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Effects of Extensive Reading on Reading Speed and Comprehension among Japanese University Students

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I. Introduction

Extensive reading (ER) has been one of the popular methods in EFL (English as a foreign language) learning environments in Japan. It literally means the teaching or learning method in which learners are encouraged to read as many books as possible. The term is often used as an antonym of intensive reading (IR), in which learners are encouraged to read the contents analytically while elaborating the meaning and structure of each sentence when necessary. In an IR, reading is often intermingled with teachers' interpretations; in this sense, it is less autonomous. In an ER, on the other hand, learners are engaged in reading materials usually in a less compulsory manner without strict follow-up assessments or precise confirmation of meaning by teachers. Thus, reading can become autonomous. Moreover, emphasis is put on reading a lot of English as naturally and comfortably as possible, since the vocabulary of ER reading materials (e.g., Graded Readers) has been made easier than readers' level of proficiency, so that the learning experience becomes fun and rewarding rather than stressful (cf. Day & Bamford, 1998, pp.7–8; Takase, 2010).

The popularity of ER is obviously born out of necessity in an EFL learning environment where learners have difficulty increasing the amount of English language input. ER, since it facilitates an easy and fun reading experience, can foster and sustain reading habits among learners and compensate for the lack of English input in their daily lives. Other than looking into this major benefit, however, researchers started looking further at the effects of ER on each component of learners' English proficiency, such as vocabulary, reading speed, reading comprehension, listening comprehension, and writing, as well as affective factors

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such as motivation and attitude (cf. Day & Bamford, 1998, p.34; Takase, 2010). Although many publications lend credence to the various benefits ER can offer in EFL learning contexts, there is a lack of empirical data to support those effects on EFL university students in Japan. Research still needs to catch up with the growing necessity of this promising methodology.

In terms of university EFL teaching, ER has been used under two different conditions: in-class implementation (ER that is supervised by a teacher) and out-of-class implementation (ER that is not supervised by a teacher). Since there is always a time-restriction (e.g., one 90-minute class per week) in university EFL classes, ER is often implemented outside class as an assignment. In this case, students are told to read as many books as possible outside the class and report what they read, filling out "book reports." However, the effects of such an unsupervised ER have not been sufficiently confirmed for a decision to be made on whether such an unsupervised practice can become a major part of university EFL reading instruction. This study, focusing on the reading ability of Japanese learners, thus, explores the effects of such an out-of-class implementation of ER among university EFL students.

II. Review of Literature

Since ER encourages learners to read as many easy books as possible, it is predictable that a main effect of ER is "to improve reading fluency rather than learning new vocabulary and structures" (Kadota, 2008). Nation (2009), in his publication for L 2 reading pedagogy, has also indicated the same view that when students are engaged in extensive reading using vocabulary and sentence structures they have already learned, they are improving reading fluency (p.49). Considering reading fluency merely as the speeding up of reading performance, previous literatures showed that ER can actually improve EFL readers' reading speed.

Focusing on the studies done among EFL learners in Japan, Matsui and Noro (2010) introduced a 10-minute silent reading in class (10-minute ER) and had students read graded readers during the first 10 minutes of class time. The study showed that junior high school students improved reading efficiency (incorporating both words-per-minute of reading speed and comprehension scores of given texts). Tanaka and Stapleton (2007) had high school students read graded readers outside the class over a 5-month period to measure the improvement of their reading comprehension and reading speed. The result indicated that students who read graded readers outside of class improved significantly in comprehension and reading speed defined by the number of questions students could answer within the given amount of time on both pre- and posttests. As a study implementing ER among

university students in Japan, Taguchi, et al. (2004) compared the effects of repeated reading (RR) and those of ER. They showed that both methods are effective in improving reading fluency among university students. The data, however, did not clearly show significant differences to indicate an improvement of post- over pre-speed reading measurements.

It is obvious that ER studies focusing on university students are scarce and that further studies are needed to explore the effects of ER on reading speed among university EFL students. To provide more data on implementing ER for university students, Shiki and Hase (2010) tested how successfully university students could improve reading rates by an out-of-class ER assignment. The result showed that the group of students who reported that they had read more than 50,000 words on average through the ER assignment demonstrated improvement in their reading speed when the scores of pre- and posttests were compared.

The reliability of the results from Shiki and Hase's study, however, can be questioned on the following two grounds. First, since the research design lacked a control group that did not have the ER assignment during the treatment, the study might have failed to harness another effect on the test results (e.g., any influence from another English lesson). Recently, it has hardly been possible to prepare a control group for the purpose of conducting a quasi-experimental design. Thus, it is necessary to find another way to clarify the results from a classroom research. One possible way to verify the results obtained from such a classroom research is to duplicate the same experiment with a different group so as to confirm the previously obtained results.

The other problem with regard to the previous data is that the study did not include reading comprehension as one variable. In order to give credence to the proposition that an unsupervised ER can truly improve reading ability, the result needs to show that reading comprehension also improves during the treatment period. Indicating the improvement of reading rates alone does not mean that ER can have positive influences on overall reading ability. Theoretically, the improvement of reading speed is proportional to the improvement of accuracy (comprehending text meanings accurately). Samuel's model of comprehension for L 1 (first language) reading, which has often been cited as a reliable model to explain the role of efficient decoding, indicates that if cognitive resources are not consumed by the decoding (which means they can decode information faster), they are allocated to higher order information processing, which influences whether one can achieve high accuracy rates of understanding (Samuel, 2006, p.38). On the basis of this model, it can be predicted that if learners can improve their reading rates through ER, simultaneously their reading comprehension ability will improve. Therefore, the effects of ER on reading comprehension should be explored as well.

As the literature review reveals, the main purpose of this study is to confirm the results obtained in Shiki and Hase's study (2010), adding reading comprehension as another variable in order to find the effects of ER implemented outside classes on reading ability among EFL university students. The following research questions were explored.

(1) Can the amount of ER implemented outside of class improve reading speed indicated by silent reading rates (WPM: words-per-minute)?
(2) Can the amount of ER positively influence reading comprehension?

III. Experiment

1. Participants

The participants were 42 first-year non-English major students (14 females, 28 males) taking university reading courses in which out-of-class ER was a required assignment. After those who did not fulfill the required tests for the study and those who got results considered as outlier values (two standard deviations above or below the mean scores) were removed, data from 34 students were eventually used for the analysis. TOEIC scores of the participants ranged from 350 to 550. TOEIC had been conducted as a placement test before the semester began.

2. Method

2. 1. Procedure

As an out-of-class ER assignment in the reading course, the participants read graded readers outside of class. The books they could choose from the library ranged from level 1 through 5 and were selected from several publishers. They were required to read five or more books they had chosen during a 14-week semester in order to earn the course credit. They were required to write a book report per book to prove that they had read the book they chose. They were told to report the number of pages they read per book, the name of the publisher, and difficulty levels of graded readers, and to write a brief summary of the contents and interesting parts of the book they read. Except for the ER assignment, all the participants received the same reading instruction given by the same teacher using the same textbook. The total number of words the participant read was calculated on the basis of the average word counts estimated on each difficulty level.

A vocabulary size test was administered before the treatment to measure the average size of vocabulary knowledge among the participants; this would reveal whether the test materials of pretest and posttest were easy enough in terms of their current vocabulary levels. Before and after the treatment, the participants took the

two different types of tests in order to see how much they had improved after the treatment: a test to measure their reading comprehension ability and a test to measure speed reading rates.

2. 2. Experiment Materials

This study used the same test materials used in the previous study (Shiki and Hase, 2010). The following three tests were administered.

Vocabulary Size Test: This test was created using the vocabulary list "JACET 8000" (Aizawa, et al., 2005). The form of the test was based on the Japanese version of the vocabulary size test proposed by Mochizuki, et al. (2003). The reliability of the test (Cronbach's alpha) was .89, which had already been proved in another study. The test indicated that the average vocabulary size of the participants of the present study was 3,202 words. Therefore, the frequency level of vocabulary was controlled for the other two test materials; words under the 3000-word frequency level were used so as to reduce the effects of the participants' vocabulary knowledge on the score of each test.

Silent Reading Rates: One 400-word passage (Flesch Reading Ease: 63.1) with 10 comprehension questions was prepared. The average word level of the passage was 1.33 (falling between 1000 to 2000 levels), based on JACET 8000. The word-frequency levels of the passages were low enough to reduce the effect of vocabulary knowledge of the participants on reading comprehension. A practice session with a different passage was held before the test in order for the participants to find out their optimal reading pace while understanding the contents accurately. After the practice session, the participants were asked to read the passage as fast as possible while comprehending the contents. When they finished, they recorded the time themselves by looking at a watch shown on the screen. Then, students answered comprehension questions without looking at the passage. Silent reading rates were indicated by WPM (the number of words read per minute). The scores express how fast or efficiently they could read the passage without impeding accuracy in understanding the contents.

Reading Comprehension: The test of reading comprehension used in this study consisted of four passages. Two of them were taken from Step pre-2nd Grade (Readability by Flesch Reading Ease: 51.5 and 55.4, respectively), and the rest were taken from Step-2nd Grade (Flesch Reading Ease: 49.2) and TOEFL (Flesch Reading Ease: 22.1). The average word-level of all passages was 1.17 (falling between 1000 to 2000 word levels), based on JACET 8000. The frequency levels of vocabulary

Table 1 Comparison of the Average Number of Words and Pages Read among 3 Groups

Group	N	words	pages
Less than 20,000	10	11,925	63
Between 20,001 and 30,000	14	24,726	125
More than 30,001	10	56,485	248
All three groups	34	30,301	142

obtained here were considered to be low enough to reduce the effects of the participants' lack of vocabulary knowledge on the scores of Reading Comprehension. Twenty-three questions (1 point each) were prepared and answered within 25 minutes. This amount of time had previously been confirmed as appropriate with another group of students. The internal consistency reliability of the test (Cronbach's alpha) was .76.

3. Data Analyses

For the statistical analyses, first, a Pearson correlation analysis was run to investigate the correlations among the gain scores (a gain score = posttest scores-pretest scores) of the two dependent variables (Silent Reading Rates and Reading Comprehension) and the total number of words the participants had read through the out-of-class ER assignment. Then, in order to observe the effects of the amount of ER on those two dependent variables in detail, the participants were simply divided into three groups depending on how many words they read (Table 1).

Since the number of participants in each group was small, the Kruskal-Wallis test (non-parametric test) was performed on each dependent variable in order to compare the average gain scores (between pretest and posttest) among the three groups. SPSS Statistics 19 was used for these analyses.

To ensure that the three groups divided by the total number of words they read were equivalent in terms of Silent Reading Rates and Reading Comprehension at the stage of pretests, one-way ANOVA was run to compare the scores of each group on each dependent variable. The results revealed that there was no significant difference among the three groups on both Silent Reading Rates (WPM), $F(2, 31) = .579$, $p = .57$, and Reading Comprehension, $F(2, 31) = .395$, $p = .68$.

IV. Results and Discussion

Table 2 shows the descriptive statistics of Silent Reading Rates and Reading Comprehension.

T-tests (within-subjects) were run to detect whether there was any improvement between pretest and posttest on each type of the measurements. Significant

Table 2 Descriptive Statistics for Silent Reading Rates and Reading Comprehension Scores

	Pretest			Posttest	
	N	M	SD	M	SD
Silent Reading Rates (WPM)	34	88.39	14.97	104.20	19.06
Reading Comprehension (Max. = 20)	34	11.59	3.79	12.26	3.34

WPM: the number of words read per minute

Table 3 Pearson Correlations Coefficients among Three Variables

	1	2	3
1 The total number of words read			
2 Gain of Silent Reading Rates	0.47**		
3 Gain of Reading Comprehension	0.18	0.24	

$N = 35$ $*p < .05$ $**p < .01$

Table 4 Descriptive Statistics for Silent Reading Rates and Reading Comprehension among Three Groups

		Pretest			Posttest	
		N	M	SD	M	SD
SRR (WPM)	Less than 20,000	10	86.62	15.35	96.48	22.88
	Between 20,001 and 30,000	14	86.56	14.67	100.69	14.28
	More than 30,001	10	92.72	15.68	116.84	15.83
RC (Max. = 20)	Less than 20,000	10	11.50	3.75	12.10	4.00
	Between 20,001 and 30,000	14	12.21	3.31	12.36	2.82
	More than 30,001	10	10.08	4.64	12.30	3.97

SRR: Silent Reading Rates
RC: Reading Comprehension
WPM: the number of words read per minute

difference was detected for Silent Reading Rates ($t = -7.670$, $p < .001$). This means that the participants could improve their reading speed through the semester-long out-of-class ER assignment; however, their reading comprehension did not improve.

Table 3 shows correlation coefficients among the three variables (the total number of words read, gain scores of Silent Reading Rates, gain scores of Reading Comprehension). As the table indicates, there was a significant correlation ($r = 0.47$) between the number of words read and Silent Reading Rates, which indicates the improvement of participants' reading speed in proportion to the amount of reading the participants were engaged in through the ER assignment. However, there was no significant correlation found for reading comprehension in this analysis. This indicates that the ER assignment this time did not have effects on their reading

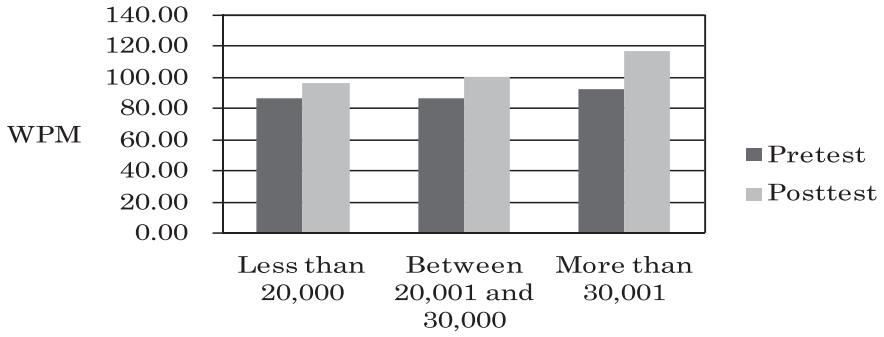

Figure 1: Comparison of Silent Reading Rates among Three Groups

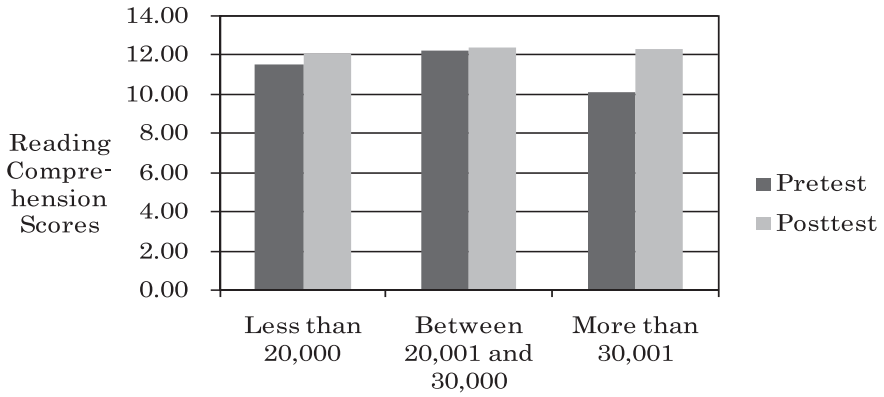

Figure 2: Comparison of Reading Comprehension Scores among Three Groups

comprehension ability.

For further analysis, the effects of ER on Silent Reading Rates and Reading Comprehension were analyzed for three groups divided on the basis of the amount of words the participant read. Table 4 shows the mean scores and standard deviation of both pretest and posttest of Silent Reading Rates and Reading Comprehension.

Figure 1 shows an outstanding gain between pretests and posttests of Silent Reading Rates for the group who read more than 30,001 words.

The Kruskal-Wallis test was run to compare the effects of ER on each dependent variable among the three groups. The test detected a significant difference in the gain scores of Silent Reading Rates among the three groups, $\chi^2 = 7.288$, $df = 2$, $p = .026$, while no significant difference was detected for Reading Comprehension, $\chi^2 = 2.125$, $df = 2$, $p = .346$. For a post-hoc analysis of Silent Reading Rates, a Mann Whitney U test was used with the p value set at .01. The test indicated that there was a significant increase at $p < .001$ ($z = -2.797$) for the comparison between the group that read less than 20,000 and the group that read more than 30,001. However, none of the other comparisons were statistically

significant.

As for research question 1, these results imply that the amount of words the participants read through the out-of-class ER have a positive effect on the improvement of participants' reading speed. Especially, those who read more than 30,000 words could improve their silent reading speed after the semester-long ER assignments. The study conducted this time confirmed the results obtained in the previous study done by Shiki and Hase (2010). However, in the previous study, the group that improved the reading speed was the one that read more than 50,000 words, whereas the group that read about 30,000 to 50,000 words did not show improvement in their reading speed. The reasons cannot be clarified in this study; however, one possible explanation could be the way the words per page of graded readers are counted. For further analysis, a more precise method to count the words should be developed. Except for this disparity with the results obtained previously, the study consistently showed that the amount of reading through an out-of-class ER has a positive influence on learners' reading speed.

As for research question 2, reading comprehension did not improve even after the semester-long ER. Since the assignment given this time required students to read only 5 books, it was questionable whether reading 5 graded readers was enough to improve students' reading comprehension. In many ER activities, students usually read more than 15 or 20 books; thus, if it is the average number of books required in general ER activities, reading 5 books per semester was obviously too few. Moreover, it can be said that one-semester practice of ER could improve participants' decoding efficiency, which is an important but also superficial aspect of reading performance, but the practice was not long enough to improve their overall reading comprehension, which is usually achieved through the synthesis of multiple component skills, each of which must be successfully functioning during reading.

V. Conclusion

The present study confirmed that an out-of-class ER can improve reading rates (WPM) among university students. Students who read more than 30,000 words improved their reading rates in the present study. As for the overall reading ability, the data obtained this time did not show that an out-of-class ER assignment can be an effective method to improve reading comprehension for university EFL students. Since the number of books the participants read was, however, scarce, the result would have been different if students had been required to read more books than they had actually been told as an assignment. In this sense, the effects of ER on overall reading ability should not be interpreted negatively. Theoretically,

improvement in reading speed means that students have attained efficiency in decoding and thus expanded the chance to spend more of their cognitive resources on text-meaning construction during reading. If so, any training that is likely to improve reading fluency should be included in EFL reading instruction. Extensive reading, whether in or outside class, should be encouraged more as an important part of fluency instruction.

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