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The Effects of Repeated Oral Reading and Timed Reading on L2 Oral Reading Fluency

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ABSTRACT

The effects of repeated oral reading and timed reading on L2 oral reading fluency were examined among Japanese university students (N = 50) over 12 weeks. Three quasi-experimental groups were used in the study. Group 1 practiced two types of reading: Repeated oral reading with chunking practice and timed reading. Group 2 did timed reading only. Group 3 served as the comparison group. The participants were rated on their oral reading fluency of a short passage before and after the treatment period in terms of prosody, accuracy, and speed. The results showed that both treatment groups made statistically significant within-subjects oral reading fluency gains. Between-subjects tests indicated that Group 1 outperformed both Group 2 and the comparison group by the end of the treatment. Additionally, there were no statistically significant differences found between Group 2 and the comparison group. Finally, it was shown that Group 1 made the most improvements in terms of the rhythmic aspects of their oral reading production, Group 2 gained the most in terms of speed, and Group 3 made negligible gains. These results provide empirical evidence of the benefits of repeated oral reading and timed reading on the development of L2 oral reading fluency.

INTRODUCTION

Second language (L2) reading fluency has been garnering interest in the field as educators and researchers alike agree that having the ability to read fluently is a vital skill for L2 learners (Grabe, 2010). Fluent reading helps learners process textual information faster and more efficiently; thus, they are enabled to read greater amounts of L2 input that is crucial for L2 improvement, build confidence in L2 tasks, and accomplish their L2 learning goals. However, research in this area has predominantly focused on reading in the silent mode, and a crucial aspect of reading fluency has largely been ignored in L2 contexts—and that is the development of oral reading fluency.

One reason for the dearth of research in oral reading fluency might be due to teachers' and researchers' ambivalence toward oral reading procedures. Reading aloud activities are often unpopular in communicative English as a Foreign Language/English as a Second Language (EFL/ESL) classrooms and some educators claim the task is uninteresting, demotivating, and induces anxiety in learners (Gibson, 2008). However, research on L2 learners' perceptions of oral reading has shown that they find the activity useful and have often responded positively to oral

reading treatments (Chang, 2012; Jeon, 2009). Moreover, when many L2 learners are faced with oral reading tasks, the resulting utterances often sound like the phenomenon known as "barking at print" (Samuels, 2007) where learners do not articulate the text's prosodic features which results in a disconnect between the text's content and the appropriate expression of it.

Hence, reading experts argued that oral reading is an essential classroom activity (Grabe, 2010; Nation, 2005). Practicing oral reading benefits Japanese L2 learners by giving them an intuitive feel for the target language's phonological sound system, and this can be particularly helpful for lower-level students (Takeuchi, 2003). Because English is a stress-timed language and Japanese is a syllable-timed language, Japanese learners might have difficulty both perceiving and producing the stress patterns characteristic of English. On a segmental level, Japanese has a five-vowel system with fewer consonant sounds than English; therefore, oral reading can help many Japanese learners perceive new consonant and vowel distinctions (Avery & Ehrlich, 1992). Because there is a paucity of empirical evidence regarding how oral reading fluency develops for Japanese L2 learners, this study will explore the effects of repeated oral reading and timed reading on the development of L2 oral reading fluency.

LITERATURE REVIEW

Defining Reading Fluency

Grabe (2010) has characterized L2 reading fluency as a complex cognitive process "involving rapid and accurate processing that is also prosodically appropriate" (p. 72). That is, reading at an efficient rate with sufficient levels of comprehension requires three necessary elements: speed, accuracy, and prosody. Therefore, reading fluency is the result of the nearly simultaneous and automatic execution of the lower-level processes (LaBerge & Samuels, 1974). This entails fast and precise processing of the orthographic, semantic, and phonological features of words (Perfetti & Hart, 2002). Highly automatized lower-level processes allow for attention to higher-level processes such as drawing on background knowledge, evaluating the text, and making inferences.

Beyond the lower- and higher-level reading processes is prosody. Reading with prosody entails observing and articulating appropriate intonation, rhythm, and stress which denote the suprasegmental structures inherent in English texts (Avery & Ehrlich, 1992). Intonation has been described as the rise and fall of pitch. It often conveys attitudes and emotions and contributes to the overall expressiveness of a text when read orally. Rhythm embodies the cadence of a stress-timed language, which is done by chunking groups of words into meaningful syntactic and semantic units as well as observing pause structures within a text. Moreover, the rhythm manifested in oral readings is a function of word and sentence level stress patterns. Thus, accurate rhythm and stress serve to denote the relative importance of content words and at the same time, they de-emphasizes function words. The elision of function words often occurs in order to fit the appropriate rhythm of a text. Taken together, these prosodic features subsume meaning and contribute to the overall expressiveness of a written passage when read orally. Because most aspects of prosody are not explicitly denoted in English orthography, L2 learners might have difficulties articulating these features. Therefore, even though an L2 learner may have some degree of reading fluency in the silent mode, it does not necessarily mean fluency exists in the oral mode.

The Development of L2 Reading Fluency

Various methods have been employed to improve reading fluency in the L2 literature, and most methods have focused on increasing reading rate, predominantly in the silent mode. One useful method for increasing reading rate has been repeated reading, where learners reread the same passage a number of times in an effort to automatize word recognition abilities. For example, in the Japanese university context, Taguchi (1997) investigated the effectiveness of repeated reading on the silent and oral reading rates of 16 first-year students over a ten-week period. There was a total of 28 in-class repeated reading sessions. In each session, learners read a segment from a graded reader. Each segment was read a total of seven times silently. On the third, fourth, and fifth readings, the participants silently read along with an audio version of the passage. In comparing the pre- and posttest mean reading rates of the first, fifth, sixth, and seventh readings, the results showed that silent reading rates increased significantly and there was an upward linear progression of the reading rate increases throughout the repetitions. However, the reading rate increases did not transfer to new passages when read silently or orally. The one exception was the lowest-level readers showed a significant improvement in their oral reading rate of new passages.

Repeated reading has also been used in the oral mode. For example, Jeon (2009) investigated the effects of paired oral rereading training on reading fluency and comprehension among 255 Korean tenth graders. The participants were divided into an experimental group, comparison group, and control group. The experimental group received 18 session of paired oral rereading over 14 weeks. The comparison group read the same number of passages but with no repetitions and focused on recalling information from the text. The control group did not receive any reading fluency treatments. The results showed that the experimental group significantly outperformed the other groups in terms of reading rate and comprehension. Moreover, the students found the oral rereading procedures helpful and enjoyable.

Another effective method of improving reading rate has been via timed readings, where learners focus on reading faster by silently reading short, highly comprehensible passages over regular intervals and answering comprehension questions about the texts. In the secondary educational context in Japan, Underwood, Myskow, and Hattori (2012) administered a six-month speed reading course among 105 tenth-grade students. Through random group assignment, 51 students practiced timed reading twice a week, and the other 54 students did supplementary activities focusing on high-frequency vocabulary. The results showed that both groups made significant within-subjects gains in reading comprehension and high-frequency vocabulary. However, when comparing the groups, the only significant difference that separated them was reading rate. The timed reading group made gains in reading rate by decreasing their reading time by an average of 47 seconds, although comprehension average was around 60%, which was slightly lower than the 70% criterion of adequate comprehension set forth by reading experts (Anderson, 2008; Nation, 2005).

Recently, researchers have used both timed reading and repeated oral reading to improve reading fluency. In the Taiwanese context, Chang (2012) compared these types of fluency treatments among 35 lower intermediate proficiency adult students over 13 weeks. The timed reading group gained an average of 50 words per minute (wpm) after reading 52 passages silently. The repeated oral reading group members read 26 passages and each passage was read up to five times in various ways such as silent reading, audio supported reading, individual oral

reading, paired oral reading, and volunteer reading; however no time pressure was used in these repetitions. The group gained approximately 23 wpm by the end of the treatment. Both groups had comprehension scores below 70% on the posttests. The researcher concluded that timed reading with time pressure was more effective in fostering faster reading rates. However, participants responded positively to both types of treatments, and the members of the repeated reading group commented that the oral reading practice helped them with their oral reading fluency and pronunciation.

The combination of repeated oral reading and timed reading were effectively used to improve reading rate and comprehension among 55 first- and second-year Japanese university students over one semester (Shimono, 2018). Group 1 received two types of reading fluency treatments—two timed reading passages per week and each passage was reread twice orally. Group 2 read three timed reading passages per week. Using four scoring methods of silent reading rate—(a) the *average scoring method* which compares the average reading rate of the first three passages in the treatment and the last three passages, (b) the *last minus the first scoring method* which compares the pre- and posttest reading rates, (c) the *extreme scoring method* which contrasts the passage with the fastest rate and the passage with the slowest rate, and (d) the *three extremes scoring method* which compares the average of the fastest three passages and the slowest three passages—Group 1 made statistically significant gains of 15.28 (83.80 to 99.08 standard words per minute [swpm]), 12.58 (83.76 to 96.34 swpm), 27.35 (80.55 to 107.90 swpm), and 20.67 swpm (82.60 to 103.27 swpm) while Group 2 also made significant gains of 16.96 (95.80 to 112.76 swpm), 15.42 (93.54 to 108.96 swpm), 26.63 (93.54 to 120.17 swpm), and 22.63 swpm (93.96 to 116.59 swpm) according to these four scoring methods, respectively. While these reading rate gains were accompanied by comprehension increases, comprehension levels were slightly below the 70% threshold of sufficient comprehension. The between-subjects measures, however, showed that both treatment groups outperformed the comparison group in terms of rate and comprehension. However, no differences were found between the treatment groups on these measures at the end of the treatment period.

L2 Oral Reading Fluency and Comprehension

The majority of L2 studies with an exclusive focus on oral reading fluency have investigated the relationship between reading comprehension and varying aspects of oral reading fluency such as reading rate, word- and passage-level reading fluency, accuracy, and prosody. For example, Lems (2003) investigated the relationship between reading comprehension and passage-level oral reading fluency with 232 L2 adult-education students of various L1 backgrounds. One of the main findings was that oral passage reading fluency, which was defined as the number of words read correctly per minute, correlated significantly with reading comprehension and this relationship was shown to be stronger with more advanced learners. The researcher also found that prosody did not significantly explain variation in reading comprehension but commented that low interrater reliability might have contributed to this result. Another interesting finding was that many participants decoded without comprehension when reading aloud and vice versa—that is, some participants could comprehend the meaning of the text without being able to decode or pronounce the words. This result indicates that L2 learners often have orthographic, semantic, and phonological gaps in their word knowledge and they become evident when reading orally.

More supporting evidence of the positive relationship between oral reading fluency and reading comprehension was shown in a study by Jiang, Sawaki, and Sabatini (2012). Examining oral word reading, oral nonword reading, oral passage reading, and silent reading comprehension among 185 adult L1-Chinese learners, the results indicated that both oral passage and word reading fluency correlated significantly with comprehension ($r = .51$, $p < .01$; $r = .27$, $p < .01$, respectively). However, there was a stronger relationship between oral passage reading fluency and reading comprehension than between oral word reading efficiency and reading comprehension. The researchers concluded by recommending that attention be paid to text oral reading fluency for EFL learners.

Finally, the relationship between oral reading fluency and reading comprehension was explored among Japanese, Chinese, Spanish, and Arabic learners (Jiang, 2016). Using four measures of oral reading fluency—oral reading rate (wpm), accuracy (words correct), efficiency (word correct per minute), and prosody—a stepwise regression analyses indicated different results for learners of different L1 backgrounds. For the Japanese and Chinese learners, prosody was the only significant predictor of reading comprehension, and accounted for 32% and 18% of the respective variances.

Gaps, Purposes, and Research Questions

To date, most of the L2 reading fluency studies have examined the treatments that promote silent reading rates as well as investigated various aspects of oral reading fluency and their relationship to reading comprehension. However, very few studies have examined the development of oral reading fluency in terms of the oral production of prosody, accuracy, and speed over a longitudinal treatment period. In addition, while Shimono (2018) investigated the effects of repeated oral reading and timed reading on silent reading rates and comprehension, the oral reading performances were not examined among those learners in that study. Thus, the current study reexamines the treatment group participants from Shimono (2018) and addresses three gaps in the reading fluency literature. The first gap is no studies have explored the effects of repeated oral reading and timed reading on L2 oral reading fluency development in the Japanese context using a longitudinal design. The second gap is no studies have examined groups that receive treatments of repeated oral reading and timed reading and compared them according to their oral reading performance. The third gap is no studies have provided empirical evidence on the specific aspects of oral reading fluency that improve after treatments of repeated oral reading and timed reading.

Hence, the primary purpose of this study is to investigate if significant oral reading fluency gains can be accomplished with a treatment of repeated oral reading plus timed reading as well as a treatment of using only timed reading. The secondary purpose is to explore if there are any group differences by the end of the treatment period. The third purpose is to shed light on the aspects of oral reading fluency that can be improved with repeated oral reading and timed reading. Therefore, this study addresses three research questions:

RQ1: Do the quasi-experimental groups make significant gains in oral reading fluency by the end of the treatment period?

RQ2: Do the quasi-experimental groups significantly differ in oral reading fluency by the end of the treatment period?

RQ3: On which aspects of oral reading fluency do the participants for each quasi-experimental group make the most gains from the pretest to posttest?

METHODOLOGY

Participants

Fifty lower proficiency Japanese university students (30 males and 20 females) participated in this study. Their ages ranged from 18 to 20 years old. These students were divided into three quasi-experimental groups. Group 1 received silent timed reading training as well as repeated oral reading practice and chunking practice (henceforth the TROR group). These participants were foreign language majors and came from two intact classes (n = 20) that met three times a week for 90 minutes. These classes were taught by two different North American instructors. One class consisted of all first-year students. The other class consisted of all second-year students. Students in this department were streamed according to three classifications: Upper, middle, and lower proficiency bands. Both classes in this group were from the lower proficiency band with TOEIC Bridge scores ranging from 90 to 110 (230 to 280 TOEIC equivalent) (Educational Testing Service, 2006).

Group 2 received only silent timed reading training (henceforth the TR group). This group also consisted of foreign language majors from two intact classes (n = 18) that met three times a week for 90 minutes and was taught by the researcher. Like the TROR group, one class was comprised of first-year students and the other was made up of second-year students. Both classes were from the middle proficiency band with TOEIC Bridge scores ranging from 110 to 130 (280 to 345 TOEIC equivalent).

Group 3 was the comparison group that consisted of one intact class (n = 12) of first-year economics majors. They attended compulsory English classes twice a week and one of the classes was taught by the researcher. The general English proficiency of this class varied, as students from this major were not streamed according to ability. TOEIC Bridge scores ranged from 90 to 140, which is approximately equivalent to 230 to 395 on the standard TOEIC test.

Procedure

This study was conducted over 12 weeks of one academic semester at a lower tier university in western Japan. In the first week, all participants were recorded reading a short passage. Over the next 10 weeks, the treatment groups received their respective reading fluency training. In the twelfth week, all participants were recorded again reading the same short passage.

TR Group Treatment

The members of this group practiced silent timed reading three times a week (once every class session) for a total of 30 passages over the semester. These participants were instructed to read the passages as fast as they could while maintaining sufficient comprehension, which was defined as achieving at least 70% on the multiple-choice questions or six out of eight comprehension questions correctly per passage. For measurement accuracy, all participants were

given stopwatches. As soon as the participants received the passage, they were instructed to start their stopwatches and begin reading the passage silently. After finishing, the participants stopped their stopwatches and recorded their reading time at the bottom of the page. Next, they answered the multiple-choice questions on the back of the page without looking back at the passage for answers. Instructors monitored the participants carefully so they would not look back at the passage. Afterwards, the comprehension questions were corrected in class. If a participant scored less than six out of eight comprehension questions, they were told to slow down and try to read more carefully. On the other hand, if a perfect score was achieved, they were encouraged to push themselves to read even faster on the next reading. Finally, the participants completed their timed reading charts that kept track of their reading speed and comprehension progress. The total time on task for each session was approximately 10 minutes.

TROR Group Treatment

The members of this group received timed reading training twice a week for a total of 20 timed readings. Fewer readings were used for this group in order to balance time on task with the TR group. For each passage, the same timed reading procedure of the TR group was used. However, after completion of the timed reading activity, the instructor distributed the same timed reading passage; however the text was segmented into approximately 3 to 5 word phrases that would indicate one thought group. These segmented phrases also indicated where the participants should try to chunk words together. The oral reading procedure began by the instructor reading the passage aloud. After each segment was read by the instructor, the participants would try to match the instructor's oral rendition in terms of prosody, pronunciation, and speed. The participants were also encouraged notate the intonation and stress patterns. After the choral reading, participants were paired up and practiced the passage once again orally. While one partner read aloud, the other partner would peer assess their oral reading based on intonation, rhythm, stress, speed, and pronunciation. The total time on task for each session was approximately 15 minutes.

Comparison Group Treatment

This group had two 90-minute English classes per week. These classes mainly focused on improving speaking, listening, and overall communication skills. While the textbook used in this class had short reading passages, these participants did not do any fluency training such as timed reading or repeated oral reading.

Timed Reading Treatment Materials

Timed reading passages from *Reading Power* (Mikulecky & Jeffries, 2005) were used for the treatment materials. There were 20 passages with a set of eight comprehension questions accompanying each passage. Additionally, the first 10 timed reading passages of *Asian and Pacific Speed Readings for ESL Learners* (Quinn, Nation, & Millet, 2007) were used as supplementary passages for the TR group. These passages had 10 comprehension questions each. These two sets of timed readings were selected because the vocabulary used in these passages predominantly came from the first 2,000 high frequency words of English. The timed reading

data that was collected for the quasi-experimental groups are not analyzed in the current study (see Shimono, 2018 for the results).

Oral Reading Task

In order to investigate the potential changes in oral reading fluency, all participants were recorded reading a short passage about how to cook a turkey and make eggnog (GEOS, 2001) (see Appendix). This passage consisted of 168 words. Eleven percent of the sentences were passive and the readability statistics indicated a Flesch Reading ease of 76.1 and a Flesch Kincaid Reading Level of 5.1.

This passage was selected because it provided the opportunity for the learners to articulate their knowledge of segmental and suprasegmental aspects of English. For example, on the segmental level, the passage features many words with the inflectional morpheme *–s* words such as *breadcrumbs*, *egg whites*, and *states*. The segmental /*s*/ is problematic for Japanese learners as they often omit this sound during oral renderings, especially when they occur at the end of a word (Avery & Ehrlich, 1992). In addition, the passage included some orthographically opaque words such as *refrigerator*, *yolks*, and *foamy* in which their sound-letter correspondence are irregular. Such words reveal the participants' knowledge of pronunciation. When describing the process of how to make a turkey, discourse markers such as *First*, *Next*, and *Finally* were contained in the passage as well as lists of ingredients. These features are apt in highlighting the participants' intonation and chunking abilities. *GarageBand* (version 10) by Apple was used to record high quality digital audio. The same passage was intentionally given for the pre- and posttest in order to more accurately compare the oral readings to see if there were any changes.

Analyses

Four raters, including the researcher, evaluated the participants' oral reading task. All the raters were North American native speakers who were teaching in universities in Japan and were PhD candidates in applied linguistics. Based on the definition of reading fluency, six categories were used to measure prosody, accuracy, and reading speed. For prosody, participants were judged on their intonation, rhythm, and stress. For accuracy, the participants' pronunciation and overall intelligibility were rated. Finally, participants were evaluated based on appropriate speed of their oral rendition.

Intonation was operationalized as the natural rise and fall of the pitch found within phrases, clauses, stressed words, and at the end of sentences. Stress was operationalized as the occurrence of vowel sounds that were longer, louder, and located on the correct syllable of a word as well as on the main content words in the sentences. Rhythm was evaluated based on a consistent cadence that is characteristic of a stress-timed language. The elision of function words and connected speech were also evaluated as qualities of appropriate rhythm (Avery & Ehrlich, 1992). Ratings on pronunciation were assessed based on accurate and accepted productions of phonemes of the English sound palate. Intelligibility was defined as the degree to which the reading could be generally understood by the raters (Munro & Derwing, 1995). Finally, speed was not only categorized by the decoding of words at an appropriate rate, but also by the observance of appropriate pauses after periods, commas, and clauses.

The raters used a 5-point scale to make the evaluations. Before the ratings commenced, the raters received training on what constitutes a 1 to 5 rating for each category. A rating of 1

was considered "poor." This score was considered to be below average with numerous errors in the respective categories and negatively affected the overall rendering of the text. A rating of 2 was considered "average." This rating typified the common errors and abilities of lower-level Japanese L2 learners. A rating of 3 was considered "good." This designation was given to participants that exemplified qualities that were better than average, yet errors were occasional and present. A rating of 4 was considered "very good." This rating was characterized by a conscious and well-executed production of the rated characteristics. Finally, a rating of 5 was considered "excellent" and this mark signified an articulation that would be characteristic of a highly proficient L2 learner or near a native speaker in quality. To get a baseline, the researcher chose sample recordings that exemplified a rating of a 2 in each category. Each rater was given an explanation as to why the participants would receive a rating of 2 in the respective categories. The raters were also given a general rubric with descriptions of ratings for each category. After the training, the raters were then given a random selection of the participants' pretest and posttest recordings. The raters had no knowledge of the treatment group to which the participants belonged and if the recording was from the pretest or posttest. The raters assessed each recording independently. Each recording was rated by at least two raters.

FACETS version 3.71.2 (Linacre, 2014) for Windows was used to analyze the ratings on the oral reading task. This Rasch analysis software adjusts for rater severity, bias in the ratings, and how well each rater fits the Rasch model. The raters in this study were internally consistent within acceptable standards. Acceptable infit mean square figures range from 0.5 to 1.5 for productive and reliable measurement with 1 being a perfect fit (Linacre, 2002). For the pretest, rater 1, 2, 3, and 4 had an infit mean square of 1.25, .87, .96, and 1.20, respectively. For the posttest, raters 1 to 4 had an infit mean square of 1.21, .99, .94, and .88, respectively, which showed that these raters fit the Rasch model. Interrater reliability was also high. On the pretest, there were 552 interrater agreement opportunities. Out of those 552, there were 330 (59.8%) exact agreements while the model only expected 53.9% (297.5). For the posttest, there were also 552 interrater agreement opportunities. Out of those 552, there were 373 (67.6%) exact agreements while the model only expected 60.3% (332.6). *FACETS* was also used to generate a "fair average" score for the ratings of each participant. Fair averages are adjusted scores calculated that take into account rater severity and bias. These fair average scores were then used in the analyses.

RESULTS

Research question 1 asked if the quasi-experimental groups make significant gains in oral reading fluency by the end of the treatment period. This question was investigated by conducting paired samples *t*-tests with the factor being time and the dependent variable being the combined fair averages of the oral reading scores. The means, standard deviations, and 95% confidence intervals for the oral reading fair average scores are presented in Table 1. The assumptions of the analysis were checked and met. Because there were three comparisons, a Bonferroni adjustment was made and statistical significance was tested at the .017 alpha level (.05 ÷ 3 comparisons). For the TROR group, the results indicated a significant time effect, $t(19) = -9.04$, $p < .001$. The standardized effect size index, Cohen's *d*, was -2.03, which constitutes a large effect size according to the guidelines established by Plonsky and Oswald (2014). For the TR group, the *t*-test indicated a significant time effect, $t(17) = -4.53$, $p < .001$. The standardized effect size index, Cohen's *d*, was -1.03, which constitutes a medium effect size. For the comparison group, the results of the *t*-

test indicated a non-significant time effect, $t(11) = -1.91$, $p = .083$. Cohen's d was -0.55, which constitutes a small effect size.

Table 1. Descriptive Statistics of the Combined Fair Averages for the Pretest, Posttest, and Gains of the Oral Reading Task

	M	*SD*	*95% CI*
TROR Group			
Pretest	1.91	0.52	[1.67, 2.15]
Posttest	2.51	0.57	[2.24, 2.78]
Gains	0.60*	0.30	[0.46, 0.74]
TR Group			
Pretest	2.08	0.35	[1.90, 2.25]
Posttest	2.38	0.34	[2.21, 2.55]
Gains	0.30*	0.29	[0.16, 0.45]
Comparison Group			
Pretest	2.01	0.32	[1.81, 2.22]
Posttest	2.13	0.45	[1.85, 2.42]
Gains	0.12	0.22	[0.02, 0.27]

Note. * = Statistically significant; CI = Confidence interval.

Research question 2 asked if the quasi-experimental groups significantly differ in oral reading fluency by the end of the treatment period. To answer this question, a one-way ANCOVA was conducted with the independent variable containing three levels: the TROR, TR, and the comparison groups. The dependent variable was the mean combined ratings for the oral reading posttest and the covariate was the pretest combined ratings. A preliminary analysis evaluating the homogeneity of regression slopes assumption indicated that the relationship between the covariate and the dependent variable did not significantly differ as a function of the independent variable, $F(2, 44) = 2.02$, $p = .144$, partial $\eta^{2} = .084$. Another preliminary analysis assessing the independence of the covariate and treatment effects was conducted $F(2, 47) = 0.77$, $p = .469$, partial $\eta^{2} = .03$. These preliminary results indicate that the pretest of the oral reading task was appropriate to use as a covariate in the analysis. Levene's Test of Equality of Error Variances was also not significant ($p = .901$), satisfying the assumption of the analysis.

The ANCOVA was significant, $F(2, 46) = 11.33$, $MSE = 0.865$, $p < .001$. The strength of the relationship between the treatment groups and the posttest scores was strong, as assessed by a partial η^{2}, with the group variable accounting for 33% of the variance of the dependent variable.

The posttest scores adjusted for initial differences are ordered according to their adjusted means. The TROR group had the largest adjusted mean of 2.59 ($SE = 0.06$; *95% CI* = 2.46, 2.71), followed by the TR group with 2.31 ($SE = 0.07$; *95% CI* = 2.17, 2.44), and finally, the comparison group with 2.12 ($SE = 0.08$; *95% CI* = 1.96, 2.28). Follow-up tests were conducted to evaluate pairwise differences among these adjusted means. Based on the Bonferroni procedure, the adjusted means for the TROR group differed significantly from the TR and comparison groups ($p = .012$, $p < .001$, respectively). There was no significant difference between the TR and comparison groups ($p = .239$).

Research question 3 asked about which aspects of oral reading fluency improves the most from the pre- to posttest for each of the quasi-experimental groups. This research question was answered by inspecting the descriptive statistics shown in Table 2. The participants of the TROR

group made the most mean gains in the rhythm of their oral reading fluency, followed by speed, stress, pronunciation, intonation, and intelligibility. For the TR group, these participants made the most mean gains in speed, followed by intonation, stress, rhythm, intelligibility, and pronunciation. Finally, the comparison group gained the most in speed followed by intelligibility, rhythm, stress, intonation, and no gains were made in pronunciation.

Table 2. Descriptive Statistics of the Fair Averages of Each Rated Category of the Oral Reading Task for Each Group on the Pretest and Posttest and Their Respective Gains

	Pretest			Posttest			
	M	*SD*	*95% CI*	*M*	*SD*	*95% CI*	Gains
TROR Group							
Intonation	1.70	0.56	[1.44, 1.97]	2.21	0.78	[1.84, 2.57]	0.51
Rhythm	1.80	0.52	[1.56, 2.04]	2.47	0.56	[2.20, 2.73]	0.67
Stress	2.20	0.71	[1.86, 2.53]	2.84	0.82	[2.46, 3.22]	0.64
Speed	1.95	0.86	[1.54, 2.35]	2.60	0.76	[2.25, 2.95]	0.65
Pronunciation	1.87	0.61	[1.58, 2.15]	2.50	0.65	[2.19, 2.80]	0.63
Intelligibility	1.96	0.53	[1.71, 2.21]	2.45	0.58	[2.18, 2.72]	0.49
TR Group							
Intonation	1.97	0.55	[1.70, 2.24]	2.26	0.52	[2.00, 2.52]	0.29
Rhythm	1.92	0.54	[1.65, 2.19]	2.15	0.41	[1.95, 2.36]	0.23
Stress	2.22	0.49	[1.98, 2.47]	2.50	0.48	[2.26, 2.74]	0.28
Speed	2.05	0.85	[1.63, 2.48]	2.76	0.76	[2.38, 3.13]	0.71
Pronunciation	2.18	0.47	[1.94, 2.41]	2.35	0.41	[2.15, 2.55]	0.17
Intelligibility	2.09	0.53	[1.83, 2.36]	2.32	0.37	[2.13, 2.50]	0.23
Comparison Group							
Intonation	1.86	0.34	[1.65, 2.08]	1.89	0.39	[1.64, 2.14]	0.03
Rhythm	1.84	0.49	[1.53, 2.15]	2.00	0.49	[1.68, 2.31]	0.16
Stress	2.28	0.83	[1.76, 2.81]	2.33	0.75	[1.86, 2.81]	0.05
Speed	2.07	0.42	[1.80, 2.34]	2.31	0.57	[1.95, 2.68]	0.24
Pronunciation	2.06	0.27	[1.89, 2.23]	2.06	0.48	[1.75, 2.36]	0.00
Intelligibility	2.01	0.41	[1.76, 2.27]	2.21	0.55	[1.86, 2.56]	0.20

Note. CI = Confidence interval.

DISCUSSION

Research question 1 asked if there would be significant within-subjects gains in oral reading fluency among the quasi-experimental groups by the end of the treatment period. The results indicated that the two reading fluency treatment groups—the TROR group and TR group—made statistically significant within-subjects gains in oral reading fluency by the end of the treatment. For the TROR group, the statistically significant gains were accompanied by a large effect size. The fact that the TR group also made statistically significant gains with a medium effect size indicates that skills developed through silent timed reading practice can transfer to gains in fluency in the oral mode. While the comparison group made slight gains from the pre- to posttest, the difference was not significant. These results suggest that both types of reading fluency treatments used in the study were effective in fostering gains in L2 oral reading

fluency. Moreover, these results imply that significant within-subjects gains in silent reading rate and comprehension as seen in Shimono (2018) can go hand in hand with gains in oral reading fluency. These results also echo the studies by Taguchi (1997) and Jeon (2009) who found concurrent gains of reading rate and oral reading fluency.

While the oral reading fluency gains were significant for both treatment groups, the mean fair average scores for both treatment groups were around 2 (average) for the pretest, and around 2.5 for the posttest, which would be considered slightly above average. This finding suggests that while significant gains were observed for the treatment groups, there is still a room for improvement in the areas of prosody, speed, and accuracy for these learners. In other words, a longer treatment period might be necessary for these types of L2 learners to achieve "good" or "very good" ratings.

Research question 2 asked if there would be significant between-subjects differences in oral reading fluency among the quasi-experimental groups by the end of the treatment period. The adjusted means in oral reading fluency indicated that the TROR group outperformed both the TR and comparison groups on the between-subjects measures despite having the lowest initial ratings and a lower overall L2 proficiency compared to the TR group. Moreover, no differences were found between the TR and comparison groups. While Shimono (2018) found no differences between the TROR and TR groups in terms of silent reading rate and comprehension by the end of the treatment, the results of this study point to the effectiveness of explicit oral rereading practice on oral reading fluency. Through this training, the TROR participants could not only enhance their knowledge of the phonological characteristics of words, but also learn to produce more intonation, rhythm, word and sentence stress, become better at observing pause structures, and become more able to appropriately chunk words together in oral renderings. In this way, members of the TROR group holistically improved their reading fluency abilities to a greater extent than the other groups.

Research question 3 asked about which aspects of oral reading fluency—intonation, rhythm, stress, speed, pronunciation, and intelligibility—would improve the most from the pre- to posttest measures for each of the groups. For the TROR group, the participants made the most gains in rhythm. This result is likely attributed to the repeated oral reading treatment which included chunking practice and assisted these learners to read rhythmically in phrases instead of reading word by word at the same speed. While the participants of the TROR group improved the most in terms of the rhythmic qualities of their oral reading, they also made similar improvements across all the rated categories which signifies the comprehensive effectiveness of the repeated oral reading procedure. For the TR group, the gains in speed stood out compared to the rest of the categories. This is likely due to the silent timed reading treatment, and the transfer of its effects were evident in their oral reading production. Finally, while the comparison group participants saw modest gains in speed, the improvement was negligible, and this could be said for the gains seen in the other categories as well. This result suggests that little change in oral reading fluency will occur if learners do not have consistent opportunities to practice these oral reading skills. If left unattended, many learners will continue to be dysfluent oral L2 readers.

CONCLUSION

Pedagogical Implications

The results of this study are promising in that both types of treatments—repeated oral reading plus timed reading as well as silent timed reading alone—are effective in fostering L2 oral reading fluency; however, it has been shown that the additional repeated oral reading element enhances reading fluency even further and serves as an effective platform for learners to become more aware of the prosodic aspects in English oral reading. Moreover, the oral rereading procedures provided consistent practice for their oral reading skills. The results of this study have provided empirical evidence that L2 learners can make significant improvements in accurately articulating the segmental and suprasegmental aspects of English as well as increasing their oral reading speed. In becoming more expressive and articulating texts in more prosodically appropriate ways, the learners of this study became more competent L2 readers and sounded less like they were "barking at print." These improvements in oral reading fluency will ultimately help them in their oral reading tasks such as making speeches, presentations, or announcements in the L2. Lastly, there is potential that these skills gained in oral reading fluency could transfer to more spontaneous forms of oral communication.

Limitations

The results of the present study should be interpreted with regards to several limitations. Firstly, all participants were EFL Japanese university students and were considered lower proficiency L2 learners. Hence, generalizing these results to learners of different L1 backgrounds and proficiencies should be done cautiously.

Secondly, this study employed a quasi-experimental design and used intact classes for the treatment groups. Therefore, research in the area of oral reading fluency would benefit from a fully experimental design that utilizes randomly assigned treatment conditions as well as randomly sampled participants. Furthermore, this study could have benefited from larger total *N* size as well as more equal group *n* sizes. This would bolster the statistical and inferential power of the results.

Finally, the proficiency levels of the quasi-experimental groups in the study were different. The members of the TR group were considered one proficiency level higher than the members of the TROR group. In addition, the members of the comparison group were not foreign language majors so there might have been differences in motivation toward carrying out the English language learning tasks.

Future Studies

Future research in the area of oral reading fluency could be benefited in four ways. First, more research is needed regarding L2 oral reading fluency development especially with regards to improving prosody, accuracy, and speed. Second, additional studies should be carried out over a longer period of time with greater *N* sizes and with learners of varying ages, L1 backgrounds, and proficiencies. Third, more qualitative research on learners' perceptions of oral reading fluency is needed. Finally, other novel methods to improve oral reading fluency are in need of exploration. Such studies would add further insight on the development of L2 oral reading fluency.

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APPENDIX

Oral Reading Task

Turkey is not popular in Japan, but it is a popular Thanksgiving dish in the United States and Canada. Turkeys are large birds. They usually weigh about 20 pounds (9 kilograms). Before you cook a turkey, you put stuffing inside it. Stuffing is made from breadcrumbs, vegetables, and spices. Next, put the turkey on a large baking tray. A 20-pound turkey will take about five hours to bake in the oven. When it is finished baking, it's served with cranberry sauce, potatoes, and gravy.

Eggnog is a popular Christmas drink. All supermarkets sell it in November or December, but it is easy to make too. First, mix half a cup of sugar, two egg yolks, and four cups of milk together. Cook them on a stove for about five minutes. Then beat the egg whites until they are foamy. Add this to the cooked mixture along with a little more sugar. Put this in the refrigerator for five hours. Finally, serve it topped with whipped cream. It's delicious!