The Effects of Extensive Reading for Japanese High School Students on their Reading and Listening Abilities, Vocabulary and Grammar

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Abstract

The present study aims to empirically and longitudinally investigate the effects of extensive reading on Japanese EFL high school students with respect to their reading and listening comprehension, and their lexical and grammatical knowledge. The participants chose and read English graded readers outside the class for about eight and a half months and took six kinds of skill and knowledge tests before and after the extensive reading program. The results show that extensive reading of approximately 50,000 words improved the reading comprehension and speed significantly, regardless of the students' level of reading comprehension and speed before the program. Extensive reading also significantly increased the students' word recognition. On the other hand, spelling, grammar, and listening did not improve significantly.

1. Introduction

A number of researchers have maintained the beneficial effects of extensive reading on L2 learners (e.g., Nuttall, 1982; Day & Bamford, 1998). Despite the fact that the public in Japan have been interested in extensive reading, it has not been widely adopted in senior and junior high schools. One of the main reasons could be that many teachers are not aware of its benefits. A large number of empirical studies in other countries have found that extensive reading in L2 has favorable effects on reading, writing, vocabulary, and oral skills. In Japan, however, there have been fewer empirical investigations of this pedagogical practice, especially for senior and junior high school students. The dearth of research calls for additional studies to be conducted.

Day & Bamford (1998, pp.7-8) define extensive reading as “reading to enjoy, to get information, or to understand something, not focusing on understanding the details or...
grammar of the materials but focusing on understanding the overall meaning.” Naturally, students engaged in extensive reading tend to read more in comparison to those engaged in intensive reading. The English textbook authorized by the Ministry of Education, Culture, Sports, Science and Technology, which the participants in this study used in class for one year, has less than 5500 words of text in it.

2. Literature Review

The following are empirical studies on the effects of extensive reading on the skills of Japanese high school students, which have often been cited in papers and publications related to extensive reading for senior high school students in Japan.

In Kanatani et al. (1991), 60 volunteer first-year high school students participated in a marathon reading program, where they read English books of their own choice outside of class for 4 weeks and recorded what they read in their notebooks. At the end of the four-week period, they took a reading comprehension achievement test. The results indicate that there was no significant difference between the participants of the program and the non-participants. However, when the two groups were tested 6 months after the completion of the program, the participants fared much better than the non-participants. This was regarded as “latency period effect,” which lasted for about 6 months.

Suzuki (1992) established a “paperback club” at a high school. He asked 41 volunteer students to read English books of their own choice outside of class and found that extensive reading improved the participants’ listening comprehension and “reading efficiency,” that is, reading speed and comprehension, after they had read more than 300 pages. This study is remarkable as it accounted for the data of pages read.

In Hashiomoto et al. (1997), 200 first-year high school students read as many books as possible of their own choice for 8 months. The results indicated that there is a strong correlation between the number of pages read and the degree of improvement in reading efficiency, regardless of the level of their reading efficiency before the extensive reading program. This study is remarkable as it statistically analyzed the data including the number of pages read.

All of the cited studies illustrate the positive effects of extensive reading; however, as far as the author knows, no study longitudinally and empirically investigated the effects of extensive reading on reading and listening comprehension and the lexical and grammatical knowledge of Japanese high school students, using reliable quantitative data.

3. Research Question

Does extensive reading improve Japanese high school students' reading and listening
comprehension, and their lexical and grammatical knowledge?

4. Method

Waring (2001) pointed out problems with the validity and reliability of the research designs and methods of many previous extensive reading studies. In consideration of educational fairness, it is often difficult to conduct perfect experimental researches. However, the following shows how this study modified the previous studies and what were devised in this study.

(1) The number of words rounded to the nearest hundred was used to measure the amount of text to be read rather than the number of pages.
(2) This study covered 267 participants to ensure better reliability of data.
(3) This study used as many questions as possible on the limitations of the school in order to ensure better reliability of data.
(4) The level of questions ranged from easy to difficult, according to the levels of the participants. The purpose was to measure even small gains in skills at all levels. For this reason, the current study adopted most of its questions from past STEP (EIKEN) Grade 3, pre-2, and 2 tests, whose levels were suitable for the participants.
(5) With the exception of the listening comprehension tests, the pre- and post-tests used different questions. The tests were given to other students in advance to confirm that the difficulty of the pre- and post-tests, which measured proficiency and knowledge, did not differ significantly (p > .05). Some previous studies used the same texts and questions in the reading test for pre- and post-tests. In such studies, it is possible that the participants used a reading strategy on the post-tests based on their memory of pre-tests.
(6) Six kinds of skill tests were conducted with the same participants to investigate the various effects of extensive reading.

4.1. Participants

The participants were 267 second-year senior high school students between the ages of 16 and 17. They studied at an average level co-educational public high school. The English levels of most students ranged mainly from STEP (Eiken) Grade pre-2 to Grade 3. In other words, most of them were between 330 to 480 TOEIC levels.

4.2. Procedure

The extensive reading program was conducted for eight and a half months. The participants were instructed to read graded readers of their own choice outside the class at their own pace. After completing a book, they were asked to fill up a “marathon reading sheet,” which included information such as the book’s title, the dates on which they started
and finished reading, a few comments about the book, and five or more words they learned from the book. In addition, they recorded how many points they had earned; for every 100 words, they earned 0.1 points. The author of this study wrote the point value on the back page of each book.

4.3. Instrument

Before and after the extensive reading, the following six skill or knowledge tests were given to the participants.

(1) Reading Test (reading comprehension test): This test measured the participants’ reading comprehension. It was composed of questions from the reading sections of STEP Grade 3, pre-2, and 2 Tests. The total testing time was 60 minutes, which was enough for most students to carefully read the texts and questions. The study conducted by Hashimoto et al. (1997), which is one of the most frequently cited studies on extensive reading for Japanese high school students, used 2 texts and included 5 questions about each text: 10 questions in total. We followed a similar procedure; Grade 3, pre-2 and 2: 2 × 3 = 6 texts and 6 × 5 = 30 questions in total. The perfect score for the test was 30.

(2) Reading Efficiency Test (reading comprehension and reading speed test): This measured the participants’ reading comprehension and speed. It included easier texts and questions, compared to the Reading Test, from the reading sections of STEP Tests and a reading exercise book. This study used 3 texts and 20 comprehension questions in total.

(3) Multiple-choice Vocabulary Test (vocabulary test): It measured the participants’ vocabulary by instructing them to choose the correct Japanese translation for certain English words. This study made use of 24 words, each from under-500, 1,000, and 2,000 level words: 24 × 3 = 72 words. JACET 8000 (2003) was used to identify word levels. The perfect score for the test was 72.

(4) Spelling Test (vocabulary test): This measured the participants’ lexical knowledge by instructing them to translate a Japanese word and provide the correct spelling. The test had 20 words from each of the following word levels: under-500, 1,000, and 2,000: 20 × 3 = 60 words. JACET 8000 (2003) was used to identify word levels. The perfect score for the test was 60.

(5) The Grammar Test: This test used 15 questions from Step Grade 3 Tests, 10 from Grade pre-2 Tests, and 10 from Grade 2 Tests: 15 + 10 + 10 = 35 questions. The perfect score for the test was 35.

(6) Listening Comprehension Test: This test was composed of listening comprehension sections of STEP Grade 3, pre-2, and 2. It used 10 questions from Step Grade 3 Tests, 8 questions from Grade pre-2 Tests, and 8 questions from Grade 2 Tests: 10 + 8 + 8 = 26 questions. The perfect score for the test was 26.
4.4. Analysis

After the participants completed the extensive reading program, they were divided into the following three groups depending on the number of words they had read: Maximal (Max), Intermediate (Int), and Minimal (Min). A two-way 3 (groups according to the number of words read; Max, Int and Min) × 2 (tests: pre-test and post-test) repeated-measures ANOVA was carried out. A subsequent analysis was performed using Bonferroni’s multiple comparisons [Analysis A].

In addition to dividing the participants into three groups based on the number of words they had read [Analysis A], they were divided into the Upper Group and the Lower Group, depending on their scores for each test. Both the groups included Maximal, Intermediate, and Minimal Groups. In total, six groups were made for each test. Each of the Upper Groups and Lower Groups was analyzed by a two-way 3 × 2 repeated-measures ANOVA and the subsequent Bonferroni’s multiple comparisons [Analysis B].

Analysis A analyzed the effects of extensive reading on the participants depending on the amount of text read, and Analysis B analyzed the effects considering the levels of the skills of the participants before the extensive reading program.

5. Results and Discussion

Table 1 shows the number of words read by participants during the extensive reading program. Tables 2–7 show the descriptive statistics of the six skill or knowledge tests and the results of the two-way ANOVA and Bonferroni’s multiple comparisons of the skill tests.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Minimum</th>
<th>Maximum</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximal</td>
<td>89</td>
<td>33,000</td>
<td>279,400</td>
<td>50.352</td>
<td>29.304</td>
</tr>
<tr>
<td>Intermediate</td>
<td>89</td>
<td>16,000</td>
<td>32,900</td>
<td>24.388</td>
<td>4.509</td>
</tr>
<tr>
<td>Minimal</td>
<td>89</td>
<td>0</td>
<td>15,700</td>
<td>9.521</td>
<td>4.471</td>
</tr>
<tr>
<td>Total</td>
<td>267</td>
<td>0</td>
<td>279,400</td>
<td>28.087</td>
<td>24.149</td>
</tr>
</tbody>
</table>

5.1. Reading Test (reading comprehension test)

Analysis A (Table 2) revealed that there was significant interaction between groups and tests (p < .001), and the multiple comparisons showed Max > Int > Min. Analysis B (Table 2) showed that in both the Upper and Lower Groups, there were significant interactions between groups and tests (p < .01). In addition, the multiple comparisons showed Max > Min. These results indicate that extensive reading improved the reading comprehension significantly regardless of the level of the participants’ reading comprehension before the program. This is an important effect of extensive reading on the skills of the participants.
It can be said that reading a large quantity of English in the program enabled them to comprehend English passages more accurately. The results also suggest that reading approximately 50,000 words improves the reading comprehension significantly, since the Maximum Group read 50,352 words during the period in average.

5.2. Reading Efficiency Test (reading comprehension and reading speed test)

Table 3. Summary of Descriptive Statistics for the Reading Efficiency Test and the Results of ANOVA

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Maximum</th>
<th>Intermediate</th>
<th>Minimum</th>
<th>M(SD)</th>
<th>M(SD)</th>
<th>M(SD)</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Group</td>
<td>Pre-test</td>
<td>23.04(2.11)</td>
<td>22.57(2.16)</td>
<td>22.32(1.94)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>24.29(3.13)</td>
<td>22.70(4.15)</td>
<td>21.14(4.60)</td>
<td>Max&gt;Int&gt;Min</td>
<td>Interaction: ***F</td>
<td></td>
</tr>
<tr>
<td>Lower Group</td>
<td>Pre-test</td>
<td>16.89(2.03)</td>
<td>16.22(2.39)</td>
<td>16.54(2.76)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>20.68(3.40)</td>
<td>18.58(3.81)</td>
<td>17.50(4.82)</td>
<td>Max&gt;Int&gt;Min</td>
<td>Interaction: ***F</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Pre&lt;Post</td>
<td>ns</td>
<td>Pre&lt;Post</td>
<td>ns</td>
<td></td>
<td>Interaction: ***F</td>
<td></td>
</tr>
</tbody>
</table>

***p<.01 ***p<.001 Note: significant level at p<.05.

Table 3 indicates that significant interactions were found between groups and tests (Analysis A and Analysis B for the Upper Group: p < .001; Analysis B for the Lower Group: p < .05). The multiple comparisons show Max > Int = Min or Max > Min. The results show that extensive reading significantly improved the reading speed and comprehension regardless of a participant’s level before the extensive reading program. By reading a large quantity of easy texts, the participants not only increased their reading speed but also improved their comprehension. Hashimoto et al. (1997) suggested that reading more than 200 pages improved reading efficiency. Suzuki (1992) reported that the participants who read more than 300 pages also showed improvements in reading efficiency. If one page contains approximately 200 words, a 250 page book has approximately 50,000 words, which is enough to demonstrate the effects on reading speed and comprehension.

5.3. Multiple-choice Vocabulary Test (vocabulary test)
Table 4: Summary of Descriptive Statistics for the Multiple-choice Vocabulary Test and the Results of ANOVA

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Pre&lt;Post</th>
<th>Pre&lt;Post</th>
<th>Interaction: *F</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>40.62(4.41)</td>
<td>41.62(6.90)</td>
<td>41.40(4.21)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>47.36(6.71)</td>
<td>46.14(6.92)</td>
<td>46.16(6.00)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>30.33(3.42)</td>
<td>30.30(3.61)</td>
<td>29.84(3.58)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>38.95(5.10)</td>
<td>37.37(4.80)</td>
<td>36.84(5.64)</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>

tp<.10 *p<.05 Note: significant level at p<.05.

Analysis A (Table 4) shows that there was significant interaction between groups and tests (p < .05). Analysis B of the Upper Group shows that there was weak interaction between groups and tests (p = .081), but Analysis B of the Lower Group did not show any significant interaction between groups and tests. Extensive reading tended to bring small gains in recognizing the meanings of words. Incidental learning of vocabulary through reading about 50,000 words proved helpful, but was effective to a limited extent for vocabulary acquisition.

Some previous studies (e.g., Bensoussan & Laufer, 1984) maintained that the meanings of most unknown words are not guessed correctly in incidental learning because many unknown words tend to be ignored. In the present study, most of the participants read very easy graded readers, which were i minus l or easier than the level, making it possible for them to guess the meaning of unknown words, as many of them wrote in the post-questionnaire as “I have become able to guess the meanings of unknown words from the context through the extensive reading.” However, the number of such words was not large. Therefore, it is safe to conclude that by reading graded readers, participants remembered the words they had already learned but did not remember until they encountered them over and over again. Statements made by a number of participants in the post-questionnaires support this conclusion. One of them explained, “Before the extensive reading program, there were a lot of words that I had seen before but couldn’t remember. Through the extensive program, I know the meaning of many such words....”

5.4. Spelling Test (vocabulary test)

Table 5: Summary of Descriptive Statistics for the Spelling Test and the Results of ANOVA

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Pre&lt;Post</th>
<th>Pre&lt;Post</th>
<th>Interaction: ns</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>16.03(5.35)</td>
<td>15.78(5.94)</td>
<td>16.00(5.92)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>20.82(6.75)</td>
<td>20.40(6.36)</td>
<td>20.56(6.01)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>20.61(4.09)</td>
<td>20.11(5.00)</td>
<td>19.25(3.30)</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>25.24(6.25)</td>
<td>24.11(6.10)</td>
<td>24.04(4.64)</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>

Note: significant level at p<.05.
The analyses of the Spelling Test (Table 5) indicate no significant increase of spelling by extensive reading, although an increase was revealed in the Multiple-choice Vocabulary Test. Merely reading approximately 50,000 words was not enough to improve the participants’ spelling. It is also possible that the depth of orthography in English (Katz and Frost, 1992) makes it difficult to learn how to spell words by mere reading.

5.5. Grammar Test

Table 6 Summary of Descriptive Statistics for the Grammar Test and the Results of ANOVA

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Pre&lt;Post</th>
<th>Pre&lt;Post</th>
<th>Pre&lt;Post</th>
<th>Interaction: ns</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Upper</td>
<td>22.77(3.18)</td>
<td>22.25(2.90)</td>
<td>22.82(2.86)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group</td>
<td>23.67(4.10)</td>
<td>22.36(3.60)</td>
<td>22.41(3.60)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Lower</td>
<td>14.63(3.57)</td>
<td>14.84(2.50)</td>
<td>15.38(2.53)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group</td>
<td>17.57(3.10)</td>
<td>17.16(3.91)</td>
<td>17.20(3.36)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: significant level at p<.05.

Analyses A and B in Table 6 found no significant increase of grammar by extensive reading. This suggests that reading approximately 50,000 words was not enough to increase grammatical knowledge or that extensive reading does not improve it effectively. It was difficult for the participants to learn grammatical items simply by reading about 50,000 words without paying any particular attention to or without any help in finding grammatical items.

5.6. Listening Comprehension Test

Table 7 Summary of Descriptive Statistics for the Listening Test & the Results of ANOVA

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Pre&lt;Post</th>
<th>Pre&lt;Post</th>
<th>Pre&lt;Post</th>
<th>Interaction: ns</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Upper</td>
<td>18.37(2.09)</td>
<td>18.52(2.01)</td>
<td>18.33(2.53)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group</td>
<td>18.28(3.50)</td>
<td>17.80(3.27)</td>
<td>18.33(3.73)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Lower</td>
<td>12.70(2.03)</td>
<td>12.38(2.24)</td>
<td>11.91(2.40)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group</td>
<td>14.96(3.03)</td>
<td>14.53(3.57)</td>
<td>14.02(3.47)</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: significant level at p<.05.

Analyses A and B recorded in Table 7 show no significant increase of listening by extensive reading. This suggests that silently reading approximately 50,000 words was not enough to improve listening comprehension. Participants could not enhance their word recognition in listening if they did not know the correct pronunciation of the words. English is a language with a deep orthography (Katz & Frost, 1992), which may make the transfer of improvement in reading to listening difficult.
6. Conclusion

This present study shows that extensive reading of approximately 50,000 words had significant effects on reading comprehension and speed for the EFL Japanese high school students regardless of the levels of their reading comprehension and speed before the extensive reading. They learned not only to read carefully and understand better but also to read easier texts faster and comprehend better. This is one significant effect of extensive reading. In addition, extensive reading resulted in a small but significant gain in word recognition.

On the other hand, spelling, grammatical knowledge, and listening comprehension did not improve significantly (p > .05).

The present study was conducted at an average co-educational public high school, while most previous studies were on the students at prestigious high schools or private high schools with more English lessons in the curriculum. The results of this study, therefore, could be useful for average high schools, most of which do not currently employ extensive reading programs. Reading approximately 50,000 words would be the first goal in such programs.

L2 readers need to learn to recognize words rapidly, automatically, and accurately to become better readers. In order to develop automatic word recognition, extensive reading, which provides the learners with large quantity of exposure to the target language, is effective (Grabe 1991). Future studies could be conducted to examine the relationship between extensive reading and word recognition speed.

On the other hand, it is reasonable to think that extensive reading helps the L2 learners in improving a variety of skills and sub-skills, even though the improvement is not significant. For example, learners gradually improve their knowledge and recognition of words learned before, successively and manifoldly, related to various other skills, each time they encounter them in lexically well controlled i minus l graded readers. Also, it is thought that improvement in reading cannot be easily transferred to listening (Hirai 2001), which is corroborated by the present study. Nevertheless, it is possible that extensive reading accompanied with CDs attached to graded readers or more listening practice could enable learners to make use of what is gained through extensive reading after the amount of listening exceeds some level.

In addition, Japanese L1 for Japanese EFL learners is different in many aspects from Indo-European languages and English is a language of deep orthography (Katz and Frost 1992). Moreover, Japanese language does not have alphabetical orthography and Japanese EFL learners tend to be slower in recognizing words than the learners whose native language has alphabetical orthography (Akamatsu 1999). Therefore, elaborate quantitative and qualitative research on various aspects of extensive reading on Japanese EFL learners is required. It is crucial to know the effects of extensive reading on Japanese EFL learners, employ extensive and intensive reading, and incidental and intentional learning in the
curriculum, considering the balance and the multiplier effects.

Notes

1. Reading efficiency = reading speed (WPM) × (the number of correct answers/ the number of questions).
2. The following website was referred to in order to find the number of words in each graded reader. SSS Graded Readers Word Counts and Recommendation List (The site is run by SSS Extensive Reading Study Group) http://www.seg.co.jp/sss/shohyou/word-count.html.

References


