

The Transfer of Reading Rate Training to Other Texts

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Abstract

This paper builds on recent research looking at how reading speed measures from a reading rate training course are reflected in non-course texts. In this study, 23 first language (L1) Japanese English majors enrolled in a university level reading class completed 20 speed reading exercises with comprehension quizzes from an assigned textbook at the participants' reading level. The 20 speed reading exercises were completed during a 15-week semester. Average reading and comprehension scores from these exercises were compared with timed readings and comprehension quiz scores on five other types of texts that students would probably encounter in their English study or daily lives, including a TOEIC test text, a TOEFL test text, a college textbook text, a newspaper article, and a graded reader. Timed readings and comprehension quizzes for these other texts were all carried out in the final five weeks of the 15-week semester. Results show a high correlation between reading speeds from the class textbook and reading speeds with other texts. However, when comprehension scores were incorporated into the relationship, the correlation was barely significant. In light of this and other studies, further research into the relationship between reading rate training and comprehension is suggested.

Keywords: reading rate, reading fluency, fluency training, transfer, reading comprehension

Introduction

Reading fluency is a requisite part of good reading skill in a second language (L2) (Grabe, 2009, 2010) yet still may be under-researched (Yamashita & Ichikawa, 2010). One area that remains under-researched is reading rate training (Grabe, 2010), though recent years have seen a significant increase in such research (e.g., Chang, 2010, 2012; Macalister, 2008, 2010; Tran, 2012; Underwood, Myskow, & Hattori, 2012), all of which focuses on reading rate training in L2 English. At the heart of reading rate training is the effort to enable L2 learners to read faster while improving or maintaining comprehension, two principal components of fluent reading (Grabe, 2009).

Where exactly reading speed and comprehension fit within the concept of fluency is loosely defined in the literature. However, experts' descriptions and definitions of reading fluency shows there is little contention that fluent readers read quickly with strong comprehension.

Fluency in reading is the ability to read rapidly with ease and accuracy, and to read with appropriate expression and phrasing. It involves a long incremental process, and text comprehension is an expected outcome of fluent reading. (Grabe, 2009, p. 291)

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Fluent readers are the readers who can comprehend a text's meaning smoothly and effortlessly at an appropriate rate. (Yamashita & Ishikawa, 2010, p. 264)

Both L1 and L2 fluency researchers concur that fluent readers engage in automatic, accurate, and rapid recognition of letters, letter combinations, and words....This leads to a fast reading rate, good text comprehension, and expressive renditions of text in oral reading, suggesting prosodic structuring. (Taguchi, Gorsuch, Takayasu-Maass, & Snipp, 2012, p. 31)

These definitions and descriptions signal that reading fluency is more complex than simply speed and comprehension. Still, reading rate training seems to offer a very efficient, inexpensive pedagogical method for improving L2 reading on some level. Reading rate research to date has invariably found that training increases the majority of students' L2 reading speeds (e.g., Chang, 2012; Chung & Nation, 2006; Tran, 2012). Given that reading rate training is efficient, inexpensive, and easily implemented in almost any context, it merits further attention from researchers to better understand its effects. One effect that has not thoroughly been discussed in the literature is how L2 reading speeds transfer from training texts to other texts. This paper discusses how L1 Japanese university EFL students' L2 reading speed and comprehension of reading rate training materials are related to reading speed and comprehension of other texts.

Reading Rate Training in Foreign and Second Language Learning

The earliest studies of reading rate training, West (1941), Bismoko and Nation (1974), and Cramer (1975), investigated whether reading speeds in the L1 related to reading speeds in L2 English. More recent research has focused on quantifying the reading speed increases from reading rate training courses (e.g., Chung, 2010; Chung & Nation, 2006), understanding how reading speed increases are retained over time (Macalister, 2008), studying the development of comprehension along with reading speed from training courses (Atkins, 2010; Chang, 2010; Utsu, 2003, 2005; Weigle & Jenson, 1996) comparing the effects of reading rate training and repeated reading (Chang, 2012), considering vocabulary's role in reading speed and comprehension in reading rate training courses (Underwood et al., 2012), and determining how reading speeds (and comprehension scores) carry over to other texts (Macalister, 2010; Tran, 2012; Weigle & Jenson, 1996).

Theoretically speaking, reading rate training is seen as a component of fluency training, though exactly how reading rate training benefits L2 learners remains unclear. With regard to L1 "timed and paced reading practices", Grabe (2009) writes, "there is little supporting evidence, but there is intuitive appeal" (p. 305) as to its value for developing readers' fluency; furthermore, "in L2 contexts, little research directly supports fluency-development practices" (p. 305). In short, reading rate training's value has not been substantiated to a significant degree in theoretical terms. Chang (2012) cites research related to working memory, postulating that when readers get bogged down in bottom-up processing activities like word decoding, then they will have less cognitive attention for top-down processing. Certainly, one of the processes that seems to slow readers down significantly is fixating a long time on a word or words (Nation, 2008; Urquhart & Weir, 1998), which under time pressure, may necessarily decrease. However, perhaps a larger question is how a decrease in such fixations might affect comprehension. While long fixations obviously slow readers down, in some cases they conceivably also aid overall comprehension of a passage. Knowing exactly when this is the case is extremely difficult for researchers given that reading comprehension itself is such a complex amalgam of bottom-up and top-down processes which likely vary with the content and context in which reading is done (Grabe, 2009). Thus, determining how reading rate training works from a theoretical standpoint remains unclear. What is clear, is that in practical terms, reading rate training's allure, or intuitive appeal, has been supported by research; every published paper on L2 reading rate research to date has successfully increased the majority of ESL and EFL students' reading rate over a relatively short period of time (e.g., Chang, 2012; Chung & Nation, 2006; Macalister, 2010).

Research on Carry-Over Effects of Reading Rate Training

Three studies have previously looked at how reading rate training courses carry over to other types of texts. Weigle and Jenson (1996) tested how much carry-over effect there was from an ESL reading rate training course to reading longer academic texts. Participants were ESL students at a major university in the United States. The study had students take a pre-test and post-test reading long academic texts (1690 and 1712 words, respectively) which were longer and more difficult than the texts in the reading rate training course (1000 word readings). The authors found that students' reading speeds on the pre and post-tests were significantly higher, but that comprehension was significantly lower for one experimental group in the study. The authors suggested that a number of variables—the students' proficiency, the content of the readings, or the emphasis on reading speed vs. comprehension—could be the issues. In fact, they found that higher proficiency students had less trouble with comprehension on the academic texts, and concluded that “it also seems that rate improvement does carry over to readings of a more academic nature, but perhaps only for the more proficient readers” (Weigle & Jenson, p. 67).

Macalister (2010) also studied how reading rate training carried over to another text. Macalister used three excerpts from a 1952 essay by George Orwell to look for a carry-over effect from a reading rate training course. The three Orwell excerpts were comparable in vocabulary level to the readings in the reading rate training course. The Orwell readings were administered at different points of a 12-week term; one was given at the beginning of the course, one was given at the end of the main reading rate training period (the 6th week of the term), and one was given at the end of the 12-week term along with three more reading rate training texts. This design was used to determine how reading rate carried over to the Orwell texts both during the course and after a 6-week delay. Macalister found that the experimental groups' reading speed increases on authentic texts were greater than those of a control group, though not all students had increases in reading speeds. Macalister (2010) states that “students who do a speed reading course are significantly more likely than those who do not...to read an authentic text more quickly” (p. 112), both after a reading rate training course ends as well as at the end of a term.

Tran's (2012) is the most recent research related to reading rate training's carry over effect on reading other texts. Similar to Weigle and Jenson (1996), Tran (2012) had students take a pre and post-test on readings that were similar to each other, but different from the texts in the reading rate training course. In contrast to Weigle and Jenson's (1996) and Macalister's (2010) studies, Tran (2012) used adapted texts to test for carry-over effects. Both the pre and post-test were texts from 1,000-word level graded readers, and each had ten comprehension questions (it is not clear whether the questions were from the graded readers or created by the researcher). As for adapting the texts, Tran (2012) writes that “the two texts had been modified to contain approximately similar numbers of total words, academic words, words at the 1,000-word level, words at the 2,000-word level, and off-list words” (p. 25). While this made them similar to the reading rate training texts, Tran adds that “these texts differed from those in the course by being longer, being read on a computer...and involving different topics from those in the course” (p. 26). The results were encouraging; both experimental groups increased reading speeds and most participants maintained or increased comprehension scores during the reading rate course and on the pre and post-tests, i.e., the non-reading rate training texts. Tran concludes that “the most optimistic finding that emerged from the research is the speed transfer from the course to other types of texts” (p. 36).

Methodology

Participants

The participants in this study were 23 L1 Japanese university students, all members of a first year required EFL reading class. Students were informed in their L1 (Japanese) of the general nature of the research study (i.e., about reading fluency) and that provision of their performance data for research was voluntary and they could choose not to participate at any time. All students elected to participate.

Materials

Textbooks

As a requirement for the class, all students purchased a commercially available reading textbook, *More Reading Power*, 2nd ed. (Mikulecky & Jeffries, 2004), which contains many different reading skills exercises, including a section of reading rate training texts. This textbook was selected for the class by the researcher three months prior to the first class, in accordance with university regulations. When the textbook was selected, the general class proficiency level was known (classes were streamed into seven different proficiency levels by TOEIC scores). Thus, based on the researcher's past experience, *More Reading Power* was expected to be appropriate. All students took the Vocabulary Size Test (Nation & Beglar, 2007) on the first day of the semester as a normal part of the curriculum used to determine individual students' general vocabulary sizes. Students took the bilingual Japanese version which could yield higher scores than the monolingual English version. Vocabulary scores ($n = 23$, $M = 7609$, $SD = 446$) implied that *More Reading Power* was at an appropriate reading level based on the vocabulary profile of the texts (see Table 1), though the *More Reading Power* textbook itself does not explicitly say how vocabulary level is controlled in the reading rate training texts (see Nation, 2008 for courses that have been specifically controlled).

Other Texts

Criteria for selection of 'other texts' for this study was primarily based on text type. Of concern to many Japanese university students is preparation for high-stakes English exams like the TOEIC and TOEFL tests (both of which are taken by students at the researcher's university). Thus, TOEIC and TOEFL texts were selected from the following current test preparation materials: *Barron's TOEIC: Test of English for International Communication*, 5th ed. (Loughleed, 2010) and *Barron's TOEFL iBT*, 13th ed. (Sharpe, 2010), respectively. Likewise, two other texts students are likely to encounter are online news texts and readings from university class textbooks. In the case of the online newspaper text, an article was chosen from a current issue of *The Japan Times*, a leading English-language newspaper in Japan. The decision to choose a news article of which students would have prior knowledge was intentionally done in order to make the reading easier for students to process. For the college textbook, an excerpt was chosen from Tina Seelig's (2009) *What I Wish I Knew When I was 20*, a best-selling book aimed at native speakers of English which also was used as a text for one of the upper-level classes at the researcher's university, i.e., presumably the kind of text students might encounter in their future undergraduate studies. Finally, a reading from a level-two Penguin graded reader, *Amazon Rain Forest* by Bernard Smith (2008), was used. This graded reader was chosen since English language learners are often required to read such texts as part of extensive reading programs, and the easier vocabulary level would resemble the reading rate training texts to some extent.

Compared with the *More Reading Power* texts, the other texts used in this study presented somewhat varied characteristics. While all texts from *More Reading Power* had about 500 words and always had eight comprehension questions, this was not always true with the other texts; the TOEFL text, college textbook text, and graded reader texts were all excerpts from longer texts. This was necessary so as to have word lengths of reasonably similar length to the *More Reading Power* texts, but also to be fair to students for whom reading longer texts could cause fatigue and a loss of interest. The news text and the TOEIC text were used without changes. The news text was similar in length to *More Reading Power* texts. The TOEIC text, however, was much shorter than the other texts. To maintain its authenticity as a reading, it was not changed. Nevertheless, because it was short, it was understood that reading times on the TOEIC text would yield narrower words per minute rates than other texts.

With regard to comprehension questions, the researcher, an experienced test writer, wrote questions for the news text (eight questions), the textbook text (six questions), and the graded reader text (six questions). For the TOEIC text, there were only five questions which were the original questions from the TOEIC test practice book. For the TOEFL text, there were six questions, chosen from among the questions in the TOEFL test practice book that corresponded to the excerpt.

Text Characteristics

All texts were analyzed with the Range program (Heatley, Nation, & Coxhead, 2002), which, among other information, tells how many words from the analyzed text are included in the 2000 most common words of English, according to West's (1953) *A General Service List of English Words*. Their total token count, type count, and respective percentages included in the first 2000 words of the General Service List are shown in Table 1 below, along with the mean token count, mean type count, and mean percentages for four reading rate training texts from *More Reading Power (MRP)*. Flesch-Kincaid scores for the texts are also included for reference.

Table 1
Text Characteristics According to the Range Program and Flesch-Kincaid

Characteristic	TOEIC	TOEFL	News	Textbook	Graded Reader	MRP (mean score)
Total Tokens	267	499	465	500	463	497
% Tokens in first 2000 words of GSL	79.25	72.75	79.14	82.40	90.07	89.14
Total Types	153	261	241	280	179	159
% Types in first 2000 words of GSL	73.21	59.01	71.78	71.43	86.60	82.05
Flesch-Kincaid	58.3	31.1	47	53.3	76.8	56.8

Data Collection

During 13 weeks of a 15-week term, the participants completed 20 timed readings with eight comprehension questions per reading. Generally, participants completed two timed readings from *More Reading Power* each class. During the final five weeks of the 15-week term, the participants also completed five other timed readings, including one from a TOEIC practice test book, one from a TOEFL practice text book, one from an online newspaper article, one from an English book that was used as a text for another class for English majors at the university, and one from a graded reader that was below the students' reading level. All of these readings were adapted to be timed readings since they were from authentic sources. The reading schedule for all texts is written below in Table 2.

Table 2
Schedule of the Reading Rate Training Course

Week	Activity
Week 1	<i>Vocabulary Size Test</i> (Nation & Beglar, 2007)
Week 2	<i>More Reading Power</i> practice text + <i>More Reading Power</i> #1
Week 3	<i>More Reading Power</i> #2-3
Week 4	<i>More Reading Power</i> #4-5
Week 5	<i>More Reading Power</i> #6-7
Week 6	<i>More Reading Power</i> #8-9
Week 7	<i>More Reading Power</i> #10-11
Week 8	<i>More Reading Power</i> #12-13
Week 9	<i>More Reading Power</i> #14-15
Week 10	<i>More Reading Power</i> #16-17
Week 11	<i>More Reading Power</i> #18 + News Text
Week 12	<i>More Reading Power</i> #19 + TOEIC text
Week 13	<i>More Reading Power</i> #20 + TOEFL text
Week 14	Textbook Text + Graded Reader Text
Week 15	Gather class feedback

The process for doing timed readings from *More Reading Power* was as follows. All students were asked to find the timed reading in the *More Reading Power* textbook and then close the textbook while keeping a finger in to mark the page. Then, on a large screen at the front of the room, a stopwatch set to 0 was projected. The teacher then instructed students to begin reading and started the stopwatch. Upon finishing the reading, students would look up at the screen projecting the stopwatch and write down their reading time. Then, the students turned the page in the textbook to the eight comprehension questions for the readings. The students were instructed to not look at the reading while answering comprehension questions, and this was easily monitored by the teacher who was carefully observing the students. Students were given between four and five minutes to answer the questions. This time was chosen so that students had a limit (in order to conserve class time), but not a limit that would prevent them from having time to attempt all the comprehension questions. The time deemed appropriate through pilot testing with groups not involved in the study who were doing similar reading rate training exercises. After completing the reading, the students then did a second timed reading following the same process. Finally, after completing both readings, answers to the comprehension questions were provided and students marked their comprehension scores and reading times on individual reading charts based on charts provided in *More Reading Power*. These charts were collected by the teacher at the completion of the activity each class meeting. For other readings, the process was basically the same. However, students received new reading speed charts for each of the other readings since not all of the readings had the same word count as the *More Reading Power* readings. For example, the TOEIC reading was considerably shorter, with 267 words. In order to determine the words per minute for the TOEIC reading (and for other readings with different word counts), a reading speed conversion chart (see Appendix A for a sample) was created by dividing the reading word count by the time, which was represented as a decimal. Each five second interval was represented by an increase of .083 in the decimal. For example, one minute was represented by 1, and one minute five seconds was represented as 1.083. Thereafter, values increased by .083 up to six minutes.

For most of the timed readings (all *More Reading Power* texts and most other readings) students were not graded on their reading speed and comprehension. The purpose was for students to chart their own progress and practice reading faster. This was made clear to students at the beginning and throughout the reading rate training course. However, the final two readings of the semester were set as a graded activity. These readings included the university textbook reading and the graded reader reading. In this case, the procedure for doing the readings was the same as done with the textbook, but completion times for the readings were verified by the researcher through video recording the class (with student permission) and noting the times when students finished reading (indicated by raising their hands), and the comprehension questions were graded by the researcher, not the students.

The data collected for this study included participants' reading rate charts from the *More Reading Power* textbook readings, as well as the reading charts from other readings used to measure transfer. As noted, the *More Reading Power* textbook charts were collected after every class session (i.e., every two readings). Results from readings were recorded then. This was done to prevent learners from losing their charts, and also to maintain a constant record of progress throughout the study and not lose data. Transfer reading charts were collected after each respective class and recorded before being returned to learners.

Other data for this study included learner reflections completed after the completion of all of the timed readings. To complete the reflections, learners were given a piece of paper during the final class session and asked to comment on various components of the reading course which were written on the chalkboard at the head of the classroom; these components included the reading rate training exercises. Learners were asked to complete the reflection anonymously, and when finished, to place the reflection in an envelope that was placed on an empty desk in the classroom.

Research Questions

The main research question for this study was as follows:

1. How are reading speed and comprehension measures on leveled reading rate training materials with a commercial textbook reflected in reading speed and comprehension measures on other types of texts?
2. What are students' attitudes toward reading rate training?

In order to answer the first question, correlations between reading speeds from *More Reading Power* and reading speeds from other texts were calculated and interpreted. To address the question of how comprehension scores between *More Reading Power* were correlated, a reading factor variable was computed. The reading factor combined reading speed with comprehension, with the justification that comprehension should be tied to reading speed in determining its relative importance. A similar notion was conceived by Atkins (2010, pp. 664-665) as a "composite score." All statistical analyses for this study were performed with SPSS, version 20.0. In order to answer the second question, a brief survey was conducted.

Results

Reading Rate Training Transfer

In order to answer the first research question, average reading speed scores were calculated for reading speeds on the *More Reading Power* readings and on the other types of texts. Then, correlations between average reading speeds on *More Reading Power* texts and other texts were computed. Because the normal distribution of the data was borderline, with a skewness ratio over 2 (see Weinberg & Abramowitz, 2002, p. 278, as cited in Larson-Hall, 2010, p. 78), bootstrapping (Field, 2013, p. 271) was used to find Pearson r correlations and their bias corrected and accelerated bootstrap 95% confidence intervals, as reported in Table 3 below.

Table 3

Relationships between Reading Speed in More Reading Power (MRP) Texts and Other Text Types

Measure	1	2	3	4	5	6
1. MRP texts	—					
2. News text	.65* [.33, .87]	—				
3. TOEIC text	.55* [.34, .88]	.73 [.36, .91]	—			
4. TOEFL text	.84 [.61, .94]	.56* [.18, .80]	.60 [.01, .85]	—		
5. Textbook text	.88 [.65, .96]	.74 [.56, .93]	.66 [.16-.88]	.78 [.41, .93]	—	
6. Graded Reader text	.82 [.41, .94]	.63 [.42, .87]	.55* [.02, .79]	.72 [.31, .88]	.95 [.82, .98]	—
7. All other texts	.88 [.66, .96]					

Notes. All correlations are $p < .01$, unless otherwise indicated; $\alpha < .05$

In order to understand participants' comprehension, a new number created by the researcher, called the *reading factor*, was computed. The reading factor is the product of the reading speed and the comprehension score divided by 100. The rationale for computing the reading factor was to represent the interplay between reading speed and comprehension, since in fact the goal of reading speed training is not only to read faster, but also to comprehend. Dividing by 100 made the reading factor a more manageable number. The highest conceivable reading factor for *More Reading Power* would be 24. This is based on 300 words per minute speed for native English speakers (Carver, 1990; Grabe, 2009) and correct answers to all eight reading comprehension questions for a given *More Reading Power* text. The calculation would be $300 \times 8 / 100$, i.e., 24. However, a realistic goal for the students of this study would be reading around 150 words per minute and getting 6 out of 8 comprehension

questions correct. For such a hypothetical student, the factor would be 9. For the other texts in this study, as previously mentioned, the number of comprehension questions differed among readings. In order to compare with the reading factors of the *More Reading Power* texts, comprehension scores on other texts were adjusted to an eight-point scale. For example, comprehension scores from the TOEIC reading, which only had five comprehension questions, were multiplied by 1.6 (i.e., 8/5), and this constituted the adjusted comprehension score, which was used to find the adjusted reading factor value. After reading factors were found, the correlation between participants' mean reading factors from *More Reading Power* and the mean adjusted reading factor from the other types of texts was determined. The result was a significant correlation, though with broad confidence intervals, $r = .54$, $p < .01$, 95% BCa CI [.05, .80]. Values for individual participants can be found in Appendix B.

Students' Attitudes

As a normal class practice, all participants in this study were asked to anonymously reflect about the reading class at the end of the semester in Japanese or English. Among other class components, participants were asked to offer feedback about the reading rate training course. The majority of feedback was positive. Examples of positive comments included students writing that the reading rate training course helped them read faster. For example:

今まで文を読むのが遅かった私にとっては、とても意味のあることでした。どんどん読む速さが上がって行って嬉しかったです。(Because I read very slowly before, this activity was very meaningful for me. Little by little I was able to read faster and I was so happy.)

Reading faster is good. It is important not to repeat the sentences, so it can be a training.

Reading faster was a little difficult, but I came to do it quickly now. I want to use this for TOEIC and TOEFL.

Despite the majority of positive comments, there were important negative comments with regard to comprehension, which did seem to be an issue in this study. Some examples are as follows:

正解数に大きい変化が表われなくて残念です。(It was too bad there was no big improvement in my comprehension.)

Reading faster is bad because I can't understand so fast.

Reading faster was very difficult for me. I couldn't get a good score, but I could read faster.

These comments suggest that while improvement in reading speed was positively experienced by most, a lack of comprehension was a negative feeling by a number of students. How students feel about reading rate training could significantly affect not only their progress during the course, but their attitudes about improving their reading speed in the future.

Discussion

The main purpose of this study was to determine whether reading speed and comprehension on leveled reading rate training texts from a commercial textbook would transfer to reading speed and comprehension abilities with other text types that students typically encounter. With regard to reading speed, the answer was that in this study students' reading speeds were generally consistent across texts ($r = .88$, $p < .001$, 95% BCa CI [.66, .96]). However, with regard to individual readings, the TOEIC test was an outlier that did not correlate with the *More*

Reading Power texts or with most of the other texts. One explanation for this is the short passage length. Perhaps reading a short passage led to less variation in students' reading speeds, as having fewer words makes the reading speeds per five seconds (as was calculated in this study) more similar than they would be on other texts. The chart in Appendix B shows how this is true. The small sample size is another possibility (i.e., only one reading), though that was true all of the other texts as well. Another correlation that stands out is the strong relationship between the graded reader text and the college textbook text ($r = .95$, $p < .001$, 95% BCa CI [.82, .98]). Because the texts themselves were of two very different vocabulary levels, styles, and topics, one interesting explanation for the high correlation could be the fact that, of all the other types of texts, they were the only two given during the same class session. Could the close temporal proximity in which the texts were read have led to a consistency in speed? This question is beyond the scope of the small data set in this paper, but it might be plausible that something such as reading speed requires a certain rhythm and focus that is connected to each reading session as much as it is to the type of reading involved. Reading speed training clearly requires learners to push themselves to read at a faster rate. It is easy to imagine that on some occasions learners are more adept at this than others. In other words, more than the text, it might be affective variables that most strongly influence a reader's rhythm in these kinds of exercises.

In any case, as mentioned, reading speeds of participants on other texts generally correlated with the reading rate training materials. However, with comprehension, this is not as clearly the case. When comprehension is considered along with reading speed to create the reading factor variables for the *More Reading Power* texts and the other texts, the correlation has significance, but the large confidence intervals suggest a questionable effect size ($r = .54$, $p < .01$, 95% BCa CI [.05, .80]). Furthermore, there were other problems seen with comprehension in this study. First of all, comprehension scores on the 20 *More Reading Power* texts, measured by the average of the first three scores minus the average of the last three scores, did not increase. In fact, there was a mean decrease of -.30 overall. There are various plausible explanations for decreases in comprehension, including possible unreliability in the comprehension tests in the *More Reading Power* text. It is notable that comprehension scores on the *More Reading Power* texts were below the average of what has been considered a desirable threshold for reading rate training for fluency, which is 70% (Anderson, 1999; Nation, 2008). The average comprehension score was 5.04/8, i.e., 63%, with only five out of twenty-three students comprehending at the 70% correct threshold. Nevertheless, these comprehension results follow a similar trend of no significant growth in comprehension found in other recent reading rate training course research (Chang 2010; Crawford, 2008; Underwood et al., 2012). Likewise, mean comprehension levels below the 70% threshold were also found in certain studies (e.g., Chang, 2012; Weigle & Jenson, 1996). Since reading speed without comprehension is a somewhat meaningless measure, comprehension in reading rate training deserves a closer look in future research. While some L1 studies have found that reading under time pressure can aid comprehension (e.g., Breznitz & Share, 1992; Walczyk, Kelly, Meche, & Braud, 1999) there is no L2 reading rate training research to date which has strongly supported such a notion (but see Chang, 2012, p. 77-78 for results and discussion of comprehension).

Conclusion

This study found that gains in reading rate training were generally carried over when reading other types of texts not in the training program. Pedagogically speaking, this adds to the support other studies have given for reading rate training as a worthwhile activity in ESL/EFL reading curriculums for improving learners' reading speeds. On the other hand, this study also shows that comprehension's relationship with reading rate training increases is not always positive. This suggests that instructors should make thoughtful decisions about what the comprehension goals are for reading rate training texts, and what should be done for learners who are reading fast but not comprehending. This probably will require an instructor's intervention with individual learners who have trouble maintaining or increasing comprehension (see Chung, 2010). Still, the instructor must consider at what point intervention is needed. Reading rate training is just that – a type of training – learner trajectories will

differ by nature. Most importantly, learners should understand that the purpose of the training is their overall development as readers, not just as a method to increase their reading speeds.

The limitations of this study are important to note, and hopefully they can be improved upon by future researchers looking at reading speed and comprehension across texts. First of all, the sample size was relatively small and involved a non-random sample of learners. While finding a truly random sample is beyond the means of most researchers (but see Underwood et al., 2012), at least conducting research with a larger group of learners with diverse levels could lead to more generalizable conclusions. Another limitation was that only one transfer text of each type was used to check for carry-over effects of reading rate training. Future research might focus on fewer types of transfer texts but more samples of each type. Researchers may even want to include transfer texts at both the beginning and end of their studies in order to gather evidence of reading gains as well as carry-over effect measures (e.g., Weigle & Jenson, 1996; Macalister, 2010; Tran, 2012). Finally, another way to consider transfer of reading speed abilities would be to look at different texts in terms of their reading level (i.e., vocabulary coverage) rather than the type of text. In this study, four of the transfer texts were characterized by having less frequent vocabulary, while the graded reader text resembled the vocabulary level of the reading rate training texts. A future study might gather all readings, for example, from different levels of extensive readers in order to achieve a more vocabulary-centered approach to the transfer of learning.

With regard to the important consideration of reading comprehension, the validity and reliability of reading rate training texts with multiple choice questions must be addressed. Without valid and reliable multiple choice questions, the degree of error judging a reader's comprehension of a reading will notably increase, a point also made by Atkins (2010). In this study, the texts used to judge transfer of reading speed abilities varied in both the number of questions as well as the designer of those questions; some were designed by the textbook authors and some were designed by the researcher. In general, it would be difficult to completely validate such tests because of the time and effort needed to do so, but at least minimizing problems through pilot testing is strongly suggested.

Reading speed research will also be improved by the analysis of more qualitative data. Chung (2010) found that by encouraging slow readers *during* a reading rate training course, all of the learners increased their reading speed (Nation, 2008, p. 72 also suggests the importance of this). In all other studies to date reporting on individuals' performance, including this one, at least a few learners have shown decreased reading rates at the end of the course. Determining the causes of this (e.g., decreased motivation, fatigue, etc.) is important. Other researchers have similarly called for more qualitative investigation, but research to date has only peripherally incorporated qualitative open-ended survey data. Observing and talking with learners continuously during a reading speed program might not only help learners succeed, but could also offer insight into the agency that individual learners bring to the activity. Especially, more light could be shed on the murky question of comprehension, and more information could be gathered on how reading rate training works from a theoretical perspective.

Despite this study's limitations, the author hopes that this research has contributed to an understanding of how a reading rate training course's effects might be reflected in other texts that students will likely encounter in their English studies. As reading rate training is such an accessible and affordable practice in reading pedagogy, its continued refinement is in the interest of all in the ESL/EFL field.

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Appendix A
Reading Rate Table: TOEIC Reading

Reading Time	Rate	Reading Time	Rate
1:00	267	3:00	89
1:05	247	3:05	87
1:10	229	3:10	85
1:15	214	3:15	82
1:20	200	3:20	80
1:25	189	3:25	78
1:30	178	3:30	77
1:35	169	3:35	75
1:40	160	3:40	73
1:45	153	3:45	71
1:50	146	3:50	70
1:55	140	3:55	68
2:00	134	4:00	67
2:05	128	4:05	66
2:10	123	4:10	64
2:15	119	4:15	63
2:20	115	4:20	62
2:25	111	4:25	61
2:30	107	4:30	60
2:35	104	4:35	58
2:40	100	4:40	57
2:45	97	4:45	56
2:50	94	4:50	55
2:55	92	4:55	54
		5:00	54

Appendix B
Mean Reading Factors for *More Reading Power* and Other Text Types

Participant	Mean Reading Factor <i>More Reading Power</i>	Mean Reading Factor (adjusted) five other texts
1	6.76	5.61
2	6.78	5.30
3	7.59	5.19
4	8.72	4.81
5	8.37	7.46
6	6.46	4.77
7	10.92	9.79
8	6.54	4.94
9	6.80	5.68
10	7.93	6.03
11	6.73	5.93
12	5.88	3.74
13	6.89	6.36
14	7.99	4.69
15	9.42	9.39
16	11.91	7.92
17	7.17	6.22
18	10.01	6.36
19	5.24	4.61
20	6.52	8.23
21	8.03	4.74
22	8.86	4.51
23	7.02	8.10

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