

## Reading for Speed and Breadth: TR and ER

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### Reference Data:

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This study's purpose was to analyze students' reading fluency gains in a program that concurrently implemented timed reading (TR) and extensive reading (ER). The participants ( $N = 38$ ) were grade 10 EFL students at a private Japanese high school. The findings indicated that students' reading rates increased by 36% over a full school year without a significant decrease in accuracy. Although students read fewer books in the ER program over time, the average complexity of books they read increased from 1000 headwords in term 1 to 1600 headwords in term 3. No correlations were found between students' participation in the TR and ER programs. Students in 4 extreme reading categories were identified and their reflections were examined qualitatively. Regardless of their success at TR, students who participated actively in ER reported more focused plans, goals, and understanding of connections between the reading program and other parts of the curriculum.

本論では、時間制限を設けた速読と多読を同時に実行している英語科のカリキュラムにおける学生の英語の読みの流暢さの向上を分析する。対象となったのは某私立高校に通うEFLクラスの高校1年生38名である。学生の読む速度は一年間で36%速くなることが示されている一方、読解の正確さは7%低下したという結果が出ている。また、時間の経過とともに多読として読む本の数は減少したが、一学期には語彙数が1000語だったのが三学期には1600語に上がるなど、学期ごとに読む本の難易度が上がった。速読と多読の二つのプログラムへの参加の相関は見られなかった。更には、4つのカテゴリーにおいて、学習内容の省察の質的研究を行った。読む速度に関わらず、多読を積極的にした学生の方が自分の目標を達成することに集中することができ、カリキュラムにおけるリーディング・プログラムの重要性を認識している。

Popular conceptions of foreign language fluency are often limited to oral production, namely speaking fluency. However, fluency exists and develops distinctly within each language skill. The focus of this study is reading fluency. Grabe (2009) defined reading

fluency as the ability to read with both speed and accuracy, encompassing knowledge of the target language vocabulary and syntactic structure, as well as a wide range of skills, such as word recognition and incremental learning. Grabe (2010) also stated that these skills must be developed to levels of automaticity for high levels of reading fluency to be achieved.

Nation (2009) summarized the research on the benefits of reading fluency, specifically its positive correlation with reading comprehension, vocabulary acquisition, listening fluency, and motivation. These benefits have been a large factor in the growing popularity of Extensive Reading (ER) as a tool for fostering learners' reading fluency. In an ER program, students read a broad variety of self-selected texts at or below their reading level. The ER approach has been employed enthusiastically in EFL classes around the world and in Japan. Students have enjoyed the benefits of ER, which Waring (1997) summarized as increased reading speed, fluency, and motivation. Indeed, ER may be the most direct method teachers have to foster their students' reading fluency. However, despite this popularity, there is currently no consensus on the best instrument for measuring the reading fluency gains achieved through ER.

Timed Reading (TR) is most commonly used for this purpose. TR is the process of reading a text while being timed. In this way, learners can easily assess how long it takes them to read a passage. By reading multiple texts of a standard length and complexity, readers can assess their fluency over time. Most TR materials also have comprehension questions to assess reading accuracy along with rate. Traditionally, TR has been used as an instrument for measuring a learner's L1 reading rate (Hudson, Lane, & Pullen, 2005). However, Drucker (2003) found that TR is easily adaptable to L2 readings for measuring reading rates in second and foreign languages. This may indicate that TR could be a useful measure of reading EFL fluency gains acquired through ER. Nation (2009) argued that both ER and TR are effective methods for fostering L2 reading fluency. In a study of Taiwanese university EFL learners, Chang (2010) found that TR alone led to an average increase in words read per minute (WPM) of 25%, and a 4% increase in reading com-

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prehension over a 13-week timed reading program. These results echoed similar findings on the positive influence of TR on learners' reading fluency in Japanese university contexts by Crawford (2008) and Atkins (2010), as well as in a Japanese high school by Underwood, Myskow, and Hattori (2011). These studies suggest that TR is not a neutral, unbiased measure of fluency, but rather a beneficially influential tool to develop reading fluency. Therefore, it would be useful to examine the relationship between TR and ER to better promote learners' reading fluency.

The aim of this study was to understand the nature of the interaction between TR and ER by analyzing students' variable success in a reading program that concurrently integrates both TR and ER approaches. Through this understanding, it may be possible to more effectively implement TR and ER in order to maximize gains in learners' reading fluency.

### Research Questions

In total, the study addressed 15 research questions. Five questions were related to TR.

- RQ1: Do students' reading rates change over time?
- RQ2: Do students' reading accuracies change over time?
- RQ3: When students read faster, do they read less accurately?
- RQ4: How do students' first to second reading jumps change over time?
- RQ5: Are faster readers bigger jumpers?

Three questions were related to ER:

- RQ6: How does the number of books each student reads change over time?
- RQ7: How does the difficulty of books each student reads change over time?
- RQ8: Do students who read more books tend to read more difficult books?

Seven questions were related to the interaction of TR and ER:

- RQ9: Do students who read more books read faster?
- RQ10: Do students who read more books read more accurately?
- RQ11: Do students who read more books "jump" higher from their first to second timed readings?
- RQ12: Do students who read more difficult books read faster?
- RQ13: Do students who read more difficult books read more accurately?

RQ14: Do students who read more difficult books "jump" higher?

RQ15: What is the distribution of student success in TR and participation in ER?

### Methods

#### Participants

The study was conducted in an EFL program at a private senior high school in western Tokyo, with two classes of grade 10 students ( $N = 38$ ). This class was a compulsory course taught by native English speakers and met each week for four 50-minute class periods. The class had an integrated four-skills curriculum, not limited to reading. These students also took a separate class for 2 hours a week that focused on grammar and preparation for university entrance examinations, taught by Japanese teachers in Japanese. Of the 38 participants, 21 were female and 17 were male.

#### Materials and Procedures

In this program, TR and ER were used concurrently in the reading strand of the four-skills curriculum. For TR, *Reading for Speed and Fluency, Book 1* by Nation and Malarcher (2007) was selected for its thematic groupings of texts, five per unit, which allowed for recycling of vocabulary and concepts. The teachers at the school believed that this helps to avoid roadblocks in the reading, allowing students to show their full reading potential. The readings each contained 300 words and came with five comprehension questions.

At the beginning of the school year, each student was given a TR chart, which they continued to use throughout the year. The teacher indicated the reading start time, and used a central timer for timing reading rates. Upon completing the text, students recorded their time on this chart and then turned to the back side of the reading to complete the comprehension questions. They could not refer back to the reading during this time. After completing the questions, students checked the answers and scored themselves on the same chart. The next time TR was done in class, students read the previous reading one more time (to measure the difference in their reading rate between the first and second reading of the same text) before moving on to the next, new reading. Throughout the year, the teacher introduced four strategies to encourage students to push their reading rates higher. These strategies included predicting from skimming the text, chunking of word phrases, using context clues to guess unknown words, and considering the structure of a text and the purpose of each paragraph. On average, TR was conducted twice each week, a total of 50 times during the academic year, and was not formally assessed as part of the term or year-end grades.

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The ER library at this school contains over 1,000 unique texts graded for complexity into nine different levels based on number of unique headwords. The books come from a variety of publishers including Cambridge, Cengage, Compass, Macmillan, Penguin, Oxford, and Scholastic, and are leveled by color according to Extensive Reading Foundation (ERF) grading scale (n.d.) of early-elementary (301-400 headwords, red) to early-advanced (2401-3000 headwords, black). This system of leveling is described in detail by Waring (2011). Students had complete autonomy in selecting which books they read and were encouraged to read books they could finish in one week by reading 15 to 20 minutes per day.

In the beginning of each term, students were given a target number of books to read, equal to the number of full school weeks in that term. Students were expected to read 8 books in Term 1 (April to June), 12 books in Term 2 (September to November), and 8 books in Term 3 (January to February). Students were encouraged to read one book each week at or below their level, as the assessment would reward the number of books read rather than the difficulty of those books. If a student could not finish one book each week, they could submit up to two books in a seven-day period, but the teacher would accept no more than that. This system was put in place to encourage students to read consistently throughout the term, rather than attempt to read too many books in the last few days of term. To get credit for a book, students submitted a reading report including a simple summary of the book and a recommendation to other students. On this report, students also self-assessed the challenge the book presented them on a scale from *too easy* to *too difficult*. If the book was difficult, the teacher encouraged the students to try a book from an easier level next time to ensure that the reading was extensive and not intensive in nature. Students were then assessed primarily based on the number of books read and secondarily based on the difficulty of books read as measured by a point system, based on the ERF grading scale. The point system awarded 1 point per 100 headwords of the given book. For example, a red book (early-elementary, 301-400 headwords) was worth 4 points, and a green book (mid-intermediate, 1,001-1250 headwords) was worth 12. The graded reader score made up 15% of each term's grade.

Data on the TR and ER programs were collected over one school year, between April and February, with a 2-month summer break in July and August, and a 1-month winter break in December.

**Variables and Data Analysis Methods**

In total, there were five variables available from the reading program for analysis in this study:

- TR rate
- TR accuracy
- first to second TR jumps in reading rate
- number of ER books read
- difficulty of ER books read

Microsoft Excel was used to analyze data. Students' TR rates were input as speed in WPM. TR accuracy rates were input as number of comprehension questions answered correctly and then converted to a percentage of the total number of questions. Jumps in reading rate were calculated by inputting the second time reading speeds in WPM, and subtracting the first time reading speeds from the second time reading speeds. Number of ER books read was calculated as a percentage of the target number of books for that term (8 in the spring, 12 in the fall, and 8 in the winter). The difficulty of ER books read was calculated by finding the point values for number of headwords in the school's grading system based on the ERF grading scale described above. Correlations between these variables were found using Excel's "CORRELL" function, and independent samples *t* tests were used to measure the *p* values. The questions, findings, and discussion based on quantitative analysis follow in the next section.

**Quantitative Findings and Discussion**

**Timed Reading Research Questions**

*TR, Research Question #1: Do Students' Reading Rates Change Over Time?*

Table 1 and Figure 1 show the average rates (first readings only) of the class over the full year with breaks for summer and winter vacations.

Table 1. Class Average Reading Rates (N = 38)

	Term 1	Term 2	Term 3
Average reading rate (WPM)	170	219	231
SD	32.1	32.7	34.6

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Figure 1. Class average reading rates over time.  $N = 38$ .

The average reading rate of the full class increased by 36% ( $p = .001$ ) from term 1 to term 3, echoing Chang's (2010) findings of the positive effects of TR. However, it cannot yet be determined how much of this increase in reading rate is attributable to TR and how much to ER. For now, all that can be said is that a program implementing both approaches seems to have an overall positive influence on reading fluency.

TR, Research Question #2: Do Students' Reading Accuracies Change Over Time?

Table 2 shows the average accuracy rates of the class over the full year.

Table 2. Class Average Reading Accuracy ( $N = 38$ )

	Term 1	Term 2	Term 3
Average reading accuracy	85%	85%	78%
SD	8%	8%	11%

Overall, students were able to maintain a high level of accuracy as their reading rate increased. The difference between the accuracies of Term 1 and Term 3 was 7%, but was not statistically significant ( $p = .330$ ). This result is in contrast to Chang's (2010) finding of a 4% increase in reading accuracy, but both changes were only slight. The decrease in accuracy in this study may also be due to other factors besides the gain in reading rate, such as the students feeling less pressure to answer questions carefully as the year went on and TR becoming more routine. However, further research is necessary to confirm this.

TR, Research Question #3: When Students Read Faster, Do They Read Less Accurately?

This research question was about the correlation of rate and accuracy for a given reading, unlike RQ2, which asked about the overall class trend. To answer this, the correlation between reading rate and accuracy was calculated for the full year. This correlation was moderately negative ( $r = -.51$ ). This indicates that when readers read more quickly, there may tend to be a decrease in accuracy. Therefore, it seems that teachers should encourage students to find balance in pushing themselves to read more quickly. Pushing too hard may result in decreased accuracy.

TR, Research Question #4: How Do Students' First to Second Reading Jumps Change Over Time?

Figure 2 shows the differences from the first reading to the second reading of a text in words per minute. These differences represent the jump in reading rate.

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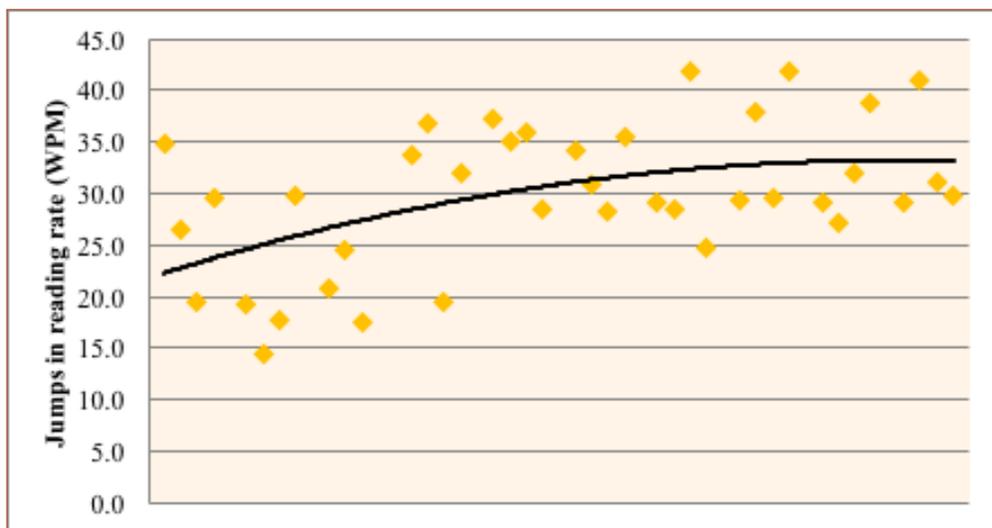


Figure 2. Jumps in timed reading rates from first reading to second reading.  $N = 38$ .

Though quite erratic, the data indicate an overall increase in the size of jump over time. This may point to an increase in willingness to take risks over time as students become more comfortable with the TR routine and pressure decreases. The average size of jump seems to plateau at the end of the year, but more research is necessary to confirm this.

*TR, Research Question #5: Are Faster Readers Bigger Jumpers?*

To answer this question, the correlation between average reading rate and average jump size was calculated. A weak negative correlation ( $r = -.23$ ) was found, suggesting that there is no strong connection between these two variables. Faster readers do not necessarily tend to jump higher for the second reading of a text. Rather, they may jump slightly lower, perhaps because they already push themselves harder on the first reading.

*Extensive Reading Research Questions*

*ER, Research Question #6: How Does the Number of Books Each Student Reads Change Over Time?*

Figure 3 shows the percentage of target books read over the full school year, shown by term.

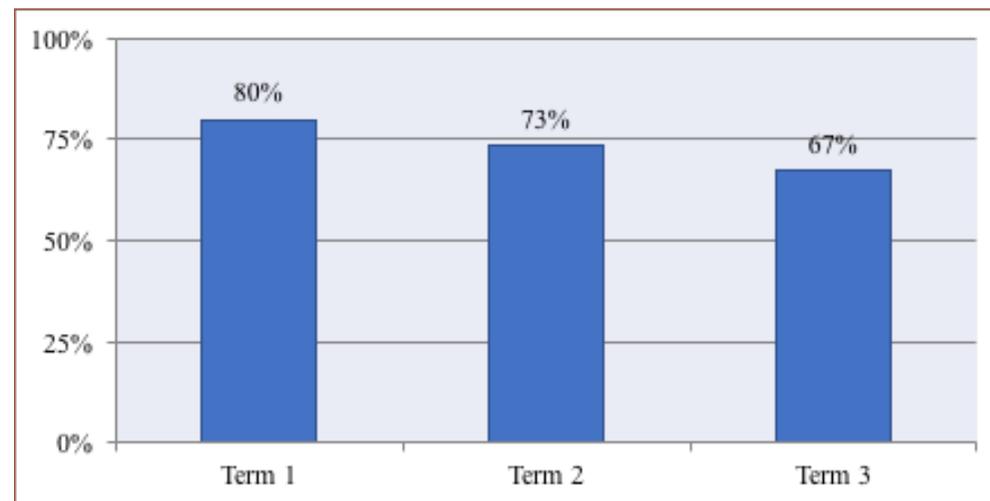


Figure 3. Number of books read as percentage of target.  $N = 38$ .

There was a moderate and statistically significant ( $p < .001$ ) decrease in number of books read from term 1 to term 3.

*ER, Research Question #7: How Does the Difficulty of Books Each Student Reads Change Over Time?*

Figure 4 shows the difficulty of books read in the ER program over the full school year, divided by term. In the system laid out in the procedures section, one point corresponds to 100 headwords.

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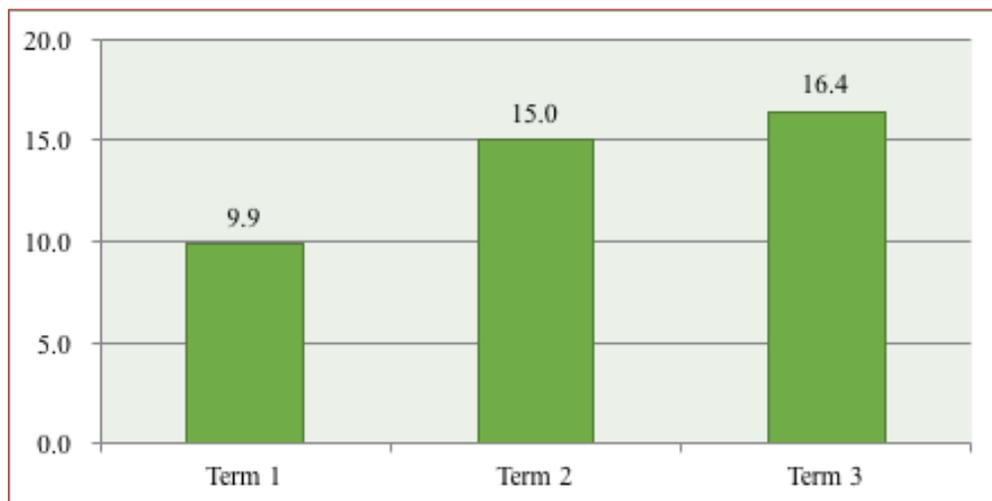


Figure 4. Average difficulty of books read. One point = 100 headwords.  $N = 38$ .

Figure 4 suggests that students tend to try reading more difficult books as they spend more time with the ER program. Alone, this chart would be quite encouraging to teachers, but combined with Figure 3, it indicates that students may be sacrificing number of books for difficulty of books, which precisely contradicts ER theory. Perhaps as time passes from the initial extensive reading guidelines and orientation, students forget that the number of books they read is more important than the difficulty of those books. It seems that more emphasis on this point is necessary throughout the year.

#### ER, Research Question #8: Do Students Who Read More Books Tend to Read More Difficult Books?

To answer this question, the correlation between the two ER variables, number of books read and difficulty of books read, was calculated. A moderately strong positive correlation was found ( $r = .61$ ), suggesting that students who read more tended to read more difficult books too. Participation in the ER program may be polarizing, such that active participants tend to read more at higher difficulty, but less active participants tend to read less at lower difficulty.

#### Timed Reading and Extensive Reading Research Questions

The correlation values to answer research questions 9 to 14 are presented in Table 3.

Table 3. Correlation Between Students' Success at TR and Participation in ER ( $N = 38$ )

Research question:	TR variable	ER variable	Correlation coefficient ( $r$ )
9. Do students who read more books read faster?	reading rate (WPM)	number of books read (% of target)	-.10
10. Do students who read more books read more accurately?	reading accuracy (% of questions answered correctly)	number of books read (% of target)	.10
11. Do students who read more books jump higher between timed readings?	first to second reading jump (WPM)	number of books read (% of target)	-.19
12. Do students who read more difficult books read faster?	reading rate (WPM)	complexity of books (school point system)	.06
13. Do students who read more difficult books read more accurately?	reading accuracy (% of questions answered correctly)	complexity of books (school point system)	.33
14. Do students who read more difficult books jump higher?	first to second reading jump (WPM)	complexity of books (school point system)	-.01

Note. TR = timed reading; ER = extensive reading; the school point system = 1 point per 100 headwords in book.

In all cases, very weak or no correlations were found, suggesting that there is no universal pattern for interaction between TR and ER common in all language learners.

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### TR and ER, Research Question #15: What Is the Distribution of Student Success in TR and Participation in ER?

The scatter plot in Figure 5 shows a wide distribution of reading patterns and may explain why the findings on the interaction of TR and ER were so inconclusive; all readers are vastly different. To better understand the different types of readers, four extreme categories with two members each were isolated for a qualitative study of student reading patterns.

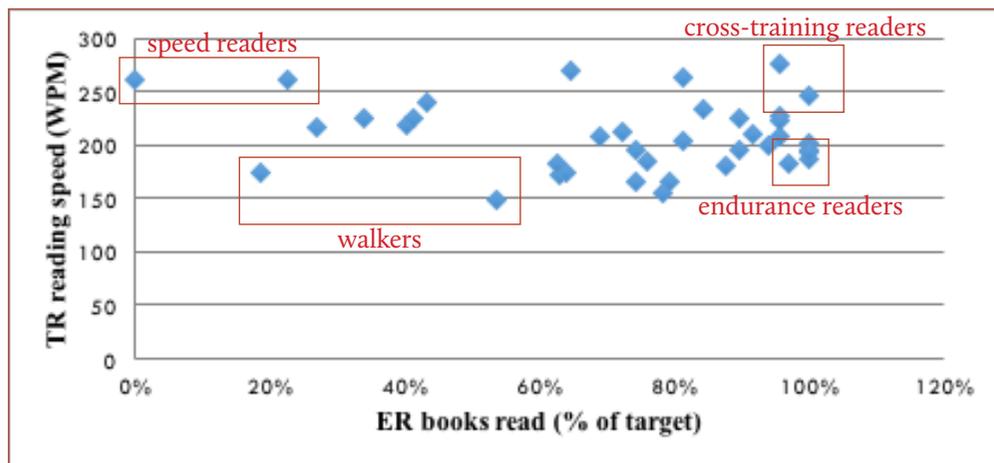


Figure 5. Student participation in timed reading (TR) and extensive reading (ER). Cross-training readers = high ER, high TR; endurance readers = high ER, low TR; speed readers = low ER, high TR; walkers = low ER, low TR.

## Qualitative Study Findings and Discussion

### Categories of Readers

The purpose of focusing on these four distinct categories was to gain a deeper understanding of why certain students succeed and others fail in each reading program. Using an analogy between reading fluency and running, the four extreme categories were called

- cross-training readers with high ER and high TR,
- endurance readers with high ER and low TR,
- speed readers with low ER and high TR, and
- walkers with low ER and low TR.

### Reader Reflections: Excerpts

The following are excerpts from reflection journals by two students from each extreme reader category. The journals were untimed homework assignments for students to reflect on their performance in class, collected once in September and once in January. Though students were not required to write about their performance in ER and TR, they did so in almost all cases. The reflection journals were written in English. Excerpts are unedited.

#### Cross-Training Readers (High ER, High TR)

“I did well on timed reading because I could read the paragraph fast. When we did timed reading predict about paragraph, I could read it fast, but couldn’t corrected answer perfectly. So I want to answer question perfectly and read fast” (Student 1).

“In the final test, I sadly couldn’t do well. The content of sentences were more difficult than midterm exam. I realised I have to read more books and work book to answer questions easily” (Student 2).

“At graded reader, I could read a book in a good plan and challenged to silver book. I want to challenge to more difficult books and have fun to read books” (Student 1).

“I like to do timed reading. I don’t know why. I always have time on my mind and read sentences as soon as possible, because of it. I always miss, so I will try to read sentences quickly and exactly” (Student 2).

#### Endurance Readers (High ER, Low TR)

“I take about 1 hour to go to school, so I always read a book in the train” (Student 3).

“I did well on my graded reader. I think this is because I read it when I have free times. For example on the train, I could enjoy reading it very much. To read a lot of exciting books, especially *Babe Pig in the City* was so good, I watched the movie after I read it. This term I try not to waste of my time on train, try to spend times well and find times to read it, even though it’s too short. I want to make my reading ability better than 1st term” (Student 4).

“I didn’t well on my timed reading and exams. I’m not good at reading fast. If I try to read fast, I make a lot of mistakes” (Student 4).

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### *Speed Readers (Low ER, High TR)*

Unfortunately, neither of the extreme speed readers turned in either of the reflection journal assignments. This may be evidence beyond their high TR performance to support that their lack of participation in the ER program was due not to a lack of ability, but to a lack of motivation or work ethic.

### *Walkers (Low ER, Low TR)*

“I’m not good at reading so timed reading was bad” (Student 7).

“I didn’t do enough graded reader, so 2nd term I want to do enough graded reader” (Student 8).

“What I didn’t do well was graded reader. I didn’t read many books, so I want to read more books this term” (Student 7).

### *Reader Reflections: Discussion*

It seems that the cross-training and endurance readers gave more detailed and focused reflections than the walkers, whose reflections are much shorter and simpler. In particular, the students with high ER performance exhibited more concrete goals, such as the level of books read and where and when they did this. In contrast, the walkers simply wanted to work harder, without any real plans describing how they would do so. Furthermore, the cross-training and endurance readers made connections between the reading program and other parts of the curriculum, particularly exams. One point that seemed to be common for all three higher performing groups was a sense of enjoyment for things that they can do, despite a tendency to focus on things they cannot do well.

### *Conclusions*

This study provides further evidence that TR can help promote EFL Japanese high school learners’ reading fluency, especially when integrated with ER. A 36% increase in reading rate was observed over one academic school year, with a 7% decrease in reading accuracy. This supports previous research on the potential of TR in fostering reading fluency. In the ER program, students read fewer books as the school year progressed, but the books they chose to read increased in difficulty. Although the findings on the interaction of TR

and ER were inconclusive, they highlight the diversity of readers and suggest that a multifaceted approach that can accommodate every reader differentially is ideal. To this end, encouraging individualized goal making and plans to achieve the goals with emphasis on individual improvement may be beneficial to focus on students’ growth as readers.

### *Limitations and Further Research*

The biggest limitation in this study was the lack of a control group to measure the effects of TR and ER in isolation. Therefore, in future studies where the educational context allows it, researchers might find it worthwhile to measure student reading rate and accuracy gains in three different groups, one with TR only, one with ER only, and one with an integrated approach.

Another limitation of this study was imprecision in the measurement of quantity of ER participation. A single graded reader can range from a couple dozen pages to over 100, so in addition to the number of books read, data on the number of pages and words read should be gathered in future studies.

Similarly, the reflection journal employed in this study was insufficient for gathering qualitative data from all students. Furthermore, the lack of detailed reflection from students of the “walker” category may have been confounded by a lower overall English proficiency. For this reason, interviews, especially bilingual ones to accommodate low-level English learners, might be a better instrument for gathering qualitative data for this type of study.

One interesting finding that merits further research is the relationship of ER reading patterns and gender. Although no significant difference was observed ( $p = .11$ ) between average reading rate over the year or correlation with reading rate and female sex ( $r = -.10$ ) as measured by TR, there was a significant difference between female and male students’ participation in the ER program ( $p = .021$ ). The correlation between number of books read and female sex was strong ( $r = .71$ ). This difference further highlights the variety of readers in the classroom and the importance of understanding this variety more deeply.

Finally, if more data is acquired, it may be fruitful to analyze the extreme reader categories using the same quantitative analysis as the first part of this study. Investigation into the relationship of these groups of students’ performances in TR and ER and on class achievement tests and English proficiency tests may yield interesting data which would further promote the use of these tools for developing students’ reading fluency.

## Bio Data

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