

The Effects of Combining Timed Reading, Repeated Oral Reading, and Extensive Reading

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Abstract

This quasi-experimental study traces a 12-week reading fluency training program for elementary-level English as a foreign language (EFL) learners at a Japanese university ($N = 56$). More specifically, this study examined whether a teaching intervention combining (a) extensive reading and practicing, (b) timed reading, and (c) repeated oral reading during class time promoted reading fluency. At the end of the intervention, silent reading rates while maintaining a $\geq 75\%$ comprehension threshold improved by 46 standard words per minute. Further, the learners who did more extensive reading (a) achieved greater reading rate gains and (b) significantly improved listening and reading scores in the TOEIC® test. This study's implications include the benefit of combining these measures for nurturing EFL learners' reading rates, the utility of oral re-reading in the classroom, and the overall contribution extensive reading has upon reading and listening skills.

Keywords: reading fluency, timed reading, oral reading, repeated reading, repeated oral reading, extensive reading, reading rate

Reading effectively is considered an essential gateway to greater earning potential and a better quality of life. In light of the English language's reach, not only as a global lingua franca but as the language for technology, science, and advanced research, the connection between English reading fluency and individuals achieving their professional or personal goals cannot be overemphasized. To further stress the importance of reading fluently, prominent authorities on second language (L2) reading instruction, Grabe and Stoller (2013), highlighted:

In the 21st century, productive and educated citizens will require even stronger literacy abilities (including both reading and writing) in an increasingly broad range of societal settings. Likewise, the age of technology growth is likely to make greater, rather than lesser, demands on people's reading abilities. (p. xiv)

Targeting the development of elementary-level English as a foreign language (EFL) learners' silent reading rates, this quasi-experimental study evaluated the effectiveness of a three-pronged reading fluency training program of extensive reading (ER), repeated oral reading (ROR), and timed reading (TR). In the following section, L2 reading fluency is defined before a review of relevant literature.

Literature Review

Reading fluency

Fluency training in the L2 classroom allows learners to use the language they already know and “make language knowledge become readily available for use” (Nation, 1991, p. 1). Two fundamental components of fluency are attention to speed and accuracy (comprehension). Interestingly, when talking about most macro-language skills (e.g., writing), speed increases are often detrimental to accuracy. As for reading, however, there appears to be a somewhat inverse relationship (Grabe, 2010). Increased reading rate correlates with improved comprehension, and the reading experience starts to become enjoyable. Nation (2005) presented another helpful perspective on this relationship when he noted that reading speeds less than 100 words-per-minute (wpm) may handicap learners’ memory retention and concentration. For these reasons, fluent reading in the L2 is a “key indicator of a highly skilled reader” (Grabe, 2010, p. 73) and a skill that demands greater attention from foreign language teachers.

Reading fluency involves the rapid, smooth, accurate reading of connected text with little focus on the mechanics of reading (Goldfus, 2014). Developing a degree of automaticity, particularly in the deployment of lower-level reading processes (e.g., word recognition, syntactic parsing, and the formation of semantic propositions), is critical for reading fluency growth (Grabe & Stoller, 2013). Only after these lower-order processes are automatized can a reader have enough mental space to engage the higher-order cognitive processes critical for text compression (e.g., inferencing and attending to semantic cues). While there are several variables of interest when measuring reading fluency, this study focuses on reading rate; most notably, reading rate according to Carver’s “rauding theory” (1990, p. 5). Rauding concerns the rate at which learners attend to *each word* in a text while *understanding* the complete thoughts or themes presented in the sentences of text (Carver, 1990). Therefore, this study was interested in the rate or speed at which EFL learners could read each word of a text while maintaining a respectable comprehension level.

In the following sections, several approaches suggested for nurturing L2 learners’ reading fluency are presented alongside some of the research describing their efficacy. However, it is important to firstly describe the EFL learning context of this study—Japan, and the unique needs that Japanese learners have in improving their reading fluency.

What are some characteristics of Japanese readers of English?

Although communicative language teaching and other contemporary approaches are filtering into English classes in Japanese schools, reading is still primarily taught to support grammar and vocabulary building explanations. Upon finishing high school, most Japanese students would have only ever experienced intensive reading or reading as a word-by-word “text decoding” exercise (Waring, 2014, p. 215). At the extreme level, the consequences of these approaches are perhaps best described by Takase (2003), who observed learners reading sentences backward to process the syntax more easily. Given these conditions, it is no surprise that after 6 years of English education at school, Japanese university freshmen averaged 79 wpm in Robb and Susser (1989), 77 wpm in McLean and Rouault (2017), and 82 wpm in Taguchi et al. (2004). These reading rates are far below Nation and Macalister’s (2021, p. 72) suggested reading fluency benchmark of 250 wpm for English learners. Perhaps

more concerningly, reading rates below 100 wpm are described as being torturous for L2 learners (e.g., ERF, 2011; Nation, 2005).

Classroom interventions targeting the development of EFL learners' reading fluency

Timed reading & reading fluency

Timed Reading (TR) or speed reading targets the automatization of word-level knowledge through consistent reading practice (Waring, 2014). TR programs have learners read short passages of similar length with lexis restricted to only the most frequently used English words. The teacher's role is to encourage learners to read faster while maintaining 70% accuracy on post-reading comprehension questions (Nation, 2014). It is also recommended that learners keep a log to track the progression of their reading rate.

One of the most cited TR interventions is Chung and Nation's (2006) study on the effects of a 9-week course for 49 EFL learners at a Korean university. Participants read a total of 23 passages in class and at home. By the end of the course, participants had increased their reading rates by 52%, from 141 wpm to 214 wpm. To effectively measure wpm gains, the researchers used three markers: (a) the average scoring method (subtracting the average score for the last three texts from the first three texts); (b) the 20th minus the 1st; and (c) the extreme scoring method (subtracting the fastest from the slowest wpm). While the reading rate gains were impressive, the authors did not report whether learners did any other reading training during the intervention.

Tran (2012) and Macalister (2010) considered the transferability of TR programs to reading external texts. While Macalister was more reserved in his conclusion that the TR course may foster faster reading speeds for other types of texts, Tran, considering the reading fluency growth of 61 Vietnamese university students, observed an impressive improvement of the reading rate for both the controlled TR texts (over 50 wpm) and other types of texts (30 wpm). Tran also reported that students maintained comprehension levels of 70% even while they progressively increased their reading speed.

For ease of comparison, Table 1 summarizes studies investigating the effects of TR on silent reading rates of L2 English learners. Each of these examples shows TR interventions to be efficacious in developing silent reading rates in a short period.

Table 1*Summary of Previous TR Interventions*

Study	Participants (duration)	Measurement method	Results
Chung & Nation (2006)	<i>N</i> = 49 Korean university EFL learners 12,650 words read (9 weeks)	(a) Average scoring method (average score for the last three texts from the first three texts), (b) the 20th minus the 1st, and (c) the extreme scoring method (subtracting the fastest from the slowest wpm).	141–14 wpm (+63) 121–219 wpm (+97) 116–248 wpm (+132)
Macalister (2010)	<i>N</i> = 36 TR- <i>n</i> = 24 ER- <i>n</i> = 12 ESL learners in New Zealand (12 weeks) 20 texts (8,000 words) from <i>New Zealand Speed Readings for ESL Learners Book Two</i> (Millett, 2005). TR texts were read three times a week over the first 7 weeks of the treatment.	(a) Average scoring method (subtracting the average score for the last three texts from the first three texts).	No figure for TR increases was reported, but “all 24 (participants) recorded increases in reading speed” (p. 109). Reading speeds for authentic texts were 113.36–133.50 wpm (+20.14)
Tran (2012)	<i>N</i> = 61 Vietnamese university EFL students (3 months) TR: 20 texts (10,000 words) from <i>Asian and Pacific Speed Readings for ESL Learners</i> (Quinn et al., 2007)	(a) Average scoring method, (b) the 20th minus the 1st, (c) three extremes method, and (d) the extreme scoring method (subtracting the fastest from the slowest wpm).	+57 wpm +61.03 wpm +80.38 wpm +97.67 wpm
Chang (2010)	<i>N</i> = 84 Taiwanese university EFL students 11,700 words read (3 texts a week for 13 weeks)	(a) Reading speeds (wpm) were recorded after reading the same two texts at the pre- and post-treatment stages.	TR group: 118–147 wpm (+29)
Shimono (2018)	<i>N</i> = 18 Japanese university EFL students completed 30 timed readings (10,620 words read over 12 weeks)	(a) Average scoring method, (b) the 20th minus the 1st, and (c) the extreme scoring method (subtracting the fastest from the slowest swpm)	96–113 swpm (+17) 94–109 swpm (+15) 93–120 swpm (+27)
Robson (2019)	<i>N</i> = 34 Japanese university EFL students 11,700 words read (12 weeks)	(a) Average scoring method (average score for the last three texts from the first three texts)	97–107 wpm (+10)

Note. swpm = standard words-per-minute; wpm = words-per-minute; *N* = overall sample size; *n* = subgroup size.

Extensive reading & reading fluency

The effects of extensive reading (ER) upon reading fluency are well-documented, and McLean and Rouault (2017, p. 104) provide a comprehensive summary of the research in this area. For this review, the researcher wanted to focus on treatments that combined classroom reading fluency practice (e.g., TR) with ER, which Nation (2014) and Grabe (2010) advocate for promoting L2 reading fluency. There are also arguments that TR programs can nurture students' ER (e.g., Beglar et al., 2012; Nation & Waring, 2019; Swanson & Collett, 2016) and confidence towards L2 reading in general (McLean & Rouault, 2017; Taguchi et al., 2004). Few experimental studies have considered a combination of approaches, but two exceptions are Atkins (2014) and McLean and Rouault (2017).

Firstly, Atkins (2014) looked at the effectiveness of a 12-week timed reading program for Japanese university EFL students and whether ER significantly interacted with TR performance. Despite the sample being quite large ($N = 101$), the students were spread over three proficiency levels on the institution's five-point scale. Students from the Level 4 ($n = 45$) and Level 5 ($n = 22$) classes read a 300-word TR passage twice a week over 10 weeks, and students from the lower Level 2 class ($n = 17$) did TR once a week over 12 weeks. Upon completing the TR, students had to answer four or more of the five comprehension questions correctly to demonstrate adequate comprehension of the text. A second Level 2 class was designated as a comparison group ($n = 17$), and they only read the first and 12th texts of the series. To measure reading fluency, Atkins used a composite metric dividing learners' reading time (in seconds) by their comprehension score. At the end of the treatment, all students had increased their reading fluency (evidenced by decreased composite reading fluency scores); however, the Level 2 comparison group achieved the most significant gains. Focusing on the relationship between ER and TR performance, Atkins only observed a near significant interaction effect between graded readers read and TR performance for the highest-level treatment class. There were, however, some important limitations to Atkins' study. It used book counts to measure ER engagement, the comparative sample size for Level 2 was small, and no standardized proficiency measures were provided to identify participants' levels.

McLean and Rouault (2017) investigated the impact of ER and grammar-translation treatments on reading rate development among lower-proficiency EFL students at a Japanese university ($N = 50$). In addition to two 400-word TR practices each week, the ER group was required to read an average of 4000 running words per week (average overall word count = 104,000). The grammar-translation group was assigned intensive reading and translation exercises. The authors controlled the volume of assignments to (a) adhere to the minimum weekly homework set of 60–70 minutes by the university, and more importantly, (b) balance the time spent on each treatment. To measure reading rate gains, students' TR scores during the fifth, sixth and seventh weeks of the first semester and weeks 13, 14, and 15 in the second semester were compared. Between these testing periods, students completed 15 TR practices. At both stages, the authors used Passages 16, 17, and 18 from *Asian and Pacific Speed Readings for ESL Learners* (Quinn et al., 2007) to control for practice effect and ensure the difficulty of each test matched. At the post-treatment stage, the ER-treatment group achieved more significant gains in reading rate (30.96 standard words per minute–swpm) compared to the grammar-translation group (5.26 swpm) with a large effect size ($d = 1.76$). Moreover, increased reading rates were not to the detriment of the ER group's comprehension scores.

Repeated reading (RR), repeated oral reading (ROR), & reading fluency

Repeated reading (RR) involves learners re-reading the same text numerous times to develop their sight recognition of words and phrases. In some cases, learners may be encouraged to read faster each cycle and record their speed increases (e.g., Chang & Millett, 2013; Nation & Waring, 2019; Taguchi et al., 2004). Other variations include re-reading while listening to an audio version of the passage (e.g., Taguchi & Gorsuch, 2002; Taguchi et al., 2004), oral re-reading (e.g., Chang, 2012), or oral re-reading with prosody and chunking practice (Shimono, 2018, 2019). According to Grabe (2010, p. 78), some L2 teaching and training circles viewed oral re-reading as “bad practice”; contemporary research, however, has shown the practice to be very useful for nurturing automatic word recognition skills and reading fluency (e.g., Shimono, 2019). Importantly, for the EFL context of this study, oral re-reading may inspire learners’ confidence in their spoken English, enhance reading comprehension, and attune learners to the stress-timed nature of English (Shimono, 2018). Also, because re-reading programs may suffer from monotony and negatively affect student motivation (e.g., Taguchi et al., 2012), oral re-reading may be a helpful variation for re-reading practice.

Compared to TR and ER, there are fewer experimental studies into the effects of L2 repeated reading practice. Taguchi et al. (2004) considered whether repeated reading with auditory support enhanced lower-proficiency Japanese university EFL learners’ reading fluency. Over 17 weeks (42 lessons), learners either practiced audio-assisted RR or ER. The RR group ($n = 10$) read segments (334–608 words) from two graded reader titles five times for a total of 84,815 words (16,963 words * 5 times reading). The second group (i.e., the ER group) read graded readers silently for the same duration of class time. The ER students reported reading between 733 and 901 minutes, three to six books, or between 147 and 337 pages. Although the students had five 90-minute EFL classes per week during the treatment, no account of the reading undertaken in these other courses was reported. The authors concluded that repeated reading promoted learner’s silent reading rates and attitudes towards reading in their L2. The repeated reading group improved their silent reading rate by 51.55 wpm (84.84–136.39 wpm), while the ER group improved slightly less at 38.57 wpm (80.88–119.45). Both groups’ achieved a significant improvement in comprehension scores, and despite the ER group achieving a higher gain score, the difference between groups was not significant. As their participants were lower proficiency readers, the researchers argued that audio-assisted repetition facilitated deeper comprehension and established a better foundation for learners to become independent readers.

Shimono (2018) undertook a reading fluency training experiment with 55 elementary EFL learners (TOEIC score range 230–395; CEFR A2) divided into three treatment groups, TR ($n = 18$), TR plus ROR ($n = 20$), or no training ($n = 17$). After 12 weeks, both treatment groups outperformed the comparison group in reading speed (swpm) and comprehension. The TR plus ROR group improved their reading rate by approximately 15 swpm. Nevertheless, it was unclear how much reading was done outside of the intervention and whether students were assessed on reading in the program.

Chang (2012) compared the effects of TR with those of ROR on 35 Taiwanese EFL learners. Classes met once a week for 13 weeks, and the TR group read three passages from *Reading for Speed and Fluency* (Books 2 & 3) by Nation and Malarcher (2007) during class and one passage for homework (52 passages overall–16,800 words). The ROR group read one text as many as five times in a class (26 passages overall; 7,800 words * 5 readings = 39,000), which included: (a) silent reading with modeling, (b) silent reading without modeling, (c) two oral

readings, and (d) one paired reading. Throughout the practice, students recorded their reading time during each step, and the instructor provided feedback on the students' oral readings. Students also performed the same practice with a different text for homework. The pre-, post-, and delayed-post reading fluency tests used *New Zealand Speed Readings for ESL Learners* (Millett, 2005). The same three texts were used for the pre and posttests, and different texts were used for the delayed posttest. The reading rate (wpm) was determined by averaging the records for the three texts. Both groups increased their reading rate between the pre- and post-treatment stages, and rates fell slightly after the delayed posttest (TR = 102–152–146; ROR = 83–106–102). An ANCOVA revealed that the treatment effect was significant and large ($n_2 = .74$) when comparing the TR to ROR groups. To put it more simply, the TR group increased their reading rate more than the ROR group. A comparison of post-reading comprehension scores revealed that although participants averaged below the 70% threshold for all passages, scores increased from the pretest levels (TR = 53%, 67%, 63%; ROR = 53%, 60%, 53%). Furthermore, students from the ROR group felt their oral reading fluency and pronunciation had improved and that the oral reading mode helped them concentrate more on the texts.

In the only study that evaluated the effectiveness of combining TR, ROR and ER, Shimono's (2019) doctoral thesis considered the effectiveness of four different year-long reading fluency treatments. A sample of 101 lower-proficiency undergraduate Japanese EFL learners were divided into four quasi-experimental groups: (1) TR, ROR and ER, (2) TR and ER, (3) ER, and (4) a comparison group who did oral communication activities. Classes met twice a week, and at the beginning of each class, students from the TR, ROR, and ER group completed a timed reading exercise. Then, the students received the same reading text with sentence-level thought groups highlighted. The instructor read each sentence aloud, and students repeated it while trying to mirror the instructor's rhythm, speed, stress, pronunciation, and intonation. To finish the activity, students re-read the story to a partner who assessed their oral reading performance. ER was undertaken outside of class time using the MReader program. On average, each student read approximately 113,930 words (TR and ROR = 13,389; ER = 100,531) in the first semester, and 180,362 words (TR and ROR = 14,190; ER = 166,172) in the second. Reading rate assessments at the start, middle, and end of the treatment period revealed that the TR, ROR and ER group achieved the most impressive reading-rate gains across three types of reading texts, (1) a TR anchor passage (115–169–204 swpm), (2) academic TR passage (101-153-197 swpm), and (3) a graded reader (82-99-135 swpm). The effect sizes were large, and reading comprehension scores remained above 70% in all cases except the academic TR passage, where they dropped slightly below this benchmark (70%, 65% and 67%). In addition to the silent reading rate assessments, the TR, ROR, and ER group achieved the most significant gains in oral reading fluency and L2 reading self-efficacy. This group also achieved significantly shorter reaction times in orthographic, semantic, and phonological word recognition tests. While Shimono (2019) was the most thorough study in terms of combining different approaches to improve reading fluency, several variables were unaccounted for. It is unclear how much other reading practice students did in the additional five English language classes that they took each week. Students read the same text and answered the same comprehension questions in one third of the reading rate tests, and the sample sizes were quite small.

TR, ER, and ROR have all been shown to be effective in nurturing EFL learners' reading fluency. However, except for the study by Shimono (2019), no other study has considered the effects of a reading fluency training program combining all three approaches (i.e., TR, ROR, and ER). Furthermore, the best balance of reading fluency activities in an EFL context is unknown (Atkins, 2014; Shimono, 2019). There are also research design concerns for many

of the studies mentioned earlier. Most experiments did not triangulate their results with a standardized proficiency test, the learners' levels were often unclear, and the sample sizes were small. Nearly all studies failed to report time on task or the number of words read during the treatment period, making it difficult to interpret critical independent variables.

Until recently, the most reported metric for quantifying reading rate has been words-per-minute (wpm). This experiment will report wpm to enable a comparison with previous studies; however, the emphasis is placed on standard-words-per-minute (swpm), which Nation and Waring (2019) recommended for researching reading fluency interventions and a measurement Kramer and McLean (2019) argued as more reliable for assessing actual reading completed. While attempting to tighten some of the design deficiencies found in other classroom-based reading fluency interventions, this study aims to fill a gap in the research by focusing on elementary-level (CEFR A2) EFL readers who underwent an ER, TR, and ROR training program.

To evaluate the effectiveness and efficiency of this reading fluency program, the research questions are:

1. To what extent, if at all, did learners increase silent reading rates over one academic semester?
2. To what extent, if at all, did the learners who did more extensive reading outperform the students who did less?
3. Were the increases in reading rate transferred over to performances in the reading section of the TOEIC® test?

Methodology

Participants

The author collected a convenience sample of 56 learners taking compulsory, four-skills, English as a Lingua Franca (ELF) oriented classes aimed at elementary users (Common European Framework of Reference for Languages–CEFR, Level A2) of English at a private Japanese university. The students were a combination of freshmen and sophomores between 18 and 21 years old studying in the Agriculture, Liberal Arts, or Tourism departments. Students were streamed into elementary-level English classes based on their TOEIC test (listening and reading) scores. Before the treatment, the average TOEIC score for the sample was 338/990, which corresponds with A2 or *Basic User* on the CEFR scale (ETS, 2019). Focusing on reading proficiency, all participants' scores for the reading section of the TOEIC test also fell within the A2 or “Elementary user” band on the CEFR scale (see ETS, 2019¹).

The reading fluency interventions (i.e., TR, ROR, and ER) were implemented in three classes. Despite the original sample size starting with 62 students, some were removed from the data set for (a) failing to complete the reading fluency and/or TOEIC tests, (b) failing to reach the 75% comprehension threshold on two or more of the reading fluency tests, or (c) missing more than three TR and ROR practices.

¹ For more information, see ETS (https://www.iibc-global.org/toEIC/official_data/toEIC_cefr.html).

The author also took careful steps to adhere to guidelines for ethical classroom research. According to the university's regulations governing research involving students, the author obtained ethical clearance from the institution's review board. All participants signed a written consent form that allowed the researcher to analyze their test scores and extensive reading data.

Instruments

Three sources of reading data were collected. MReader (MReader.org) was used to oversee students' extensive reading. After reading a graded reader, students sat a 10-question post-reading quiz in the online system. Students needed to score over 60% to achieve a passing grade, and if successful, they would receive the allotted word counts for the book. If students failed the quiz, they could request to retake it. Students' overall word counts at the time of the final reading fluency test were utilized for this review.

Two formal timed reading tests were staged at the beginning and the end of the program. Texts and related questions from stories numbered #1 and #2 from Millett's (2017) *Speed Readings for ESL Learners BNC 500* were used for a pre-treatment measurement, and #19 and #20 for post-treatment. The tests were conducted over two consecutive classes. Each story was printed on an A4 sheet, with eight multiple-choice comprehension questions on the reverse side. Using a stopwatch application on their smartphones, students read the text, recorded their reading time, then turned the page over and completed the comprehension questions (without referring to the text). After the test, the researcher marked the comprehension questions and calculated the swpm and wpm reading speeds. It is important to note that students sat a similar version of the test before the pretest to ensure that they could correctly record their reading time and achieve some degree of familiarity with the reading task. Table 2 (below) offers a detailed description of the texts used for reading fluency measurement. To effectively communicate the difficulty of the different texts, the author computed Flesch Kincaid readability levels. The text readability ratings were very high for all texts—approximately year 3 reading level in the United States.

Table 2*Summary of Reading Passages Used for Reading Fluency Measurement.*

Test	Words	Standard words	Mean Comprehension score /8	Flesch Kincaid Ease	Flesch Kincaid Grade-level
Pretest #1 <i>Peach Boy</i>	300	246.17	7.5	93	3.3
Pretest #2 <i>How Maui Slowed the Sun</i>	300	240.33	6.7	100	2.7
Posttest #1 <i>Beautiful Men</i>	300	249.50	7.0	94.8	2.6
Posttest #2 <i>The Last Straw that Broke the Camel's back</i>	300	245.50	7.0	94.2	2.9

Note. Data for the word counts and standard words were retrieved from Brandon Kramer's homepage (<https://brandonkramer.net/>); Flesch Kincaid readability calculations were made using the website: <https://goodcalculators.com/flesch-kincaid-calculator/>.

Previous studies used a range of approaches for calculating changes to reading rate; however, this review adopted the most conservative of these measures, *the average scoring method* (Chung & Nation, 2006), and compared the average silent reading rates for the two pre and posttests. A 75% limit for students to adequately comprehend the text was also strictly observed (i.e., students needed to answer six or more of the eight questions correctly). Consequently, three participants who scored below this level were removed from the sample.

The final source of data was the students' TOEIC test scores. Given that students had established a degree of task familiarity (Nation, 2014) at the post-treatment stage (i.e., the 19th and 20th TR exercise), it was important for the researcher to correlate reading fluency measurements with another reading test. Also, it would allow for a measurement of the transferability of reading skills. For class placement purposes, all participants sat a TOEIC test one week before the course. Students sat another version of the TOEIC test near the end of the course (i.e., in week 12). Sitting this test was a course requirement, and it contributed 20% to overall grades. At the time of the second TOEIC test, all students had completed the TR and ROR exercises. The TOEIC test is a 200-item, multiple-choice listening (100 items) and reading test (100 items), and it is evaluated to have high reliability overall (.94). The reliability of the reading section specifically was in the .81-.88 range across all three sections (Cid et al., 2017).

All quantitative analysis was undertaken using the JASP 0.13.1. (jasp-stats.org) software. The independent variable was the treatment group, and there were three sets of dependent measurements taken at the pre- and post-treatment stages: (1) silent reading rate test results, (2) TOEIC test scores, and (3) extensive reading word counts. Multiple paired samples *t* tests were conducted to measure changes in performance between the pre- and post-treatment stages. For the *t* tests, effect sizes were evaluated using Cohen's *d*, and Plonsky and Oswald's (2014, p. 889) field-specific benchmarks for L2 researchers to interpret effect sizes were

followed (i.e., small, $d = .40$; medium, $d = .70$; large, $d = 1.0$). For the Mann-Whitney U statistic, the effect size was measured by the rank-biserial correlation (r_b). While it is recommended that effects be interpreted similar to Pearson's r , with 0.1 being small, 0.3 medium, and 0.5 large (Goss-Sampson, 2018), Plonsky and Oswald's (2014, p. 889) benchmarks for L2 researchers interpreting correlation were followed (i.e., small, $r = .25$; medium, $r = .40$; large, $r = .60$). For correlation analysis, Spearman's rho (r_s) was used.

Procedures

The author taught all classes. Approximately 18 hours out of the 50 hours of class time were dedicated to reading practice. The reading practice consisted of 7 hours for TR and ROR and 4 hours for ER (silent reading, book discussions, ER training). As part of the course requirements, learners also spent approximately 2 hours reading and answering simplified drills mirroring the format of the TOEIC test from the assigned textbook, *Successful Keys to the TOEIC Test* (Stafford, 2017), and 5 hours engaging in intensive reading activities with the course's reading textbook, *New Reading and Vocabulary Development 1: Facts and Figures* (Ackert et al., 2014). Table 3 (below) illustrates that students who completed all the reading requirements had read a minimum word count of 117,616 words during the 12-week treatment period.

Table 3

Summary of Words Read in the Reading Fluency Course

Activity	Words read	Notes
TR	6000	Including the reading rate tests, students read 20 passages from Millett's (2017) BNC 500 speed reading course
ROR	4800	Students re-read (orally) 16 passages from Millett's (2017) BNC 500 speed reading course.
ER (variable)	100,000	Students were required to read over 100,000 words to receive the 10% grade rewards. (Average words read = 96,534)
TOEIC textbook	1456	Seven chapters * 208 words per-chapter
Intensive Reading textbook	6360	Five chapters * 1272 words per-chapter
TOTAL	117,616	

Note. *For the textbook word count estimates, all instructions and questions were included.

**The average words per page figure are calculated by averaging the word count of each chapter's first six pages.

Timed reading & repeated oral reading

Students engaged in TR and ROR twice a week for 12 weeks. Millett's (2017) *Speed Reading for ESL Learners 500 BNC* reading course was deemed most appropriate based on the

students' reading levels. From the 20 300-word passages, texts #3 to #18 were used for TR and ROR. Therefore, including the reading fluency tests, students read 6000 words (5035.17 standard words) as part of the TR practice, and a further 4800 (4053.67 standard words) for ROR. To ensure students listened to texts that they had not immediately read, the classes were split in half, with half of them required to read the even-numbered texts and the other half the odd numbers. After reading #17 or #18, students switched and read the opposite groups of texts. For example, one student read in the following order: 3, 5, 7, 9, 11, 13, 15, 17, 4, 6, 8, 10, 12, 14, 16, 18.

A TR and ROR training session followed these steps:

1. Students accessed the text through the university's learning management system (Blackboard) on their smartphone or personal computer. They then read the text from their device's pdf viewer.
2. TR training: students timed their first reading of the passage using their smartphone's stopwatch application and recorded their time.
3. Students answered eight comprehension questions without returning to the text.
4. Students checked their answers (projected by the teacher on a screen) and recorded their reading time and comprehension score on a log sheet.
5. ROR training: students re-read their text to their partner who read a different text (e.g., a student who read #3 would work with a student who read #4).
6. Partners would listen and try to answer the comprehension questions orally.

A typical TR practice took between 7 and 9 minutes to complete, while ROR would take 10 to 12 minutes. Before every TR practice, the instructor encouraged students to read every word in the text faster than their previous records. The instructor also shared research detailing why reading fluency needed to be developed and stories of students who had benefited from these approaches in the past (e.g., Mason & Krashen, 2017; Milliner, 2021). The instructor also targeted comprehension scores. Students were encouraged to score over the 75% threshold for each text (i.e., six out of eight questions correct or higher). When scores were below this level, students were advised to read more slowly, and conversely, students who achieved a perfect score were pushed to read faster.

In the ROR practice, the students were encouraged to read clearly like a television or radio announcer, and aim for their listeners to understand the entire story. After reading the text, the reader would ask their partner the eight comprehension questions to confirm how clearly their reading was followed.

Extensive reading (ER)

Given the researcher's interest in the area, ER was an essential part of the courses. It accounted for 10% of the overall grade, and 10 minutes of every class were dedicated to silent reading, book discussions, and follow-up ER training. Students were expected to read outside of the class time to reach the monthly reading (word) targets. To describe the ER component, Waring and McLean's (2015, p. 165) guidelines for reporting an ER intervention were adapted (see Table 4 below).

Table 4*Summary of ER Core and Variable Dimensions for this Study*

Core elements	Managed in this context by:
Fluent, sustained comprehension	Analysis of reading speed using TR, post-reading quizzes (mreader.org), and ER awareness exercises were employed to promote fluent comprehension of texts (see Brierley et al., 2010).
Large volume of material	<ul style="list-style-type: none"> ● Students were asked to read more than 100,000 words (recorded in MReader) to receive a maximum score dedicated to ER (10%). ● To ensure that students read consistently, smaller monthly word targets were set.
Reading over extended periods of time	<ul style="list-style-type: none"> ● Students borrowed graded readers from the university library or the teacher's private collection.
Longer texts	<ul style="list-style-type: none"> ● Students chose books at a level appropriate for them.
Variable elements	
ER is conducted at home or in class	<ul style="list-style-type: none"> ● 5-10 minutes at the start of every class was dedicated to silent reading and technical training (e.g., how to use the MReader system and how to choose appropriate graded readers). ● Students were instructed to engage in ER in their own time to meet the reading targets.
ER is required	Students were not forced to read during class time. However, students who failed to participate forfeited 10% of their final grade.
ER is monitored	<ul style="list-style-type: none"> ● The MReader system monitored ER. ● Students were observed reading in the class by the teacher.
The reading/listening is assessed	Students received 10 points (10%) towards their overall grade if they reached the 100,000-word target.
Reading follow-up activities	<ul style="list-style-type: none"> ● Post-reading/listening comprehension quizzes (conducted using MReader) ● Follow-up training on how to conduct ER effectively ● In-class discussions concerning engaging titles, reading analytics, book levels and ER
Graded or non-graded readers used	Graded-readers from the university library (some initial restrictions were placed on the level of the book)
Longer or shorter texts	Students could choose texts of any length as long as the title was at an appropriate level for them
Freedom to select texts	<ul style="list-style-type: none"> ● Students were free to choose titles from the university's library ● No book with the same title could be counted

To ensure consistency between the post-treatment measurements, ER word counts achieved 3 weeks prior to the final grading deadline for the component were analyzed. A summary of learners' MReader records are reported in Table 5 below. The number of quizzes taken is high but reflective of the students' elementary level (i.e., learners had to read many short texts to reach the class' word target).

Table 5

Summary of Extensive Reading Engagement-MReader (N = 56)

	Total	<i>M</i>	<i>SD</i>
Words read		85,655	42,095
Quizzes taken (books read)	1620	28.95	11.08
Failed quizzes	151	2.70	2.24

Note. The rate of failed quizzes was 9%, *M* = mean score, *SD* = standard deviation.

Results & Discussion

In this section, answers to the research questions are considered in more depth.

RQ1. To what extent, if at all, did the learners increase silent reading rates over one academic semester?

A comparison of swpm scores at the pre- and post-treatment stages revealed an increase of 46 swpm (Table 6 below). Paired-samples *t* tests revealed that these swpm increases were significant ($t_{(55)} = 14.33, p < .001$), and the effect size was considered large ($d = 1.91$). Likewise, the paired samples *t* test for wpm scores was also significant ($t_{(55)} = 13.78, p < .001$), and the effect size was large ($d = 1.84$). This finding indicates that the combined reading fluency treatments strongly affected learners' silent reading rates.

Table 6

Descriptive Statistics for Reading Rate

Reading rates	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
AV- Pre (swpm)	56	100.73	25.36	3.39
AV- Post (swpm)	56	147.08	29.03	3.88
Average gains (swpm)	56	46.35**		
Pre AV (wpm)	56	124.13	31.18	4.17
Post AV (wpm)	56	178.34	35.20	4.70
Average gains (wpm)	56	54.21**		

Note. ** $p < .01$, *N* = group size, *M* = mean score, *SD* = standard deviation, *SE* = standard error, swpm = standard words per-minute, wpm = words per-minute.

These gains appear very similar to those made by the Japanese learners in Shimono's (2019) TR, ROR and ER experimental group, who improved by 54 swpm (114.96-168.84 swpm) after a similar training period. When comparing this result with other combined reading

fluency interventions, the reading rate gains are more impressive. Shimono's (2018) TR and ROR intervention elevated reading rates by 15.28 swpm, and the TR plus ER groups improved 30.96 swpm in McLean and Rouault's (2017) and 37 swpm in Shimono (2019). In terms of the TR interventions reviewed earlier, the average gains in silent reading rate (46 swpm or 54 wpm) are close to the 63 wpm observed in Chung and Nation (2006) and 57 wpm in Tran (2012).

While this study reports implementing a combined approach to reading fluency training, one explanation for why the learners achieved such substantial reading rate gains may be attributed to the effects of ROR. Grabe (2010, p. 78) noted that ROR can nurture automatic word recognition skills and enhance comprehension. Shimono (2018) also highlighted how a phonological component enhances lexical input quality when combined with the semantic and orthographic processes in silent reading. Another plausible reason may be that students were simply more engaged in the ROR practice because they did not want to lose face when reading to a classmate.

RQ2. To what extent, if at all, did the students who did more extensive reading outperform the students who read less?

The sample was split into two groups based on their extensive reading totals: an avid reader (AR) group who read over 95,000 words ($n = 39$) and a reluctant reader (RR) group who read below this figure ($n = 17$). Given the difference in group sizes, the Mann-Whitney U test was used to compare each group's silent reading rate and TOEIC test gains. For silent reading rate gains the avid readers ($Mdn = 47.5$) did not significantly outperform the reluctant readers ($Mdn = 34.5$), $p = .258$. For the reading section of the TOEIC test, the avid readers ($Mdn = 15.0$) improved significantly more than the reluctant readers ($Mdn = -20.0$), $U = 487.0$, $p < .01$. The effect size of the difference was close to large ($r_B = .47$). Gains in the listening section of the TOEIC test were also approaching significance ($p = .06$), and the effect size was small to medium ($r_B = .32$). Gain scores for both groups are summarized in Table 7 below.

Table 7

Group Descriptives for Avid and Reluctant Extensive Readers

	Group	n	M	SD	SE
Rate change (swpm)	AR	39	48.83	24.19	3.87
	RR	17	40.65	23.98	5.82
TR change	AR	39	8.85	36.16	5.79
	RR	17	-15.88	35.10	8.51
TL change	AR	39	40.39	45.22	7.24
	RR	17	16.47	39.12	9.49

Note. AR = Avid readers who read >95,000 words, RR = Reluctant readers who read <95,000 words, n = group size, M = mean score, SD = standard deviation, SE = standard error, TR = TOEIC reading section scores, TL = TOEIC listening section scores.

A secondary analysis sought to identify correlations between MReader word counts and (1) Reading rate gains, (2) TOEIC reading gains, and (3) TOEIC listening gains (Table 8). The Spearman's rho (r_s) correlation coefficient indicated a weak correlation between MReader

word counts and TOEIC reading section scores ($r_s = .30$) and a medium correlation with TOEIC Listening section scores ($r_s = .42$). The correlation between words read in ER and reading rate was also approaching significance ($p = 0.071$).

Table 8

Spearman's Correlations

	r_s	p
MR - Reading rate change (swpm)	0.24	0.071
MR - TR change	0.30*	0.023
MR - TL change	0.42**	0.001

Note. MR = Extensive reading word count recorded in MReader (mreader.org); r_s = Spearman's rho correlation; * $p < .05$, ** $p < .01$.

To summarise, the students who read more than 95,000 words increased their silent reading rates by almost 50 swpm. They also significantly increased their TOEIC Reading section scores compared to the reluctant readers. Higher MReader word counts also correlated with gains in the reading and listening sections of the TOEIC test. While echoing the results observed in McLean and Rouault (2017) that ER can promote EFL learners' silent reading rates and overall reading fluency, these results do not suggest that reading more than 95,000 words will produce reading fluency gains. Instead, these increases most likely reflect the benefits of spending significantly longer periods of time on task processing a larger volume of words (Belgar et al., 2012). Also, ER appears to be an essential ingredient for improving lower-level reading processes like syntactic processing, orthographic decoding, and semantic proposition formation (McLean & Rouault, 2017). As such, the avid extensive readers' performances in this study underscores the effectiveness of ER on developing L2 reading fluency, and there appears to be a knock-on effect to other English skills. In this case, learners' L2 listening scores were improved.

RQ3. Were the increases in reading rate transferred over to performances in the reading section of the TOEIC® test?

An important question for teachers implementing some of the approaches mentioned above is whether fluency gains can transfer to more complex reading tasks. This study tested whether reading rate gains transferred over to a standardized English proficiency measurement, the TOEIC test. Descriptive statistics (Table 9) show that participants' TOEIC reading section scores marginally improved. Paired-samples t tests revealed that the score increases were insignificant ($t_{(55)} = 14.33$, $p = 0.789$).

Table 9*TOEIC Test Reading Section Scores*

Test section	Group	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
Reading	Pre-treatment	56	133.21	23.63	3.16
	Post-treatment	56	134.55	35.307	4.72

Note. *N* = group size, *M* = mean score, *SD* = standard deviation, *SE* = standard error.

While this finding could be interpreted as improved reading rates did not carry over to performances in the TOEIC test, the higher standard deviation observed in the post-treatment test indicates a larger variance between participants' scores. Part of this variance can be explained by the findings from RQ2 whereby the students who did more extensive reading achieved greater gains in the reading and listening sections of the TOEIC test. Even though these improvements may also be a product of motivation or other individual factors, it appears a successful L2 reading course stands to benefit from encouraging learners to process a larger volume of words in a well-designed extensive reading program.

Limitations

Even though significant improvements in learners' silent reading rates were observed after the 12-week treatment, this study is not without its methodological weaknesses. Firstly, this experiment focused on elementary-level English learners, who generally have much more room for improvement (Nation & Waring, 2019). Therefore, had the study focused on intermediate or advanced learners, the silent reading rate gains might not have been so pronounced. Furthermore, as reading fluency requires long periods of meaningful implicit learning (Grabe, 2010), different results may have been observed had the study been a longer duration. The durability of reading rates over long periods is another important question that this study did not answer because no delayed post-treatment test was included. The interventions were not undertaken in a protected research environment, so it is difficult to control for out-of-class reading (e.g., reading textbooks or websites related to students' interests). Nevertheless, because most foreign language instructors rarely work with learners longitudinally, the impressive gains achieved in this and other shorter-period studies (e.g., Chung & Nation, 2006; Shiono, 2019; Taguchi et al., 2004; Tran, 2012) indicate that these measures are worthy of their consideration.

Next, this study reported on a combination of three different approaches to augment EFL learners' reading fluency. Although some speculative comments about the contribution of ER and ROR on reading fluency were made, the most effective of the three approaches was not identified. A post-treatment survey of student perceptions for which approach was most supportive returned an even spread of TR, ROR, and ER preferences.

Using TOEIC test's reading section to evaluate the transferability of reading rates is another methodological weakness. The TOEIC test is criticized for its inability to measure learner's achievement over the short term (Childs, 1995), and learner fatigue may have accounted for the variability in scores as the reading test followed a 45-minute, 100-question listening test.

The reading section of the test is also not entirely a reading comprehension test either. Almost half of the questions (46) are short text completion and incomplete sentence items. Another important consideration is that TOEIC scores contributed to 20% of students' final grades, and students studied from a TOEIC training textbook in the course. Therefore, improved scores may reflect a better test-taking strategy or familiarity with test items, not improved reading fluency. Future research into the transferability of reading rate gains ought to consider alternative measurements, such as reading a graded reader (e.g., Shimono, 2019), oral reading skills, or reading authentic texts (e.g., Macalister, 2010; Tran, 2012).

While this review focused solely on reading fluency, an analysis of learners' psychological states would have been insightful. The role of learner motivation needed to be evaluated, particularly in the case of research question 2. The gains achieved by the avid extensive readers may have been due to their overall motivation to improve, not extra time spent on reading extensively. The psychological changes or shifts in learners' self-efficacy (Bandura, 1997) after achieving reading rate gains, effectively reading a long text to a partner, or passing a post-reading quiz for a more difficult graded reader may have added further support to the results. A student's reflection submitted to the class' blog at the end of the course touches on this aspect:

Last year, I avoided to search in English as possible as I can. That is because it costs much time and I needed to concentrate not to miss words. However, in this class, every student has to count his or her time and calculate the score. To be honest, it suffered me at first because I knew that I am not good at reading efficiently. But gradually I was able to accustom myself to this challenge. Moreover, my score jumped up by about 100 words (thanks to metronome). Since then, I enjoyed this activity. I do not hesitate to search on the Internet in English now.

Conclusion

Targeting the development of elementary-level EFL learners' reading fluency, this study evaluated the effects of a three-pronged training program (i.e., ER, TR, and ROR). The most prominent finding was that, after 12 weeks, learners increased their silent reading rates by approximately 50 swpm. This improvement exceeds many other L2 reading fluency interventions. Secondly, the students who read more than 95,000 words in the ER component achieved significant gains in the reading section of the TOEIC test. Furthermore, larger accumulated extensive reading word counts correlated with greater gains in the listening and reading sections of the TOEIC test. For the entire sample, however, the reading rate gains were not transferred over to significant gains in the reading section of the TOEIC test. Following these results, it is inferred that elementary-level EFL learners stand to benefit tremendously from (1) being encouraged to read faster (TR), (2) having opportunities to repeat their reading orally (ROR), and (3) reading extensively (ER). It also appears that extensive reading or similar meaning focused input tasks play a valuable role in nurturing L2 learners' receptive skills.

There are several ways research on L2 reading fluency can be improved. There need to be more prolonged investigations into reading fluency growth. Delayed posttests should be implemented to establish whether reading fluency gains can be maintained. Also, to measure reading rates more reliably, researchers ought to utilize developing computer technologies. A

variety of participants are required to create a better picture of how L2 reading fluency develops. Studies of higher proficiency learners, learners with different cultural backgrounds, and learners in different learning contexts are examples of where more information is needed.

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