

How many words should elementary EFL learners read extensively and from which readability levels

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Abstract

The effect of a 2.5-year long extensive reading (ER) program was examined in this paper. The subjects were 129 students in a kosen or a college of national institute of technology (NIT), who had been learning English as a foreign language (EFL) for three years before the ER program, and their English proficiency stayed in elementary level. They attended the ER program for 2.5 years, took a 45-minute weekly ER lesson for 75 weeks, and read 298 thousand total words of easy-to-read English texts in median.

The effect of reading a large amount of English texts was examined by comparing the average TOEIC scores among seven student-groups, which had different total words read by the members. Only the average score of the most-read group, whose median words was 601 thousand words, was significantly higher than the average scores of the other less-read groups. We suggest that kosen students should read more than 600 thousand words to recognize the benefits of ER in the TOEIC and ER programs in kosen should have longer duration than three years so that the target amount becomes feasible for many students.

Reading logs of nine students, who had read around 420 thousand words, suggested that the students who had read more number of *easier* books, especially the easiest graded readers (of 300 or fewer headwords), scored higher in the TOEIC, but ones who had read more difficult graded readers (of 300 – 1,000 headwords) scored lower. The most recommended books for elementary EFL learners were the *easy-to-read* books: the easiest graded readers and further easier picture books such as *Oxford Reading Tree* series. We would also recommend the elementary EFL learners to read 200 thousand words, almost a third of the suggested 600 thousand words, from these *easy-to-read* books.

Keywords: Extensive reading, elementary EFL learners, Total words, Readability

1. Introduction

Grabe (2009: 311-312) described the ability to read extended texts for long periods of time as “a hallmark of fluent reading. No other set of reading activities or reading practice can substitute for reading a longer text with reasonable comfort and without needing to stop constantly, and without feeling fatigued or overwhelmed” and extensive reading (ER) as the way to ensure the goal. A wider range of learning benefits and issues of ER for English as a second language (ESL) and English as a foreign language (EFL) learners were summarized by Day and Bamford (1998), Elley and Mangubhai (1983), Grabe (2009), and Waring (2001).

Studies in EFL settings alone showed various benefits of

ER, such as higher reading comprehension (Robb & Susser, 1989; Robb & Kano, 2013; Tanaka & Stapleton, 2007), better writing (Hafiz & Tudor, 1990), improving attitude to reading (Kitao, Yamamoto, Kitao & Shimatani, 1990; Nishino, 2007; Yamashita, 2013), improved reading fluency (Beglar, Hunt & Kite, 2012; Beglar & Hunt, 2014; Iwahori, 2008; Taguchi, Takayasu-Maass & Gorsuch, 2004), and test scores in standardized tests (Mason, 2004; Nishizawa, Yoshioka & Fukada, 2010; Nishizawa & Yoshioka, 2015; Nishizawa, Yoshioka & Ichikawa, 2017). These studies and their reported benefits, however, did not necessary transferred to practice.

1.1 English learning of Japanese EFL Learners

It might be because in Japanese EFL education “fluent reading is often not really the goal for a reading class or a reading curriculum; rather, the goal is the development of

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language skills, vocabulary, grammar, translation, or study skill”, as Grabe (2009: 312) stated for one of five explanations for the *nonpopularity* of extensive reading. Japanese junior high school students learned English grammar and vocabulary for three years to pass entrance examination to high school, and high school students continued their learning for additional three years to pass entrance examination to university. Because they had little experience of reading English texts of more than a thousand words or listening English narrations of more than ten minutes, and because they did not use English in daily life, they lacked fluency in reading and listening. Their *reading* often meant translating short English texts into Japanese word by word, and they did not believe it possible that they were able to comprehend English texts without translation. When they needed to *speak* in English conversation classes, they simply repeated the known patterns or struggled to translate their idea from Japanese into English on the spot, resulting mostly to utter a few words but not a sentence.

As a result, Japanese EFL learners’ English proficiency was generally low as we could see in score distribution of the Test of English for International Communication (TOEIC) (IIBC, 2011). The TOEIC is a standardized proficiency test of receptive English skills for nonnative speakers of English (Woodford, 1982) widely used in Japan. The institutional program had 993 thousand test takers in 2010 academic year, where 55% belonged to elementary (D < 470) level. The students’ average scores of high school, institute of technology (kosen), and university major in science, engineering and agriculture all belonged to elementary level, too.

Elementary level test-takers often complained that the conversation at listening part was too fast and test-time of reading part was too short, which suggested that their processing speed of English information was too slow to utilize their knowledge of English grammar and vocabulary. TOEIC might be a difficult test for elementary EFL learners, and only a few percentage of high school students took the test. Third year kosen students had even lower scores than high school students as Kameyama (2009) argued that they had fewer English lessons in their first three years and did not need to prepare for entrance examination to university.

1.2 Effect of ER measured with standardized tests

Another possible reason of ER’s *nonpopularity* was the gap between research and practice. Even though Gradman and Hanania (1991) reported University ESL students’ TOFEL scores were most strongly correlated with extra-curricular reading among 44 language-learning factors, it obviously required large amount of reading and long duration as Day and Bamford (1998, viii) stated as “an approach to the teaching and learning of second language reading in which learners read large quantities of books and other materials that are well within their linguistic competence.” Japanese teachers and learners were wondering if the benefits were large enough for them to alter the current teaching/learning practices. They were especially uncertain how those reported benefits were transferred to their students’ academic performance at schools, or scores at high-stake examinations or standardized tests. They also needed to know the quantity and quality of their students’ effort to enjoy the benefits, in another words, how many total words elementary EFL learners should read and from which readability levels.

There were several studies, where the benefit of ER was measured quantitatively with standardized tests. Mason (2004) evaluated the effect of ER with reading section of the TOEIC. 104 Japanese college students major in English had read about 500 thousand words in three semesters (1.5 years). 88 students’ TOEIC/Reading scores were measured as pretest and posttest, and the average was 121 and 157 respectively. If we assume the same score ratio of reading part and total score: 0.446 (123.64/277.26) was kept, their TOEIC total scores were estimated to be 272 and 353 respectively (increase of 81 points). This study implied the necessity of large amount of reading for elementary EFL learners.

Nishizawa, Yoshioka, and Ichikawa (2017) reported students’ TOEIC score increases in a 7-year long ER program. 13 Students had read 1.3 million words in median with a yearly pace of 186 thousand words, and their average TOEIC score increase from 348 in the third year to 548 in the seventh year. They claimed the advantage of longer ER programs continuing six or seven years upon shorter ones of three years for elementary EFL learners.

1.3 Amount to be read and duration of ER programs

Actually, Sakai (2002) had proposed one million total words

as a milestone for ER in Japanese EFL settings based on the experience of his ER program for university engineering majors. A million words was about eight to ten times of the total words read by the university students in Robb and Susser's ER project (1989) who had read 641 pages in average.

There were a few ER programs in which students actually read the amount close to a million words. Mason's (2004) students, college English-majors read an average of 2,300 pages (about 500 thousand words), and a group of students spent 150 hours reading. Furukawa (2008) reported the average total words read by ninth graders was 680 thousand words in 2.2 years of his ER program. And the average total words were extended to 1.2 million words by 12th graders staying in the sixth-year form of his program (Furukawa, 2011). Nishino (2007) followed the ER of two third-year junior high school students for 2.5 years and they read 36 or 42 graded readers. Their estimated total words by Beglar & Hunt (2014: 31) were 333 and 402 thousand standard words, or 392 and 473 thousand words calculated by the coefficient binding two measures: 0.85 (Beglar & Hunt, 2014: 45). Kanda (2009) studied the ER of a university student for three years, who had read a million words. Nishizawa, Yoshioka (2015) reported their students felt that they could read English texts fluently when they had read 821 thousand words in 4.0 years, and also felt that they could avoid Japanese in reading English texts when they had read 876 thousand words in 4.3 years in average. Their slowest learners answered that they needed 6.5 years to feel that way.

1.4 Readability of English texts

Another important aspect of ER in EFL settings was the readability of English texts. Sakai (2002) proposed Japanese EFL learners to start ER from leveled readers, such as Step into Reading Step 1 (SIR1), I Can Read Books Level 1 (ICR1), Penguin Young Readers Level 1 (PYR1), or Oxford Classic Tales Beginner Level 1 (OCT1), series of picture books designed to invite L1 children to reading. They were much easier books than starter level of graded readers (GR), whose vocabulary and grammatical structure were carefully controlled for L2 learners. Furukawa et al (2005) recognized the impact of Sakai's (2002) proposal, and compiled a book-list for Japanese EFL learners including the *Oxford Reading Tree* (ORT) series, *Foundations Reading Library* (FRL) series, and starter level of

GR (see Appendix). Furukawa et al (2005) also defined the Yomiyasusa level (YL), a readability scale optimized for Japanese EFL learners. The scale was partially based on objective measures such as headwords, grammatical complexity, or text length, but also on subjective measures such as how easy typical students found the story (Eichhorst & Sheron, 2013: 8). YL took the lowest value 0.0 for the easiest texts and the highest 9.9 for the most difficult books. Furukawa et al were guided by the recognition "Even if a student knows all the words of a text in their decontextualized forms, it is still possible that the student may not comprehend that text" as McLean (2014) stated.

Guided by Sakai's (2002) guidance and using the booklist of Furukawa et al (2005), Nishizawa and Yoshioka (2011) observed that students in their ER program were reading GR of headwords fewer than 600, which were far easier books than the standard books for ER in ESL settings or easier than the books recommended by Edinburgh Project on Extensive Reading (EPER) (Hill, 1997, cited in Day & Bamford, 1998: 173-212). They argued that Oxford Bookworms Stage 1 (OBW1, GR of 400 headwords) was a book-series read only by their students whose TOEIC scores exceeded 450 in their third year of the 5-year long ER program and that OBW1 was too difficult for elementary EFL learners to read extensively without translating every word into Japanese.

Mason's (2004) students had started reading from 600 headwords level graded readers, and had gradually moved up to higher level readers (1,100, 1,600 and 2,200 word level) and to authentic books written for young native-speaking adults. There was a huge gap in readability of English texts read by Nishizawa and Yoshioka's (2011) students and Mason's (2004) students.

Beglar and Hunt (2014) showed that reading lower-level simplified texts within learners' linguistic competence was effective for developing the reading rates of Japanese university students, whose reading proficiency are at a lower-intermediate level, in their 1-yearlong ER program. Their lower-level simplified texts were GR of 300 – 800 headwords (12.5 books) and GR of 1,000 – 1,600 headwords (10 books).

Eichhorst and Shearon (2013: 26, 37) guided their university students to read 30 thousand words of GR of up to 300 headwords, following 70 thousand words of GR of up to 800

headwords, and 100 thousand words of GR up to 1500 headwords and so on. In these studies, GR of 300 – 800 headwords were thought to be easy enough and well within the vocabulary size of the university students.

Takase (2008) showed the positive effect of reading an average of over 100 very easy-to-read books (YL 0.0 – 1.0) at the beginning of her ER program for Japanese university students, and observed that the effect was caused by lowering the learners' affective filter and enabled them to unlearn translation habits. Her very easy-to-read books included ORT, FRL, and easiest level of GR (300 or fewer headwords). Takase (2009) also suggested that those books removed the major obstacle of many Japanese high school and university students who had difficulty in reading even the easiest level of GR without translating each word into Japanese. Furukawa (2011) suggested that Japanese EFL learners should read at least 100 thousand words before finishing YL 1.0 (*Oxford Reading Tree* Stage 9: ORT9), which was as easy as Takase's (2008, 2009) easy-to-read books.

Nishizawa and Yoshioka (2015) claimed that their students' TOEIC score increase rate when they had read around a million words might depended on how much easy-to-read texts they had read in the first 400 thousand words. The total word counts of easier-to-read books (YL \leq 1.4) were positively correlated with the score increase rate. The recommended books for elementary EFL learners were the easiest level of GR (headwords 300) and easier-to-read picture books such as *Oxford Reading Tree* series.

2. Research questions

Based on the background, we would like to answer the following two questions in this article. The first question is "How many words should elementary EFL learners read to improve their English skills so their improvement could be measure by TOEIC?" We would like to show the necessary amount for kosen students to increase their average TOEIC score from current 310 level to 400, the average score of university students majoring in science, engineering and agriculture (IIBC, 2011: 11).

The second question is "What are the recommended readability levels of English texts for elementary EFL learners?" We would like to find if the easiest books (YL \leq 1.0)

suggested by Furukawa (2011), Takase (2008, 2009), and Nishizawa and Yoshioka (2015) were really the best suits for Japanese elementary EFL learners.

3. Method

3.1 Subjects and ER lessons

The ER program was conducted at a college belonged to national institute of technology or a kosen that was a specialized institution for early engineering education in Japan. There were 57 kosens and their new students occupy about 1% of all K10 students in Japan. Kosens accepted graduates from junior high schools, where they had already learned English for three years. Fresh kosen students were generally excellent in mathematics and science, but moderate or average grade in English. Their English proficiency was evaluated by the TOEIC because the test had high reliability and was sensible to English skills of elementary and intermediate levels. Average TOEIC score of third year kosen students was 326 (IIBC, 2011: 9) in 2010, which was 81 points, about one standard deviation of all the test takers, lower than the average of first year university students major in science, engineering and agriculture.

The subjects of this study were students who had entered a kosen in April 2007 and 2008, and were the third year students in 2009 and 2010. They were called by 2009 cohort and 2010 cohort respectively in this study. From them, this study excluded the students who had left the program for studying abroad, the students who did not take the TOEIC test, and the students who lost their reading logbooks. 60 students of Class 5 in 2009 and 2010 cohorts were also excluded because they had additional 2.0 units of ER lessons in their second and third years and they had read far more books than the students of Class 1-4. Third year students who had just returned from studying abroad and visiting Asian students were also excluded.

As a result, the subjects became 139 students in 2009 cohort and 129 students in 2010 cohort. They belonged to four classes (Class 1 - 4), each of which came from different engineering department. They all took three 90-minute weekly English lessons for 30 weeks (6 units) at the first year, and two lessons (4 units) at the second and third years. Maximum duration of the ER program was three years, but we analyzed the data for the first 2.5 years because the students took the TOIEC tests at that timing.

They were divided into two groups depending on their ER experiences (Table 1). Group 1 (2009 cohort) had 12 units of traditional English lessons with no ER classes during the 2.5 years and made a control group. For the students of Group 2 (2010 cohort), 45 minutes per week were substituted from traditional teaching to ER activities for 2.5 years (2.5 units).

Table 1: Subjects for this study

Group		1	2
Cohort		2009	2010
Class		1-4	1-4
N of students		139	129
N of lesson units*	Total	12	12
	Traditional	12	9.5
	ER	0	2.5

* one unit is a 45-minute weekly lesson for 30 weeks

3.2 ER activities

Main ER activity was sustained silent reading (SSR), plus some shadowing, and reading while listening (RWL). Shadowing was conducted mostly at the first year for the students to familiarize English sound and *longer* English texts. It was a mandatory activity for the first year students. RWL was a practice to read English texts along with listening to audio narration of the text. The readers were not supposed to pose or interrupt the narration and were force to read the text at the same speed of the narration. They comprehended the story mainly from the texts but not from the narration. The narration set the reading pace, and was expected to protect the students from their habit of translating English texts into Japanese. It made a good introduction to ER, but RWL was not a mandatory but elective activity.

ER activities took place in the language laboratory, which stored 2,000 introductory books for ER and their audio CDs. Language laboratory was more convenient place for shadowing but it was not suited to promote out-of-class reading because it lacked the checking out system of books. Students had to visit the college library in their recesses or after the lessons to borrow the books from the library, which had about 32,000 books for ER and 2,000 sets of audio CD. Although they were encouraged to read also out of the class especially during long

holidays, actual amount read differed widely from student to student.

3.3 Reading Log

All the ER students (Group 2) had record their reading histories in and out of the class in their reading log books, which were periodically reviewed by the teachers. The record contained the date, title, series name, YL, word count of the book, cumulated word count, 5-graded subjective evaluation of the story, and short comment describing what the students thought about the story or how they felt about their reading. The comment often told how the students enjoyed the reading or if the book was too difficult for them. Length of the comments ranged from two to three Japanese sentences to one word or none at all. It was also suggested to write a record for several books together if the stories were too short or the YL was lower than 0.6 to avoid spending too much time only for recording. After the program had finished, logbooks of selected students were analyzed thoroughly to examine when and how the students had read during the program.

3.4 Evaluation and Analysis

The students of 2010 cohorts (Group 2) took the Assessment of Communicative English (ACE) test as the pre-test in December of their first year (at 0.7 years), and all the students took the TOEIC as the post-test in October of their third year (at 2.5 years). The ACE was a test developed to evaluate English ability of Japanese high school students by Association for English Language Proficiency Assessment (ELPA, 2014a). It measured the knowledge of grammar and vocabulary, reading comprehension, and listening comprehension in 900-point scale. It took 80 minutes test-time, its English texts were easier than TOEIC, its English narration was slower than TOEIC and repeated twice, and TOEIC score estimation was possible by the correlation table (ELPA, 2014b). The subjects' average ACE score for Group 2 (Class 1-4 of 2010 cohort) and Group 4 (Class 5 of 2010 cohort) was 426 and 491 respectively, and its TOEIC estimation was 320 and 355 respectively.

We used the total score of TOEIC as the measure because both scores of reading section and listening section increased in balance in the past studies (e.g., Nishizawa, Yoshioka & Fukada, 2010). Average TOEIC score of Group 1 (Class 1-4 of 2009

cohort) was 305, and was lower than national average 326 of third year kosen students or the average TOEIC score 320 of Group 2 at their first year estimated from the ACE score, possibly because we excluded supposedly higher scorers; 34 students who had just returned from studying abroad and two visiting Asian students from 2010 cohort.

We divided the students of Group 2 into seven groups by their total words read during the 2.5 years, and compared the average TOEIC scores with the average of Group 1 and among the seven groups (Group 2A – 2G) to examine the effect of total words read extensively. The students whose first-year ACE scores were with one standard deviation (59 points) higher or lower than the average of Group 2 (426) were excluded from the analyses to avoid the influence of students' initial English proficiency difference.

We also selected nine students from Group 2 to analyze the effect of readability levels of the books read by the students on their TOEIC scores. The selected students' total words were around 420 thousand words (± 100 thousand), and the first-year ACE scores were around the average 426 (± 59). The 420 thousand words were selected as the threshold where the students' TOEIC score might start to increase (as described in Results part). The effect of reading the same amount but from different readability levels was to be analyzed.

4. Results

The median total words of Group 2 were 298 thousand words during the 2.5 years, and their average TOEIC score 311 was not significantly higher than 306 of Group 1.

Table 2: Total words and the TOEIC average

Group	1	2
Cohort	2009	2010
Class	1-4	1-4
Total words*1 (Median)	0	298
N of books (Median)	0	246
TOEIC (SD)	306 (65.4)	311 (65.6)
<i>t</i> -value*2	base	0.61
1st year ACE (SD)	-	426 (59)

*1 thousand words in 2.5 years, *2 comparison with Group 1

No students of Group 2 had read more than a million words, and 52 students (40%) had read less than 270 thousand words, achievable amount if they had used 80% of 2.5 years' lesson time with the reading rate of 100 wpm.

There were also 16 students who did not follow the guideline to read as many easy-to-read books as possible. Although the median total words read by them (426 thousand words) was more than the median words read by all the students of Group 2, the number of books they read (164 books in median) was remarkably fewer than 246 books in median, the ones read by all the students of Group 2. As the result, the median 2,608 (426,000 / 164) words per book was more than twice of median 1,210 words per book of all the students of Group 2. They were judged to have been selecting longer and more difficult books to read. The 16 students were marked with filled triangles in Figure 1, and were categorized as the students who had read less than 240 books and their total word counts were 120 thousand words more than the regression line in Figure 1.

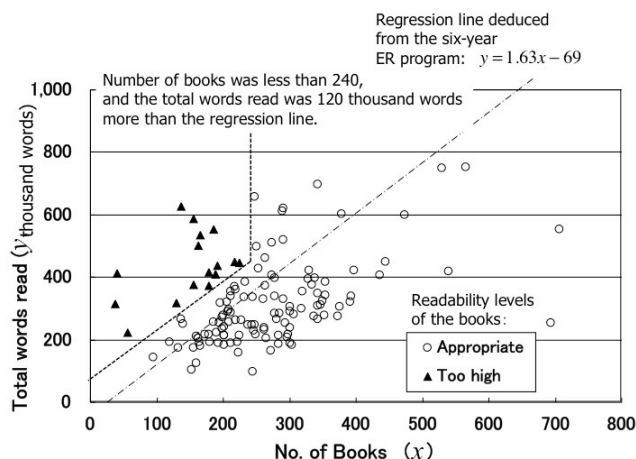


Figure 1: Number of books and total words read in the program (Group 2)

Reminding the existence of those students, we analyzed the effect of total words read on the TOEIC scores for the students of Group 2. Group 2 students, whose 1st year ACE scores were around the average (426 ± 59), were divided into seven sub-groups and average ACE score of each sub-group was not significantly higher or lower than that of Group 2E (Table 3). Thus, we presume the difference between the sub-groups was their reading histories. One of them (Group 2A) consisted of 10 out of the 16 students who had read fewer numbers of longer and more difficult books. The other students were grouped by

the total words read into six groups from Group 2B to Group 2F.

Group 2A showed the lowest average TOEIC score 260 among seven sub-groups although it was not significantly lower than 310 of Group 2E, whose total words (322 thousand words) was the closest to the average of Group 2 (311 thousand words), nor than the average 306 of Group 1, which did not have any ER activities (Table 2). The average TOEIC scores of Groups 2C through 2F, whose median total words were between 310 and 323 thousand words, were not significantly higher than the average 306 of Group 1.

Table 3: Comparison of total words read and the TOEIC average (Group 2)

Group	2A	2B	2C	2D	2E	2F	2G
1st year ACE	415	427	425	445	429	425	427
(SD)	(34.5)	(30.3)	(33.3)	(23.8)	(33.5)	(34.3)	(32.2)
t-value* ³	-1.05	-0.17	-0.39	1.42	base	-0.34	-0.20
N of students	10	16	16	14	14	12	11
Total words read* ¹ (Med.)	(426)	(183)	(218)	(270)	(322)	(386)	(601)
Min.-Max.	224-536	98-194	204-250	255-290	292-340	342-423	429-750
TOEIC avg.	260	288	315	316	310	323	350
(SD)	(77.9)	(53.7)	(64.1)	(42.5)	(60.4)	(46.3)	(35.0)
t-value* ²	-1.81	-1.21	0.526	0.844	0.249	1.16	3.75**
t-value* ³	-1.70	-1.04	0.206	0.326	base	0.596	2.10**

*1 thousand words, *2 compared with Group 1, *3 compared with Group 2E (* = $p < .05$, ** = $p < .005$)

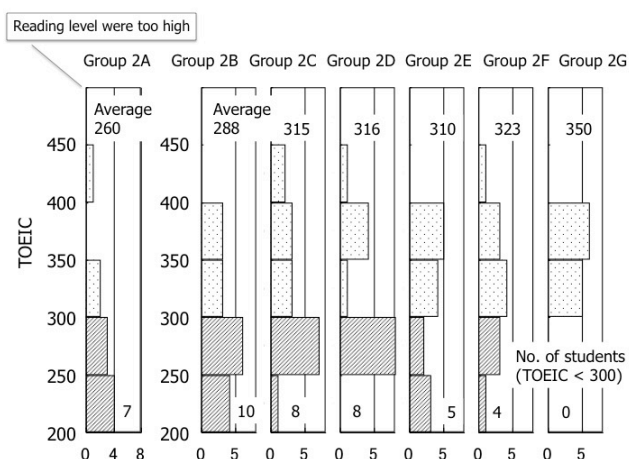


Figure 2: TOEIC score distributions depending on the total words read (Group 2)

Only the average TOEIC score 350 of Group 2G, whose median total words read was 601 thousand words, had

significantly higher than the average of Group 1 and the average of Group 2E. We presumed that the minimum total words read by the students in Group 2G, 420 thousand words as the tentative threshold where students TOEIC scores might start to increase. However, we could not estimate the total words necessary to achieve TOEIC 400 from these data because the highest average of Group 2G was still lower than 400. The only thing we could say was that the amount would be distinctly more than 601 thousand words read by Group 2G.

The readability levels of the books read by the students were also differed wildly. For example, Figure 3 showed three students' word count distributions layered by readability level, YL. Although all of the three students: 2A₂, 2F₁, and 2F₃ had read around 420 thousand words, YL-layered distribution was quite different to each other. Student 2A₂, who did not follow the guideline to read as many easy-to-read books as possible, had read 23 books from Macmillan Readers Beginner/Classic (YL2.0: MMR2+) and Elementary Levels (YL2.8: MMR3) in his third year. Student 2F₁ had read 17 books from Macmillan Readers Beginner/Original (YL1.2: MMR2) and more number of easier books than student 2A₂. Student 2F₃ had read the easiest books, for example, 78 books from *Oxford Reading Tree* Stages 6-9 (YL0.6-1.0: ORT6-9) and 61 books from Foundation Reading Library (YL0.6-1.2: FRL1-7).

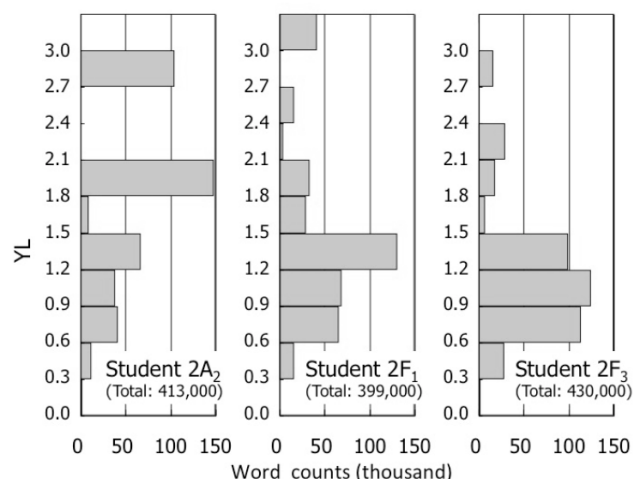


Figure 3: Three students' word count distribution layered by YL (Group 2)

Table 4 displayed nine students' 1st year ACE score, total words read, YL-layered word count, and TOEIC score.

Table 4: Correlation of YL-layered total words and TOEIC scores (Group 2)

Student	2A ₁	2A ₂	2A ₃	2E ₁	2E ₂	2E ₃	2F ₁	2F ₂	2F ₃	<i>r</i> ^{*1}	<i>t</i> ^{*2}	α ^{*3}	
1st year ACE	442	406	405	406	469	431	470	434	431				
Total words (thousand)	382	413	460	322	345	357	399	426	430				
Word counts layered by YL	0.0 – 0.2	1	1	1	2	1	1	0	2	1	0.176	0.47	99.8
	0.3 – 0.5	8	11	12	21	21	13	16	27	27	0.341	0.96	19.6
	0.6 – 0.8	33	40	42	65	64	91	65	57	113	0.586	1.91	9.24
	0.9 – 1.1	38	38	58	104	64	100	68	55	124	0.753	3.02*	9.88
	1.2 – 1.4	71	66	83	70	134	87	130	96	99	0.301	0.83	4.85
	1.5 – 2.0	22	154	205	3	42	4	61	2	24	-0.618	2.08	-3.39
	2.1 – 2.6	83	0	8	57	2	58	19	137	28	-0.016	0.04	-0.14
	2.7 –	127	103	51	0	18	3	40	50	15	-0.768	2.40*	-6.97
≤ 1.1 ^{*4}	79	90	113	192	150	205	149	141	264	0.685	2.48*	4.65	
TOEIC	310	255	295	385	355	350	330	290	345				

*1 *r*: confidence coefficient, *2 *t*: *t*-value ($*p < .05$), *3 α : correlation coefficient (point / 10,000 words), *4: *easy-to-read* books

Their 1st year ACE scores were all within the range around the average of Group 2 (426±59), and total words read were around 420 thousand words, the tentative threshold described before.

The correlations of TOEIC scores and YL-layered word counts were positive when the YL was lower than 1.5, but turned negative if the YL exceeded 1.5. There was significantly positive correlation for YL 0.9 – 1.1, not-significantly positive correlation for YL 0.6 – 0.8, significantly negative correlation for 2.7 ≤ YL, and not-significantly negative correlation for YL 1.5 – 2.0. Reading 10 thousand words from YL 0.6 – 1.1 were correlated to 10 points higher score in TOEIC.

Because the total words was limited to around 420 thousand words, reading easier books (YL ≤ 1.4) naturally accompanied with reading fewer difficult books (1.5 ≤ YL). There was no significant influence of the first-year ACE score among these samples.

Some students' comments in their reading logs were consistent with this tendency. They were "The book was too difficult to read" or "I could not follow the story" for the books with 1.8 ≤ YL for the whole period of the program. Even books of ORT9 (YL1.0) were often described as "Fairly difficult" at the start of the program by the first year students, and CER1 (YL1.4) was not easy series for many second year students whose cumulated word counts stayed lower than 200

thousand words.

5. Discussions

5.1. Total words to be read

We suggest that kosen students, elementary EFL learners, should read more than 600 thousand words so that they can measure their improved English proficiency in *average* TOEIC scores. The result of seven sub-groups (2A to 2G) in Table 3 implies it is hard to measure the increased TOEIC average if the total words are fewer than the amount. We may need another scale than the TOEIC test if we need to measure elementary EFL learners' improvement in reading smaller amount.

The students' yearly reading rate, 240 (600 / 2.5) thousand words per year was not so low. It was a little more than the suggested 171 words per year by Nation (2014) for meeting 2nd 1,000 word families twelve repetition in average and learn the vocabulary incidentally, and was close to 235 thousand words (200 thousand standard words) per year proposed by Beglar and Hunt (2014) for developing the reading rates of Japanese learners at a lower-intermediate reading proficiency level.

5.2. Readability of English texts

We point out the necessity that elementary EFL learners

should read many *easy-to-read* books of $YL \leq 1.1$ as Furukawa (2011), Takase (2008, 2009), and Nishizawa and Yoshioka (2015) suggested, because the word counts from *easy-to-read* books ($YL 0.9 - 1.1$) significantly correlated with TOEIC score in Table 4, and total word counts from generally easier books ($YL < 1.5$) rather than more difficult books tended to correlated positively with the TOEIC score. We further propose our students to read 200 thousand words, about a third of 600 thousand words from the *easy-to-read* book of $YL \leq 1.1$, which were the YL-layered words ready by successful students $2E_1$ (192 thousand), $2E_2$ (150 thousand), $2E_3$ (205 thousand), and $2F_3$ (264 thousand). The recommended 200 thousand words was seven times the amount set by Eichhorst & Shearon (2013) for their ER program, twice the minimum volume recommended by Furukawa (2011), and more than the 100 books (possibly 50 – 100 thousand words) recommended by Takase (2008). The subjects of Mason (2004) or Beglar and Hunt (2014) had not seemed to be reading any books from this readability levels.

We assert that necessity of reading *easy-to-read* books from these readability levels and the amount to be read may be the keys to transform Japanese elementary EFL learners' default habit of translating English text into real *reading* (Sakurai, 2015), as automatic processing skills in the L1 can produce interference effects and the L2 learner needs to work explicitly to reset associative processing to L2 input by engaging in L2 processing (Ellis, 2005; Ellis, 2006, cited in Grabe, 2009: 150).

Disappointing performance of the students belonged to group 2A might be a typical faulty ER practice, where the subjects read more but with less comprehension. Pichette (2005) found that the comprehension scores of the low-level L2 English proficiency (less than 425 TOFEL) group did not correlate significantly with time spent on reading and he suggested it was because their working memory was still taxed by word decoding processes. We do not agree with Pichette (2005) that the learners' proficiency was too low to read but we rather suspect the books they selected were difficult to read without English-Japanese translation. We also suspect that reading books from these *easy-to-read* books may be valuable for Japanese EFL learners of higher proficiency levels to transform their style from translating to *reading* if they had little or no experience of extensive reading although the necessary amount

may be fewer than that for elementary learners.

5.3. Feasibility of recommended amount and readability levels

We discuss if it is feasible to design an ER program to achieve the suggested amount and readability levels. Although 600 thousand words are achievable in three years with a reading rate of 100 wpm, by using 4.5 units of a 45-minute weekly SSR lesson of 30 weeks, the target is not easily achievable with only 3 units of weekly ER lessons. 600 thousand words is more than twice of 270 thousand words, which is achievable when students use 80% of 2.5 years' lesson time with the reading rate of 100 wpm. It is also twice of 310 thousand words reported by Nishizawa, Yoshioka, and Fukada (2010), and even more than 500 thousand words measured by Mason (2004). Only nine students (7 %) in Group 2 had actually read this amount during the 2.5 years. Many students of Group 2 failed to use the full lesson time for reading, and it was highly probable that some of them were not feeling the benefits of ER by themselves and thus were still reluctant to read even in class.

We would rather suggest that ER programs for kosen students should have longer duration than three years. If an ER program in kosen could extend its duration to five years, the full length of its foundation course, many students would read the target 600 thousand words without much stress. Longer duration of an ER program may have additional benefit of gaining higher TOEIC scores even if the total words read by the students are the same (Nishizawa, Yoshioka & Ichikawa, 2017). Their regression analysis showed that the expected TOEIC scores when a student would read a million words were 412 for the students who stayed in their ER program from 1.5 to 3.5 years, 484 for the ones stayed from 4.0 to 5.5 years, and 525 for the ones stayed from 6.0 to 7.0 years.

On the other hand, necessary *easy-to-read* books of $YL \leq 1.1$ are not hard to obtain. If a student read all titles from the series of ORT1 – 9, FRL1 – 5, MMR1, PGR0, OBW0 and CER0, he comes to read 224 thousand total words (394 titles) from *easy-to-read* books. He can read additional 384 thousand words (142 titles) from the books of $YL 1.0 - 2.0$ if he selects all 99 titles from FRL6-7, PGR1, MMR2, RRR1, CER1, CPT1-4, and 43 titles from ICR1&2. He does not need to read

the same title twice, or to select a title from MMR2+, OBW1, PGR2, CER2 or GR series of higher YL than 2.0. These are all familiar series for Japanese ER practitioners because of Furukawa et al (2005, 2013).

5.4. Limitations and need of further study

Firstly, the estimated amounts to be read would only be applicable to similar EFL settings such as kosen students or university students not majoring English, because the students' initial English proficiency and the concurring English lessons might influence them. Especially the interaction of ER and concurring English lessons were not discussed in this study and needed further discussion.

Secondly, the necessity of reading the easiest book (YL \leq 1.1) for EFL learners of many proficiency levels, especially at the beginning of ER must be examined further. Researchers and educators in Japan often argued this notion, but we did not have limited data to support the assertion and we found no arguments from outside of Japan. We do not know yet if the assertion is deeply depended on Japanese educational setting dominated by grammar-translation approach or is applicable to more universal EFL settings.

6. Conclusions

A 2.5-year long ER program for elementary EFL learners was conducted in a kosen, Japanese institution dedicated for early Engineering education. The average TOEIC scores of student groups who did ER were not higher than the one of the former students who had not experienced any ER except the most-read group, whose median total words was 601 thousand words. Thus, we suggest that kosen students should read more than 600 thousand words to recognize the benefits of ER in the TOEIC and ER programs in kosen should have longer duration than three years so that the target amount becomes feasible for many students.

Reading logs of nine students, who had read around 420 thousand words, suggested that their TOEIC scores depended on the readability levels of the English texts they had read. Total words of *easy-to-read* books (YL \leq 1.1) and especially total words of the easiest graded readers (of 300 or fewer headwords, YL 0.9 – 1.1) read by the students were positively correlated with their TOEIC scores, but total words of more

difficult graded readers (of 300 – 1,000 headwords, $1.5 \leq$ YL) were negatively correlated with their TOEIC scores.

Thus the most recommended books for elementary EFL learners were the *easy-to-read* books: the easiest level of GR (headwords \leq 300) and further easier picture books such as *Oxford Reading Tree* series. We would also recommend the elementary EFL learners to read 200 thousand words, almost a third of the suggested 600 thousand words, from these *easy-to-read* books.

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Appendix

Readability scale YL and headwords of typical book series for ER in EFL settings

YL*	Headwords	Typical Series	N	Text length (Words)
0.0 – 0.2		Oxford Reading Tree Stage 1-2 (ORT1-2)	96	0 – 90
		Step into Reading Step 1 (SIR1)		50-150
0.3 – 0.5		Oxford Reading Tree Stage 3-5 (ORT3-5)	72	70 – 370
		Penguin/Puffin Young Readers Level 1 (PGY1)		80 – 450
0.6 – 0.8		Oxford Reading Tree Stage 3-5 (ORT6-8)	54	440 – 1,300
		I Can Read Level 1 (ICR1)		100 – 900
		Oxford Classic Tales (OCT1)	10	400 – 1,000
	75 – 150	Foundations Reading Library Level 1-3 (FRL1-3)	18	500 – 1,000
	200	Penguin Readers Easystarts (PGR0)	23	900
	300	Macmillan Readers Starter (MMR1)	15	700
0.9 – 1.1		Oxford Reading Tree Stage 9 (ORT9)	6	1,400
	200-300	Foundations Reading Library Level 4-6 (FRL4-6)	18	1,800
	250	Oxford Bookworms Starter (OBW0)	27	1,300
	300	Penguin Readers Level 1 (PGR1)	26	2,400
	250	Cambridge English Readers Starter (CER0)	13	2,200
1.2 -1.4		350	6	2,700
		600	13	2,800
		300	14	3,500
		400	14	4,300
	200 – 300	Cengage Page turners Level 1-2 (CPT1-2)	10	3,800
				1,500 – 2,000
1.5 – 2.0	400– 550	Cengage Page turners Level 3-4 (CPT3-4)	10	4,900
	600	Macmillan Readers Beginner/Classics (MMR2+)	22	8,500
	400	Oxford Bookworms Stage 1 (OBW1)	46	5,600
		Nate the Great		1,600 – 2,000
				4,000 – 5,000
2.1 – 2.6	600	Penguin Readers Level 2 (PGR2)	61	7,200
	700	Oxford Bookworms Stage 2 (OBW2)	52	6,500
	800	Cambridge English Readers Level 2 (CER2)	14	9,100
		Magic Tree House	28	4,700 – 6,100
2.7 – 3.6	1,100	Macmillan Readers Elementary (MMR3)	34	11,000
	1,200	Penguin Readers Level 3 (PGR3)	65	11,000
	1,000	Oxford Bookworms Stage 3 (OBW3)	47	10,000
	1,400	Macmillan Readers Pre-Intermediate (MMR4)	27	16,000
	1,300	Cambridge English Readers Level 3 (CER3)	15	15,000

* YL in this article uses the lower value of SSS YL range (Furukawa et al, 2013: 106-108)