purpose of this study was to investigate whether the use of some effective summarizing methods might have a positive influence on L2 learners' reading proficiency. The findings in the first process indicated that there is some correlation between summarizing strategies and reading proficiency in L2. The findings also showed that most subjects who had received lower reading sub-scores adopted only one strategy, sentence reduction, in their English summaries. On the contrary, subjects who obtained higher reading sub-scores used various methods to generate summaries.

As the next step of this research, students completed regular summarizing tasks, following their introduction to summarizing strategies adopted by subjects who were presumed to be good readers of English, and finally, effects on their reading proficiency were analyzed. During one semester, sixty subjects were encouraged to summarize texts, as assignments. According to the results of pre- and post-testing, analyzed just after the research period, significant effects were found on reading proficiency specifically for lower-level subjects, but no clearly significant quantitative effect was found in the upper-level subjects. Therefore, the findings in this study indicate that summarization training, especially the use of the strategies known as syntactic transformation, lexical paraphrasing, generalization and specification can be an effective method for improving reading abilities especially for lower-level learners in L2. On the other hand, it may not serve clearly to increase the reading scores on English proficiency tests for learners who are already at an upper level.

Group A's reading average for the pre-test was 82.6%; therefore, their potential for any dramatic percentage-based increase was very limited compared with lower-level subjects. Higher-level subjects appeared to adopt the modeled summarizing operations very well, and improved their skill in identifying the main idea of an essay. Furthermore, some subjects in Group A felt that there was an improvement in their reading speed. These changes also suggest that they might have progressed in other directions or obtained some invisible effects on L2 reading ability.

This study showed that subjects who obtained high reading sub-score had a tendency to use various methods to generate a summary, and it seems reasonable to posit a correlation between summarizing strategy and reading proficiency in L2. Consequently, I suggest that summarization training, especially employing the strategies adopted by stronger readers, affects reading proficiency in English, specifically for lower-level learners. Although quantitative effects were not extensively identified in the present study, we should not rule out the potential effect of summarization training on

reading proficiency. There are many unsettled questions in elucidating the contributions that training in summarizing can make to reading ability, and to practical and effective reading classes. Therefore, it is undeniable that further studies are needed.

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