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An Exploratory Study of an Extensive Reading Program with Xreading in a Japanese University

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Abstract

The literature has provided empirical evidence that traditional extensive reading (ER) programs can help develop learners' lexical knowledge and reading speed. However, few studies have examined whether the same positive outcomes can be found in online ER programs. The current study investigated the effects of an online ER program with Xreading, where students were expected to learn vocabulary incidentally as well as intentionally. It was discovered that the students were able to increase their vocabulary knowledge and average reading speed over the course of one academic year. Thus, the students' vocabulary knowledge and reading rate appear to be improved by this online ER program. However, the correlations between the total word counts and vocabulary gains as well as reading rate gains were not statistically significant. Therefore, these improvements can be due to the influence of other English lessons, though the results could be caused by the fact that most of the students completed the word count goals. Some suggestions for future research are also presented.

Extensive reading (ER) has been widely studied in the field of applied linguistics. ER has been theoretically supported by Krashen's (1985) input hypothesis, and many scholars have advocated for the use of ER (e.g., Davis, 1995; Mason & Krashen, 1997). Nevertheless, in practice, ER programs have experienced various constraints. For example, Macalister (2010) illustrated that, of 36 ESL instructors in higher educational contexts in New Zealand, all acknowledged the usefulness of ER, but only one-third of them included ER in their teaching. He pointed out that one limitation was the lack of resources (i.e., books and places). Additionally, Chang and Renandya (2017) conducted a questionnaire with 124 L2 instructors in Asia who had experience with ER and found that some of them felt difficulty with monitoring and assessing their students' ER activity. To cope with these challenges, more L2 programs have started using online systems for extensive reading, such as Mreader (Mreader.org) and Xreading (xreading.com). These online ER platforms cost less and allow teachers to keep track of their students' ER activities, such as how many books they have completed and how many words they have read. Furthermore, the COVID-19 pandemic has spurred this recent trend of employing online ER resources (Atmojo & Nugroho, 2020), as many students could not easily access physical books in their school's library.

The purpose of this present study is to investigate the effects of a year-long extensive reading program with Xreading in a Japanese university on the students' L2 lexical and reading rate development. Because online ER systems have been developed and spread recently, their effects should be examined. In addition, in this online ER program, students were asked to create flashcards on Quizlet. Even though Webb (2019) has proposed the importance of having both incidental vocabulary learning (e.g., acquiring new words through ER) and intentional vocabulary learning (e.g., acquiring new words through word cards), he has not suggested that these two should be combined in one course. Therefore, the effects of such ER programs need to be researched.

Literature Review

Quantitative Research on ER

In addition to showing the positive influence of ER on learners' reading comprehension (Mason & Krashen, 1997; Nakanishi, 2015), many studies have examined the effect of ER on learners' vocabulary knowledge. For example, Boutorwick et al. (2019) statistically analyzed two types of ER in a university's EAP program in New Zealand: a traditional ER-only approach, where students silently read in a classroom (n = 37), and an ER-plus approach, where students participate in post-reading discussion activities in small groups in a classroom (n = 26). They compared these two groups' performances on word association tests and found that both groups improved their word association knowledge and that the ER-plus group showed greater gains on the word association test using mid-frequency words. Thus, they maintained that both approaches can contribute to the development of word association knowledge and concluded that interactive small-group discussions in ER can be an effective classroom activity. Furthermore, Liu and Zhang's (2018) meta-analysis of the effect of ER on vocabulary learning examined 21 studies, incorporating 1,268 participants' data. They separately calculated the effect size of the studies with a control group and the ones without a control group. When the data from 17 studies with a control group that included 1,148 participants were analyzed, the effect size was large: d = 1.32. When the data from the remaining four studies without a control group that had 120 participants were inspected, a large effect size was also found: d = 3.26. Thus, it appears that ER can enhance vocabulary acquisition.

Other studies have examined the impact of ER on learners' reading rates. Beglar et al. (2012) studied 97 Japanese college students' reading rate development over one academic year by implementing a 32-item reading rate test at the beginning and at the end of the academic year. They reported the control group's (n = 17) initial mean reading rate was 87.54 wpm and that their final mean reading rate was 90.51 wpm. In contrast, the three ER groups' (n = 23, 22, and 35, respectively) initial mean reading rates were 89.71 wpm, 94.5 wpm, and 103.09 wpm whereas the final ones were 97.73 wpm, 107.34 wpm, and 119.93 wpm. Although the control group's average reading rate gain was only 2.97 wpm, the three ER groups' average reading rate gains were 8.02 wpm, 12.84 wpm, and 16.85 wpm. The overall mean reading rate gains of the ER groups were statistically greater than the ones of the control group: t = 4.18, df = 38.77, p < .001, and r = .56. Beglar and Hunt (2014) further analyzed the ER groups' (n = 76) reading gains from Beglar et al.'s (2012) research. They categorized these students into five groups according to their reading rate scores, which were transformed into z-scores. Based on the

descriptive statistics, they found that the number of words the participants read positively influenced the reading rate gains overall. For instance, the group (n = 14) that improved the reading rate most (i.e., 32.99 wpm) read 208,607 words in total. On the other hand, the group (n = 15) that improved the reading rate least (i.e., -3.91 wpm) read 162,549 words. However, they also stated that the total number of words is not the only factor affecting reading rate gains, as they observed two exceptions among the five groups. They suggested that the level of reading can influence reading rate gains.

Research on Online ER

Some recent studies have investigated the effects of online ER programs. For instance, Chen et al. (2013) researched the effects of ER using e-books on EFL university students' reading comprehension and vocabulary learning. They compared the ER group (n = 46) that received traditional intensive reading instruction along with a 10-week e-book ER program and the control group (n = 43) that received only the traditional intensive reading instruction. They found that the ER group outperformed the control group in terms of reading comprehension obtained by the difference between pretest and posttest TOEFL reading test scores. Furthermore, they reported that the ER group's vocabulary test scores measured by the Vocabulary Levels Test (Schmitt et al., 2001) were significantly higher than those of the control group on the 2,000 band, 3,000 band, and the 10,000 band, though they did not find any statistically significant difference on the 5,000 band test scores.

In the same context as this present study, Klassen and Allan (2018) reported the effects of an online ER course using Mreader over the spring term (9–10 weeks). This course was offered as a required class for 122 first-year university students who were enrolled in the low intermediate course (TOEFL ITP 390–477). The course was designed by following Nation's (2007) four strands. One quarter of class time was given as the students' actual reading time, and another quarter was spent on preparing for the follow-up activities in which the students orally summarized the story in pairs. A third quarter was used as a timed reading activity using Quinn et al.'s (2007) materials, and the last quarter was spent on the interactive vocabulary learning activity using the flashcards each student made. They reported the four findings as a preliminary analysis: total words read, vocabulary test scores, timed reading scores, and course evaluation results. First, in the spring term in 2018, the word count goal was set as 70,000 words, and the mean score of the number of words read by the students (n = 62) was 74,464 (SD = 17,590). Second, the results of the Vocabulary Levels Test (Schmitt et al., 2001) scores were reported, but they only reported the pretest scores on the 2,000 band and 3,000 band because the posttest was conducted in the winter term. The test contained 30 items, and they reported that the mean score of the students (n = 122) on the 2,000 band was 25.88 (SD = 4.49) and that that of the students (n = 121) on the 3,000 band was 21.44 (SD = 5.55). Third, they found that the reading rates improved in a statistically significant way with a large effect size, by comparing the timed reading scores at Week 2 (M = 139.6 wpm, SD = 25.15) and the ones at Week 9 (M = 215.2 wpm, SD = 55.06) by conducting a paired samples t-test (one-tailed): $t(104) = 15.98$, $p < .001$, and $d = 1.56$. Lastly, the responses of the students' (n = 115) course evaluation with a 5-point Likert scale were positive.

Research Questions

Although Klassen and Allan (2018) reported the effects of the ER program in the same context, their analysis of vocabulary gains was incomplete. In addition, they used an online ER platform called Mreader, but this study used a different online ER program called Xreading. Therefore, the effects of ER with Xreading on students' L2 lexical and reading speed development should be re-examined. If students' vocabulary and reading rate gains are observed, it could be due to the influence of other English classes. To see the possible influence of ER on the gains, correlations between the gains and their total word counts were investigated.

The following research questions were addressed:

RQ1. a. To what extent do the learners' vocabulary test scores at the beginning of the academic year differ from their scores at the end of the academic year?

b. Is there a correlation between vocabulary gains and total word counts?

RQ2. a. To what extent do the learners' reading rates in the spring term differ from their rates in the winter term?

b. Is there a correlation between reading rate gains and total word counts?

Methods

Context

The present study was conducted in the same context as the study of Klassen and Allan (2018). In this university, ER is offered for the low intermediate students (TOEFL ITP 390–477), and classes meet once a week. This university adopts a trimester system (i.e., spring, autumn, and winter terms consisting of 9–10 weeks each), and the class time length is 70 minutes. The course is a unified curriculum, so the instructors of ER are expected to follow the same lesson procedure. ER is offered as a required class in the spring term. Students must take ER in the autumn and winter terms, except for those who participated in the university's short-term online study abroad program. Since 2020, Xreading has been used. The online books of Xreading come with a short comprehension quiz about the content of the book. On these quizzes, students must correctly answer at least three out of five questions. If they fail the quiz, they can take a quiz again, but if they fail this second quiz, their total word count will not be recorded. Xreading allows instructors to monitor the students' total word counts. In all three terms, the same grading criteria are used: attendance (10%), engagement (20%), vocabulary (20%), and words read (50%). Vocabulary po9ints come from their Quizlet submissions, and the points regarding the words read are calculated based on the information on Xreading.

A different design is used in each term. In the first lesson of the spring term, instructors introduce Xreading to the students and guide them in choosing a book that contains only two to five unknown words on each page. The word count goal is set as 100,000 words, so students are expected to finish one book a week and complete 10,000 words a week as homework. Students can choose any book from any genre, including both fiction and nonfiction. The lesson procedure from the second lesson to the ninth or tenth lesson in all the terms is summarized in Table 1. The class starts with a timed reading activity employing Quinn et al.'s (2007) materials. Then, students spend 20 minutes reading silently by themselves. After that, students prepare for the discussion activity by filling out a short reading log where they write a very short

summary of and their reaction to the book they read. Following this, in pairs or groups of three, students introduce their book's summary and their reactions and discuss the content with their partner(s) for 10 minutes. Finally, students spend 10 minutes working in pairs on an activity using their flashcards on Quizlet.

Table 1

Typical Lesson Procedure of ER in the Spring, Autumn, and Winter Terms

Spring…100,000 words, any genre		Autumn…110,000 words, fiction only		Winter…120,000 words, nonfiction only	
15 mins	Timed reading activity	15 mins	Preparation for the group discussion	15 mins	Preparation for the group discussion
20 mins	Silent reading	20–25 mins	Discussion	30 mins	Discussion
10 mins	Preparation for the discussion	15 mins	Quizlet activity in pairs	10 mins	Quizlet activity in pairs
10 mins	Discussion	5–10 mins	Choosing the next book	5–10 mins	Choosing the next book
15 mins	Quizlet activity in pairs				

In the autumn term, the first lesson is the orientation, reviewing how to choose a book. The word count goal is set as 110,000 words, and students are supposed to finish one book a week and finish 11,000 words a week. Unlike the spring term, students can only choose fiction, and they need to choose the same book as the other four to five members for the reading circle activity suggested by Furr (2011). From the second lesson, the class begins with 15 minutes of preparation for the group discussion. Then, students work on a discussion activity for 20–25 minutes. Following this, as they do in the spring term, they complete a Quizlet activity in pairs. The last 5–10 minutes are used for them to choose a book for the next lesson with the same group members, and the groups are changed once in the middle of the term.

The winter term's ER is very similar to the autumn term's ER. The main differences are that the word count goal is increased to 120,000 words and that they choose nonfiction only. This time, students work with the other one to two group members to choose the same book. The first lesson is the orientation. From the second lesson, the class starts with a 15-minute preparation time with the same group members. Then, two groups are combined, and each group has 15 minutes to share the summary and their reactions with the other group and lead a discussion. In total, they spend 30 minutes on this style of reading cycle activity. After that, they work on the Quizlet activity in pairs, and they choose a different book for the following lesson. The groups are shuffled two or three times during the term.

Participants

The participants in this study were first-year Japanese university students who took ER classes in the academic year 2021. In the three terms, 87 students took ER. Among them, 57 students completed the vocabulary tests at the beginning of the spring term (i.e., homework in lesson 1) and at the end of the winter term (i.e., homework in lesson 7 or 8). Five students' data were excluded because they failed to report their scores accurately. Thus, 52 students' data were analyzed in this present study.

Instruments and Data Analysis

As with Klassen and Allan's (2018) study, the Vocabulary Levels Test (Schmitt et al., 2001) scores were employed to measure vocabulary score gains in this study. As a pretest, students were asked to complete the 2,000 and 3,000 band tests on lextutor.org and submit their scores. They were informed that they should avoid answering questions when they were not confident and that the score was not a part of their grade. They were told to take this test to measure their vocabulary gains by completing the identical test as a posttest. For each test, there were 30 items, with a maximum of 100 points calculated automatically. To measure reading speed gains, the average reading rates in the spring and winter terms available on Xreading were analyzed. The analyses were conducted using JASP version 14.1.

Results

To answer RQ1. a. (To what extent do the learners' vocabulary test scores at the beginning of the academic year differ from their scores at the end of the academic year?), descriptive statistics analysis was carried out (see Table 2). The participants' (N = 52) pretest scores of the 2,000 band were high at the beginning of the academic year (M = 91.01, SD = 9.96). Figure 1 shows a histogram indicating that many students showed a good understanding of 2,000 words. At the end of the academic year, they increased their scores successfully: M = 94.3, SD = 7.12 (see Figure 2). In other words, they improved by 3.288 points (SD = 12.24). As for the test scores of the 3,000 band, as expected, fewer students showed a strong understanding of this band on the pretest: M = 79.25, SD = 12.46 (see Figure 3). However, they improved their vocabulary knowledge of this band on the posttest: M = 84.80, SD = 11.6 (see Figure 4). In total, they improved by 5.55 points (SD = 17.76), and their score gains of the 3,000 band were higher than the gains of the 2,000 band.

Table 2

Descriptive Statistics for Pretest and Posttest Scores and Their Gains

	M	*SD*	Min	Max
Pre 2K	91.01	9.96	47	100
Post 2K	94.30	7.12	70	100
Pre 3K	79.25	12.46	30	97
Post 3K	84.80	11.60	43	100
Post-Pre 2K	3.28	12.24	-27	40
Post-Pre 3K	5.55	17.76	-30	57

When their vocabulary gains were observed, all assumptions for parametric tests were met. Therefore, a paired samples t-test (one-tailed) was conducted to see the vocabulary gains of the 2,000 band: $t(51) = 1.93$, $p < .029$. With the condition that α-level is .05, the difference between the pretest and posttest scores was statistically significant. The effect size observed by Cohen's d was 0.269, and according to Goss-Sampson (2020, p. 154), the effect size was small.

In a similar vein, a paired samples *t*-test (one-tailed) was performed to see the vocabulary gains of the 3,000 band: $t(51) = 2.25$, $p < .014$. With the same α-value, the difference between the pretest and posttest scores was statistically significant. The effect size observed by Cohen's *d* was 0.313, and according to Goss-Sampson (p. 154), the effect size was small.

Figure 1

Frequency Distribution of 2K Pretest Scores

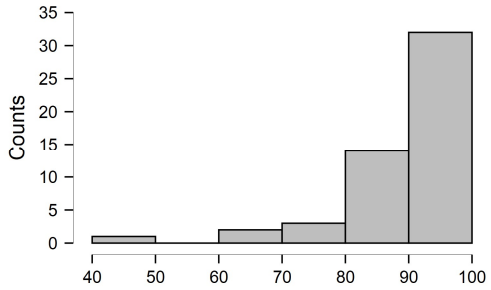


Figure 2

Frequency Distribution of 2K Posttest Scores

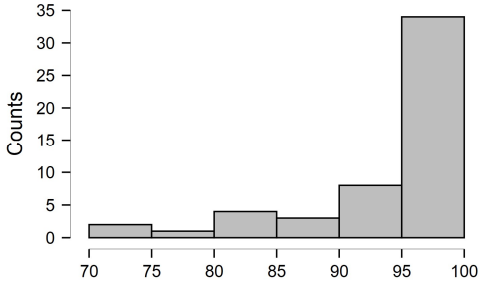


Figure 3

Frequency Distribution of 3K Pretest Scores

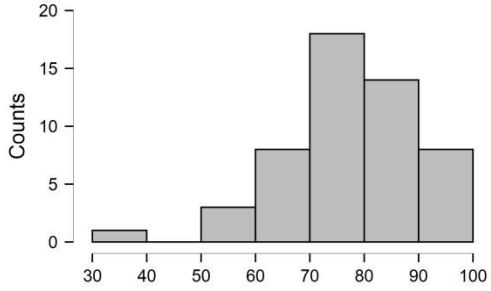
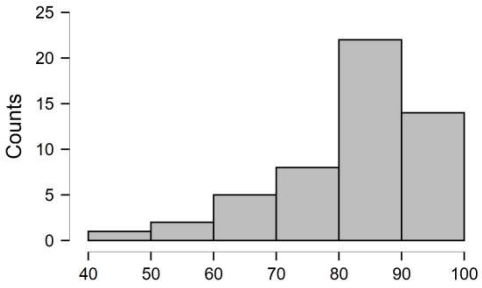


Figure 4

Frequency Distribution of 3K Posttest Scores



To answer RQ1. b. (Is there a correlation between vocabulary gains and total word counts?), the total word counts on Xreading were examined. The total word count goal in this academic year was 330,000 words, and most of the students achieved the goal ($M = 339{,}214$, $SD = 28{,}444$). To see the correlation between the vocabulary gains of the 2,000 band as well as the 3,000 band and the total word counts, Pearson's *r* was run. With the α-level = .05, the result did not show any significant correlation between the vocabulary gains of the 2,000 band and the total word counts: $r = .069$, $p = .627$. Similarly, no statistically significant correlation between the vocabulary gains of 3,000 band and the total word counts was found: $r = -.037$, $p = .795$.

To answer RQ2. a. (To what extent do the learners' reading rates in the spring term differ from their rates in the winter term?), descriptive statistics analysis was run (see Table 3).

Table 3

Descriptive Statistics for Average Reading Rates in the Spring and Winter Terms and Their Gains

	M	SD	Min	Max
Reading rate spring	112.21	23.58	70.5	178.5
Reading rate winter	119.22	33.55	65.2	214.7
Reading rate winter-spring	7.01	27.89	-49.4	92.0

The participants' average reading rate in the spring term was 112.21 wpm (*SD* = 23.58), and their average reading rate in the winter term was 119.22 (*SD* = 33.55). The reading rate gain was 7.01 wpm (*SD* = 27.89). Because all the assumptions for parametric tests were met, a paired samples *t*-test (one-tailed) was carried out: $t(51) = 1.81$, $p < .038$. When the α-level is set as .05, the reading rate gain was statistically significant. The effect size was $d = 0.269$, and according to Goss-Sampson (2020, p. 154), the effect size was small.

To answer RQ2. b. (Is there a correlation between reading rate gains and total word counts?), the total word counts were examined. To see the correlation between the reading rate gains and the total word counts, Pearson's *r* was run. With the α-value = .05, the result did not indicate any statistically significant correlation between the reading rate gains and the total word counts: $r = -.063$, $p = .656$.

Discussion

This study found that the students who took ER with Xreading over one academic year showed vocabulary gains of the 2,000 band as well as the 3,000 band. This finding was similar to that of Chen et al. (2013), which used the same vocabulary test instrument. In their study, the participants improved their vocabulary knowledge of these two bands. However, the effect size in the present study was small. Chen et al. (2013) did not report the effect size, but Liu and Zhang's (2018) meta-analysis showed a large effect size ($d = 3.26$) when they analyzed the four studies that did not include a control group. This could be due to the ceiling effect. Because the present study asked the students to complete the vocabulary tests of only the 2,000 and 3,000 bands, their pretest scores were already high. Future studies should incorporate test scores of the 5,000 band and the 10,000 band, like Chen et al.'s research. The reason why the correlation between vocabulary gains and total word counts was not found could also be because of a ceiling effect. Almost all the participants in this study completed the word count goals because reaching this goal would strongly affect their grades.

As for reading speed gains, the participants improved their average reading speed by 7.01 wpm after one academic year. This result is similar to one of the ER groups that achieved the least reading rate gains in Beglar et al.'s (2012) study: one ER group improved their reading speed by 8.02 wpm. However, the small effect size in the present study contradicted the large effect size found in the same context in Klassen and Allan's (2018) study. They reported that the mean reading rate at Week 2 was 139.6 wpm, whereas the mean reading rate at Week 9 was 215.2 wpm. The reason for the higher reading speed gains must be the difference of measures used. In their study, the reading speed was measured in the timed reading activity that used texts that had the same lexical difficulty. In contrast, in the current study, the average reading time over the spring term and the one over the winter term were compared. As Beglar and Hunt (2014) suggested, reading speed gains can be influenced by the level of reading. Because the students always chose the books by themselves or with the group member(s), following the same guideline (i.e., choosing books that contain two to five unknown words on one page), the students might have started choosing books with higher lexical difficulty in the autumn and winter terms. The reason why no correlation between reading speed gains and total word counts was observed could be a ceiling effect. In other words, almost all the participants in this study successfully completed the expected total word count. Like Beglar and Hunt's study, if the new

groups are formed according to the reading rates for further analysis, a correlation between the reading rate gains and the total word counts can be found. For future research to observe the students' reading rate growth, like Klassen and Allan's study, it is desirable to collect data by conducting a timed reading activity with reading materials with the same lexical difficulty.

Conclusion

The current study analyzed the effects of an online ER program with Xreading, through which the students were supposed to learn vocabulary incidentally and intentionally. It was found that the students were able to improve their vocabulary knowledge as well as their average reading speed over one academic year. Therefore, this online ER program seems to have helped students improve their vocabulary knowledge and reading rate. However, these gains could have been caused by the influence of other English classes, as no correlations were found between vocabulary gains as well as reading rate gains and total word counts. The reason why correlations were not statistically significant could be due to the fact that almost all the students completed the word count goals.

The study has several limitations. First of all, this study did not have a control group, so the direct impact of ER on vocabulary and reading speed gains was hard to observe. Since the academic year 2021, the university's English program has been offering ER for students who belong to the intermediate course (TOEFL ITP 447–570) in the winter term. Because this course is an elective class, comparing the vocabulary as well as reading speed gains of the students who took ER with the data of students who chose a different elective class could become possible. Such a research design can provide causal evidence. In addition, to measure their vocabulary knowledge, only the 2,000 and 3,000 band tests were used. The pretest and posttest should include the 5,000 and 10,000 band items. Furthermore, to measure reading rate gains, reading materials with the same lexical difficulty should be used. One of the new features of Xreading is that people can now access such materials for speed reading, so these new materials can be used. Lastly, only 60% of the students who took ER over one academic year participated in this research. To capture the reality more precisely, more students' data should be collected and analyzed. With a more robust research design with more participants, the effects of online ER programs in this context could be researched further.

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