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Assisted repeated reading with an advanced-level Japanese EFL reader: A longitudinal diary study

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Abstract

Reading fluency has attracted the attention of reading researchers and educators since the early 1970s and has become a priority issue in English as a first language (L1) settings. It has also become a critical issue in English as a second or foreign language (L2) settings because the lack of fluency is considered a major obstacle to developing independent readers with good comprehension skills. Repeated Reading (RR) was originally devised by Samuels (1979) in order to translate Automaticity Theory (LaBerge & Samuels, 1974) into a pedagogical approach for developing English L1 readers' fluency. Extensive research has been conducted to show the positive effects of RR in English L1 settings. A growing number of L2 reading researchers have demonstrated that RR may be a promising approach for building fluency and comprehension in L2 settings. However, while L1 research has demonstrated a robust correlation between improved reading fluency and enhanced comprehension, L2 fluency research has not yet shown such a strong correlation. In addition, most studies on reading fluency in L2 settings have used quantitative approaches and only a few of them have explored the "inside of L2 readers' brain," that is, what is actually happening while they engage in RR. The present study attempts to reveal the inner process of L2 reading fluency development through RR for an advanced-level L2 reader who is articulate in describing her metacognitive processes. Using a diary study approach comprising more than 70 RR sessions over the course of 14 weeks, the current study investigated an L2 reader with good comprehension skills

engaging in RR. This study was designed to investigate specifically how her reading fluency developed and how her comprehension changed during the course of the treatment. Based on the study findings, some issues are discussed for better RR program implementation.

Keywords: repeated reading, reading fluency, diary study, longitudinal reading development, reading comprehension

Comparing L1 and L2 reading, one striking difference is the speed with which readers process text. Because of a greater amount of reading experience, L1 readers' reading rates are faster compared to L2 readers' rates. According to Grabe (2009), fluent English monolingual (L1) readers usually read texts at 250 to 300 words per minute (wpm) with good comprehension and with little hesitancy in syntactic and vocabulary analyses. For most L2 readers, however, this is not the case. Grabe comments that even advanced-level L2 readers with good comprehension skills read texts at 80 to 120 wpm to fulfill university course assignments (pp. 289–290). Both L1 and L2 readers vary their reading rate according to task types or text difficulty levels (Fraser, 2007), so this simple comparison is not so meaningful. Nonetheless, the gap between L1 and L2 readers is large and distinct (e.g., Grabe & Stoller, 2002, pp. 46–47; Segalowitz, 2003, p. 401). Grabe and Stoller (2002) estimated that English native speakers have learned most basic grammatical structures and 5,000 to 7,000 words by the age of six (pp. 42–43). Further, Segalowitz (2003) suggested that English native speakers have had 10,000 hours of experience in their L1 before age five (p. 401). This degree of experience is estimated to be necessary to achieve fluency in skill domains such as language learning, or chess or musical instrument playing (e.g., Ericsson & Charness, 1994).

Both L1 and L2 readers of English who have acquired some fluency (i.e., adequate speed and decoding accuracy) are likely to engage in a greater amount of reading than those who lack fluency. For non-fluent readers the act of reading is difficult and laborious (Grabe, 2009; Nuttall, 1996; Stanovich, 1986). L2 teachers have long intuited that non-fluent readers are trapped in a vicious circle: They read slowly with little comprehension, and thus they do not enjoy what they read. This causes them to read less and, as a consequence, their reading skills do not develop (e.g., Nuttall, 1996, p. 127).

Reading fluency is an item high on the agenda of English L1 researchers (Breznitz, 2006; Kuhn & Rasinski, 2007; Kuhn & Schwanenflugel, 2008; National Reading Panel, 2000; Rasinski, Blachowicz, & Lems, 2006; Samuels, 2006a, 2006b; Samuels & Farstrup, 2006; Sinatra, Brown, & Reynolds, 2002; Stahl & Heubach, 2005). The critical role that fluency plays in L2 reading has also been recognized as a significant research issue (e.g., Grabe, 2009, 2010; Rasinski et al., 2006; Segalowitz, 2000; Segalowitz & Hulstijn, 2005). Both L1 and L2 fluency researchers concur that fluent readers engage in automatic, accurate, and rapid recognition of letters, letter combinations, and words (e.g., Chard, Pikulski, & McDonagh, 2006; Grabe, 2009; LaBerge & Samuels, 1974; Samuels, 2002). This leads to a fast reading rate, good text comprehension, and expressive renditions of text in oral reading, suggesting prosodic structuring (Dowhower, 1987; Grabe, 2009; Kuhn & Stahl, 2003).

Reading Fluency Training in L2 Settings

There have been multiple approaches to developing L2 reading fluency. Among them are extensive reading (ER), speed reading, and repeated reading (RR). As a means of increasing comprehensible input for L2 development, ER has multiple goals: acquiring vocabulary, improving motivation to read, and enhancing silent or oral reading rates (see Day & Bamford, 1998). ER seems to increase learner vocabulary (e.g., Al-Homoud & Schmitt, 2009; Cirocki, 2009; Waring & Takaki, 2003; Yamashita, 2008), motivation (Poulshock, 2010; Takase, 2009); and reading fluency (Bell, 2001; Fujigaki, 2009; Iwahori 2008; Nation, 2009). Bell (2001), for example, compared two groups of Yemeni learners of English over a two-semester period. The 14 learners who engaged in an ER program increased their silent reading rate and reading comprehension more than a control group who engaged in a traditional intensive reading course.

Speed reading is another fluency training approach. In speed reading readers are under some time pressure to read faster than their normal rate of reading (Harris & Hodges, 1995). Working with ESL college-level learners in the U.S., Cushing-Weigle and Jensen (1996) found that term-long treatments using paced and timed reading of texts resulted in higher reading rates (from the low 100s up to 200 wpm), but also a slight reduction in posttest reading comprehension. In a recent study by Chang (2010) with Taiwanese college English learners, a 13-week, 26-hour program of timed reading activities resulted in higher reading rates (118 to 146 wpm on average) and a slight *increase* in reading comprehension. The materials used in this case were vocabulary-range controlled texts designed for reading fluency development. Chang noted: "timed reading involves having students read under time pressure, the purpose of which is to improve reading speed to an optimal rate that supports comprehension rather than developing speedy readers" (2010, p. 287). These studies underscore what might be seen as a trade off between reading speed and comprehension. If learners simply focus on increasing their reading speed, their comprehension may suffer.

Repeated Reading is still another approach for developing reading fluency. The theoretical backbone of RR is Automaticity Theory (LaBerge & Samuels, 1974; Samuels, 1994, 2004, 2006a, 2006b), and it claims that readers with automatic word recognition can free themselves from expending all of their attentional resources on word recognition. Readers, trained to a level of automaticity in word recognition should be able to direct more of their attention to higher-order resource-demanding comprehension processes. In English L1 settings, research has provided robust evidence to support this claim. A meta-analysis conducted by the U.S. National Reading Panel (2000) found positive effects for RR on reading comprehension. The mean weight effect size for 49 comparisons drawn from 12 studies was a meaningful .35, indicating a causal relationship between improved fluency and better comprehension. The U.S. National Reading Panel's findings for English L1 readers have been corroborated by subsequent meta-analyses (Chard, Vaughn, & Tyler, 2002; Therrien, 2004).

In English L2 settings, however, a causal relationship between improved word recognition (construed as improved reading fluency) and reading comprehension is not as clear, and it still remains to be consistently demonstrated. In a series of studies on the effect of RR on reading rate and comprehension, Taguchi, Gorsuch, and their research colleagues have attempted to demonstrate the relationship by showing whether improved reading rates (as a result of RR

treatments) would also lead to improved reading comprehension, as suggested by Automaticity Theory. In 1997, Taguchi worked with Japanese learners of English over a ten-week, 28-session study. For each session the participants read an easy 500-word passage silently seven times, three of those times while listening to an audio model of the passage (assisted RR). Taguchi found that the learners' average silent reading rates increased significantly even at the seventh reading on the practiced passages, and that the lowest-level readers in the study showed a significant improvement in their oral reading rate of new, unpracticed passages.

To focus on the relationship between increased reading rate and comprehension, Taguchi and Gorsuch (2002) used open-ended item comprehension tests. They found that the ten-week RR program significantly improved participants' reading rates on new, unpracticed passages. But while learner comprehension did not decrease, it did not markedly improve, either. After extending the RR treatment period from 10 to 17 weeks and the number of sessions from 28 to 42, Taguchi, Takayasu-Maass, and Gorsuch (2004) again explored the effects of assisted repeated reading on silent reading rates and comprehension. They compared two methods for developing reading fluency: Repeated reading (RR) and extensive reading (ER). The RR group significantly improved their reading rate within RR sessions but this practice effect did not transfer to unpracticed passages. Note again, however, their reading rate and comprehension did not *decline* on the new, unpracticed passages. Moreover, learners' comments revealed positive perceptions of the effects of (a) repetition and (b) the auditory reading model provided in assisted RR. In unsolicited comments, the participants reported that both features contributed to improved comprehension. Thus, multiple exposures to text together with an audio reading model may have provided some scaffolding for the beginning-level participants, and also may have engendered motivation to read (see Feitelson, Goldstein, Iraqui, & Share, 1993 and Vygotsky, 1978 on the role of scaffolding in comprehension).

In order to more effectively capture changes in L2 learners' reading comprehension as a result of doing RR, Gorsuch and Taguchi (2008) investigated RR with low-intermediate Vietnamese English learners using short-answer and recall tests as more sensitive measures of comprehension. After the 16-week RR treatment, the experimental group significantly outperformed the control group on both comprehension measures, while reading at about the same silent reading rate as the control group on the posttest. As for RR treatment passages, the experimental (RR) group increased their first reading rate from an average of 163 wpm at the beginning of the treatment to 217 wpm at the end of it. One interesting finding, gleaned from participants' posttest comments, suggested that in the posttest condition, the experimental group read more slowly and carefully because they knew they would be answering questions after reading, and wanted to do well (Gorsuch & Taguchi, 2008).

In another line of research on RR, Han and Chen (2010) investigated vocabulary acquisition by a heritage speaker of Mandarin, living in the U.S. and learning Chinese as her L2. The 23-day RR treatment consisted of two phases: RR practice, in which the participant read along with an audio model, and interaction between her and one of the researchers who provided feedback to the participant's oral reading and checked her passage comprehension. Their major findings were: (a) words that received direct and conscious attention were retained more, (b) words for which corrective feedback was given were retained more, and (c) RR made it possible for the participant to read beyond her independent reading level.

Some Remaining Issues

The current study explores some as yet unresolved issues. First, it is not known whether L2 reading fluency develops in ways that are similar to or different from L1 reading fluency, nor whether fluency training is effective at the same ages or ability levels. For instance, in L1 settings the preponderance of evidence points to fluency training being most effective at the initial stage of word recognition development, that is, from grade 1 to 3 in American schools (Kuhn & Stahl, 2003). In L2 settings, while most studies suggest a general effectiveness of sustained programs of fluency training for young adult learners who have had five or more years of formal L2 study (e.g., Gorsuch & Taguchi, 2008; Taguchi, 1997), it is not known whether reading fluency training is similarly effective for advanced-level readers with good comprehension skills (Grabe, 2009). We wish to know whether readers with more experience in L2 reading can still benefit from the fluency building practice offered by RR.

A second issue which has not been systematically investigated is what is actually happening with readers' thinking while they engage in RR. In previous studies, quantitative approaches were used and the majority of participants were young adults with beginning- or low-intermediate-level reading comprehension skills. By looking "inside the reader's brain" we attempted to explore what an articulate, mature, advanced-level L2 reader thinks and does throughout fluency training, and what aspects of RR are beneficial for or detrimental to enhancing fluency and thus reading comprehension skills of L2 readers.

Diary Studies

One approach for capturing the introspective processes of a learner over time is a diary study. A diary study is "a first-person account of a language learning or teaching experience, documented through regular, candid entries" (Bailey, 1990, p. 215). The introspective data in diary and journal entries can reveal language learning processes in learners which are otherwise inaccessible to researchers through direct observation (Nunan, 1992, p. 123). There are also drawbacks to diary studies. One is the nature of the data: They are based on subjective perception of learners' experiences (e.g., Schmidt & Frota, 1986; Seliger, 1983). Learners may also vary in self-awareness and articulateness (Fry, 1988). Diary data analysis can be problematic as well, in that it may be difficult to consistently reduce and categorize the data, and to ensure reliability in the subsequent coding of data (Bailey, 1991). Nonetheless, diary studies provide researchers and teachers with a significant, at-hand tool to investigate psychological and social factors that affect language learners. Participants in previous studies (Gorsuch & Taguchi, 2008, 2010; Taguchi et al., 2004) were instructed to comment freely on what they thought about their RR treatment; however, the participants' comments were optional and sometimes sporadic. The current study focused on collecting a rich, consistent stream of qualitative data on what the participant thought about her engagement with the RR treatments.

Research Questions

In order to gain insights into an advanced-level language learner's reading processes

while engaging in RR treatments, the following questions were posed:

> RQ1. How does an advanced-level L2 learner develop her silent reading rate with RR? Are there changes in her reading comprehension?
>
> RQ2.What features of RR are beneficial to the reading comprehension of the participant? What features are not beneficial?
>
> RQ3.What aspects of using an audio model are beneficial to the reading comprehension of the participant? What aspects are not beneficial?

Method

Participant

The participant was a 34 year-old Japanese housewife called "Naomi" (pseudonym). Naomi earned her B.A. in international political economy at a university in Tokyo, Japan. At the time of the current study, she was studying English and reading extensively from such news magazines as *Time*. She organized and participated in a study group for English learners to practice speaking with each other. Her English proficiency was at an advanced level. She had studied English intensively in two English speaking countries, and had a score of 950 on the TOEIC® test, which has a possible score range of 10–990. She had also passed Grade 1 of the STEP test. This is the highest level of certification offered by the Society of Testing English Proficiency (STEP), a well-known testing organization in Japan. Typically, fewer than 9% of applicants receive passing scores at this level. Naomi was considered to be a good candidate for this study because, with her high English L2 proficiency and good articulation in her L1 (Japanese), she would be able to accurately document her thought processes while reading. She completed the 70 RR treatments at home and at her own pace over a 14-week period. As a token of appreciation for voluntarily taking part in the study, she was paid the equivalent of U.S. $500.

Materials

RR texts. Two novels were used as text for Naomi's RR treatments: *The Moffats* (Estes, 1941) and *The Misfits* (Howe, 2001). *The Moffats* describes a single mother and her four children, and has become a children's classic. Its level of difficulty was estimated an average of 5.10 on the Flesch-Kincaid Grade Level and the Fry Readability Formula. *The Misfits* describes four boys in the 7th grade and their campaign for election to the student council. Its average level of difficulty was 5.37. Both books would be appropriate at the fifth grade-level in the U.S., and deemed to be relatively easy and suitable for fluency building for someone at Naomi's level. Both texts also had accompanying audio recordings with multiple-cast readers and sound effects which were used for the audio models in the RR treatments in the current study.

The choice of these books seemed appropriate, in that session passages contained 1.49% of unknown words on average (SD = 0.89) throughout the treatment program. According to Nation (2001, p. 150), a passage that contains less than 2% unknown words is considered to be

appropriate for independent reading. To arrive at the 1.49% estimate, we asked Naomi to write out all the words and phrases she did not understand at the end of each RR session. In the fifth session, for example, there were six such items: *mulberry trees, loitering*, *swirling*, *guilty conscience*, *stilts*, and *blot out*. We calculated the ratio of unknown words in a given session passage, using the following formula: The ratio of unknown words = the number of words reported unknown ÷ the total number of words in a session passage ×100. For the fifth session passage, for example, the total number of words was 729, and the number of words in that unknown part was nine: the ratio of the unknown part was 9/729*100 = 1.23%.

Short answer pretest and posttest. One 1,143 word short story, *Two Men Visit* (Young, 1971) was chosen. Both the treatment passages and the test passage were narrative texts. The story was segmented at a discursively relevant point into two texts to make the pretest and posttest, one with 577 words and the other with 574. The mean readability scores of the Flesch-Kincaid Grade, Fog, and Fry readability formulae were used to assess the texts' difficulty levels. The pretest passage mean score was 3.40 (*SD* = 1.23) and the posttest passage mean score was 3.40 (*SD* = 1.04), suggesting a similar difficulty level. For each of the two test forms, the short-answer questions that originally accompanied the *Two Men Visit* passage were edited and adapted to make five short answer question items, in Japanese, for each test. The questions were adapted to test Naomi's comprehension of the events that happened in the story (e.g., What seemed to indicate that the family was away for the summer? How did they find out the owner of the house was named Samuel Rogers?).

Prior to the treatment sessions Naomi took the pretest, and after the treatment was over she took the posttest. On each test she read the test passage five times while timing each of her readings with a stopwatch and answered the same five questions after each of her readings of the test passage once, twice, three times, and five times. While she answered the test questions, she did not refer to the test passage. For scoring, each answer to the items was awarded 0 to 3 points, depending on the quality of information included: 3 points for complete answers, 1-2 points for partial answers, and nothing for unanswered questions or incorrect responses. The first author of this study scored the answers. To check scoring reliability, the third author, a native speaker of Japanese with near-native proficiency in English, was given fresh copies of all the answer sheets to be scored independently. The two authors were 92.5% consistent in their scoring of all answer sheets. Differences were resolved through discussion.

To check the equivalent forms reliability between the pretest and posttest, two Japanese university teachers of English with near-native proficiency in English were asked to answer all the pretest and posttest questions at one time. To ensure the interrater reliability of scoring, the same scoring method that would be used to mark Naomi's answers was adopted to mark their answers. That is, their answers were scored by the first and third authors of this study independently and the interrater reliability was 93.75%. The university professors' average reading rates of the pretest and posttest passages were 136.26 and 139.70 respectively. Their average comprehension scores of the pretest and posttest were 8 and 10 out of 15 respectively. Although the comprehension scores seemed to indicate the pretest is a little more difficult than the posttest, the two tests were found to be roughly equal in terms of reading speed and comprehension performance required.

Procedure

The first two sessions were trials, so that Naomi could determine the number of repetitions for reading the same passage in each session, as well as which of the repetitions she would do silently, or with an auditory reading model. The purpose of having the subject create a self-guided program was to reduce the possibility of boredom or loss of motivation after multiple repetitions of the same task. Based on the trials, Naomi mapped out this procedure:

Step 1: Read a passage from the RR text silently while timing the first reading time with a stopwatch.
Step 2: Read the same passage three more times while listening to the audio recording.
Step 3: Read the same passage two more times silently while timing each reading with a stopwatch.
Step 4: Write thoughts and comments about the RR session in a diary.

In order to balance the work required for the study with her responsibilities at home, Naomi decided on how many pages of the RR texts she would cover in each session on a case-by-case basis. The self-reported amount of reading for each session varied from 280 to 1364 words of text, with 804.36 words on average.

Quantitative and qualitative data. Both quantitative and qualitative data were collected in this study. The quantitative data set constituted Naomi's silent reading rate in wpm for the entire RR treatment program over a total of 70 sessions. In each session, her reading rate was calculated for her first, fifth and sixth timed silent readings. Between her first and fifth readings were three silent readings accompanied by the auditory model. In addition, her silent reading rate in wpm and comprehension scores on the pretest and posttest were collected. The qualitative data consisted of Naomi's post-session diary entries, totaling 70 entries written over the course of her RR sessions from June 26 to September 30, 2005. During the sessions, she finished *The Moffats* (Sessions 1 to 52) and read Chapters 1 through 10 of *The Misfits* (Sessions 53 to 70). The diary entries were written in Japanese, Naomi's L1. They were translated by the first author, and confirmed by the third and fourth authors for accuracy.

Results

Quantitative data

Reading rates. To address the first research question, "How does an advanced-level L2 learner develop her silent reading rate with RR?" see Table 1 below.

Table 1. *WPM scores for 1st, 5th, and 6th silent timed readings*

Reading	*Mean*	*SD*	Min	Max
1st	131.44	15.10	86.15	164.91
5th	178.79	18.88	105.00	226.03
6th	188.01	19.65	111.26	222.20

A pronounced practice effect is shown in how Naomi's mean reading rate increased from the first to the fifth and sixth readings as averaged across the entire course of the RR treatments. Naomi's average reading rate for her first reading across all the RR sessions was 131.44 wpm (*SD* = 15.10), increasing to 178.79 wpm (*SD* = 18.88) for the fifth reading, and further to 188.01 wpm (*SD* = 19.65) for the sixth reading. The gains from the first to fifth reading were 47.35 wpm on average, and those from the first to sixth reading were 56.57 wpm, with an average difference of 9.22 wpm from the fifth to sixth reading. Thus, these gains in Naomi's reading rate even from the fifth to the sixth reading suggest that she continued to gain her reading speed through repeated engagement with the same text passages.

Table 2 and Figure 1 below provide insight into the degree to which the within session gains transferred to the reading of new passages.

Table 2. *Mean WPMs for 1st, 5th, and 6th reading across treatments*

Session "blocks"	1-5	6-10	11-15	16-20	21-25
1st wpm	110.48	116.59	126.19	126.25	123.20
SD	6.60	10.30	24.93	13.15	3.88
5th wpm	163.56	154.26	165.99	188.37	174.07
SD	15.05	24.40	36.40	15.22	7.49
6th wpm	169.00	160.57	183.26	190.76	187.25
SD	20.71	21.53	43.16	9.80	12.54
Session "blocks"	26-30	31-35	36-40	41-45	46-50
1st wpm	141.84	132.75	130.30	134.28	140.07
SD	16.96	11.02	16.00	10.28	9.70
5th wpm	191.96	177.99	181.10	181.86	180.97
SD	7.05	10.19	12.41	8.27	19.45
6th wpm	194.89	187.27	187.03	188.69	199.00
SD	8.39	10.10	13.96	11.69	19.25
Session "blocks"	51-55	56-60	61-65	66-69	
1st wpm	142.23	140.43	134.53	148.35	
SD	11.03	7.89	7.33	17.58	
5th wpm	177.23	181.02	190.47	198.07	
SD	15.73	7.36	8.71	20.30	
6th wpm	187.79	200.79	195.57	203.27	
SD	15.79	8.84	6.98	14.12	

Note. Naomi's fifth and sixth reading rates for the 70th session were missing in the data set. So, the last "block" constitutes four sessions 66 to 69.

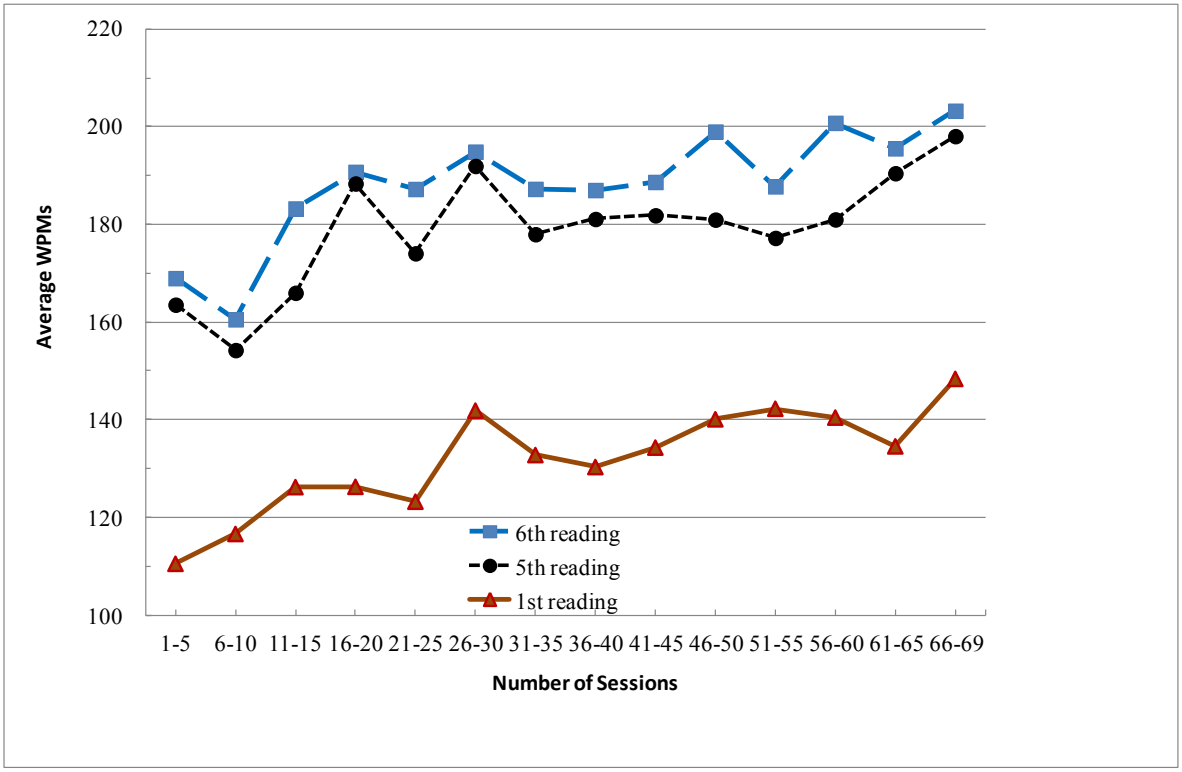

Fig. 1 Average WPMs for 1st, 5th, and 6th reading

We broke down all of Naomi's wpm scores in reading speed into groups of five session "blocks." As can be seen in Table 2 and Figure 1, the mean reading rate for each five-session block shows an upward pattern of progress for the first, fifth, and sixth readings. Most importantly, her first reading rates reflect transfer of her cumulative practice effect from the previous RR sessions. For the first reading, Naomi started out at a mean for the first reading of 110.48 wpm (*SD* = 6.60) for the 1-5 session and steadily increased her reading rate to a mean of 148.35 (*SD* = 17.58) for the first reading of the last 66-69 session. The practice effect also seemed to transfer to the fifth and sixth readings. For instance, the mean of the fifth reading was lowest at 154.26 (*SD* = 24.40) for the second 6-10 session but increased to 198.07 (*SD* = 20.30) for the last 66-69 session. Figure 1 graphically shows the same upward trend for the successive blocks of treatments for the first, fifth, and sixth readings of the texts.

Naomi's reading rate and comprehension scores on the pretest and posttest. On the test passages, Naomi's first reading rate in wpm increased from 114.26 on the pretest, to 138.31 on the posttest, a gain of 24.05 words (see Table 3 and Figure 2).

Table 3. *Naomi's reading rate on the test passages*

	1st	2nd	3rd	4th	5th
Pretest	114.26	153.87	140.16	191.27	181.26
Posttest	138.31	180.31	183.19	194.58	220.77

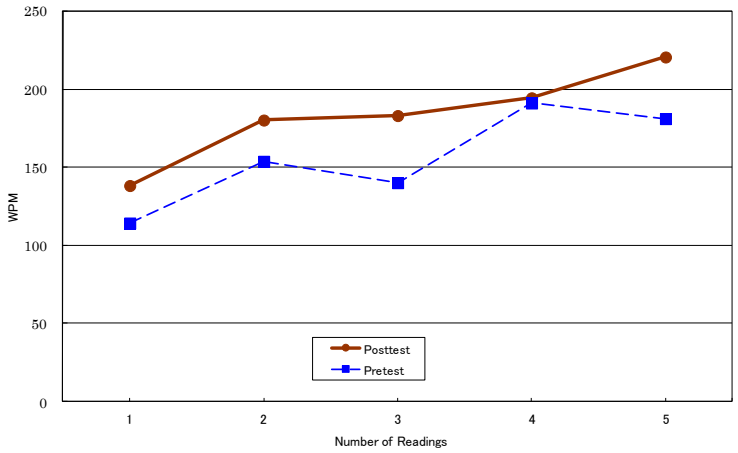

Fig. 2 Naomi's WPMs for pretest and posttest

This increase in reading speed on the first readings exhibits the transfer effect of rereading practice throughout the entire RR treatment to new, unpracticed passages.

As for Naomi's reading comprehension, the same open-ended questions in Japanese were asked after her first, second, third, and final or fifth readings of the test passage (tests 1, 2, 3, and 4, respectively). Notice that her comprehension was not tested for her fourth reading to reduce her burden caused by repetitive testing. So, in essence, she took the same pre-test four times and the same posttest four times, after each reading of the pre- and posttest texts. One striking finding is that her comprehension score on the first taking of the posttest was 8 out of 15, doubling her score from the pretest (see Table 4). Since the first reading performance on the posttest reflected a transfer effect from her cumulative practice throughout the entire RR treatment, RR may have produced this enhanced comprehension performance by Naomi when encountering a new, unpracticed passage.

It is interesting to note that, on both pretest and posttest cycles, she reached the maximum score of 15 before the final reading in each test (see Table 4 below). What is also interesting is that her pretest score reached the maximum score of 15 on the second taking of the test, while her posttest score remained at only 9. It was not until the third reading cycle that her posttest score reached the same level as her pretest.

Table 4. *Comprehension scores after her first, second, third, and fifth readings*

Comprehension	Test 1	Test 2	Test 3	Test 4
Pretest	4	15	15	15
Posttest	8	9	15	15

K = 15

*Qualitative data: Analyses of diary entries***.** In order to answer Research Questions (RQs) 2 and 3, Naomi's 70 diary entries were analyzed for emerging themes by the first author, a native speaker of Japanese. The third author, another native speaker of Japanese, confirmed the themes. The

first author then re-read all of the entries and coded them according to the themes. The third author coded the diary entries independently, and it was found that the two coders were 91.5% in agreement. Disagreements in coding were resolved through discussion.

The main recurring themes that emerged from Naomi's comments concerned beneficial and non-beneficial effects of RR on reader comprehension (RQ2), and the beneficial and non-beneficial aspects of the audio model (RQ3). Her comments are summarized in Tables 5 and 6 below.

Table 5. *Summary of participants' comments on beneficial and non-beneficial effects of RR on comprehension*

Themes	General	Detailed
1. RR benefits reading comprehension.	A. RR enhances overall comprehension of passages.	
	B. RR enhances comprehension of specific parts of passages.	i. RR enhances comprehension of single sentences. ii. RR enhances discourse comprehension.
	C. RR seems to provide scaffolding.	i. RR helps reader to identify incomprehensible parts of text. ii. RR helps reader judge importance of unfamiliar vocabulary or phrases in text. iii. RR helps reader guess meanings of unknown words or phrases or grammatically ambiguous points in text. iv. RR helps reader retain vocabulary in memory. v. RR helps reader recall word meanings in later readings within a single RR session.
2. RR does not benefit reading comprehension.	A. RR may lead to reader boredom and demotivation. B. RR alone cannot lead reader to better comprehension beyond a certain level.	

Table 6. *Summary of Participants' Comments on Beneficial And Non-beneficial Effects of the Audio Model*

Themes	General	Detailed
The use of audio model	1. Beneficial features of the audio model	A. Audio reading model paces the reader and helps her read faster. B. Audio reading model helps with comprehension of dialogs in text. C. Audio reading model gives the reader access to the pronunciation of words.
	2. Non-beneficial features of the audio model	Audio reading model does not help the reader's comprehension of ambiguous parts of text.

RR Benefits Reading Comprehension

RR enhances overall comprehension of passages. Naomi's comments suggested that RR helped her comprehend the story passages better. She reported that her level of comprehension of the passage was generally low after the first reading in each session, and that this was especially so when a new session began with a new chapter in the text, where she had less background information about the new chapter. However, her initial poor comprehension was improved by subsequent repeated readings (six in each session). This theme appeared in her post-session reports in Sessions 7, 23, 24, 31, 50 of *The Moffats*, and Sessions 53, 54, 55, 59, 67, 68 of *The Misfits*. For example:

> September 15--- My initial comprehension of the text was probably between 60% and 70%, but after the fifth reading, it was over 90%. The writing style in this passage was clearly different from that of newspapers and magazines. There were, however, a few unknown words but their meanings could often be guessed from the context. Moreover, there were few difficult grammatical structures, so after two or three repetitive readings I was able to understand almost everything, including those points that I had found to be ambiguous at first.

Another feature that Naomi found beneficial to comprehension was that RR enabled her to grasp the details of scenes in the passages (mentioned in post-session reports for Sessions 23, 24, 31 of *The Moffats*). For example:

> July 25---The passage conveys the excitement with which the children were preparing for Halloween night. Each repeated reading made it possible to appreciate the details of the scene in the story, such as the cat, lamp smoke, and the wind.

> July 26---In the present session, RR helped me to grasp the details of the scene in which *The Moffats'* children created a ghost to scare their friend. The more I read the passage, the better I could picture the scene.

RR enhances comprehension of specific parts of passages: *RR enhances comprehension of single sentences*. Naomi commented on how the re-readings in RR helped her comprehension of single sentences in the text (mentioned in post-session reports of Sessions 14, 30, 32, 34, 41, 44, 48, 52). In one case, she realized after some repetitions that she had an inverted sentence on her hands:

> July 11---It took me a while to realize that the word "train" is the subject of the following sentence "And in exactly three minutes after leaving the New Haven station, the express train came to a stop—the fireman lifted the two boys down—the engineer grinned and waved to them, and off the train went with everybody aboard staring out the window to find out why the express, that wasn't supposed to stop until it reached New York, had stopped in this funny little town." This is an inversion, as in "the train went off with …," isn't it? I mistook it for expressions like out the door, down the steps, into the schoolyard.

RR enhances comprehension of specific parts of passages: RR enhances discourse comprehension. Naomi's comments suggested that RR can boost discourse comprehension (comprehension of multiple sentences, paragraphs, or chapters). In session 35, Naomi found a sentence that emerged suddenly with no apparent logical connection with neighboring sentences.

She realized upon successive re-readings, however, that the sentence was connected to previous chapters:

> August 6---The eighth chapter starts with *The Moffats'* children going back to school. It says, from lines 3 to 8 on page 137 of *The Moffats*, "For now Rufus was all over the scarlet fever. He was back at school. They were all back at school. Several colonies had been settled in Janey's absence." When I first read the line "Several colonies had been settled." I didn't understand what it meant. Later, however, I was able to figure out that the lessons had progressed in his absence. I also remembered that either Jane's or Joe's class had been discussed in previous chapters. RR helped me understand that the story is connected in this way, and I found it interesting.

RR seems to provide scaffolding: Helps reader to identify incomprehensible parts of the text. Naomi's comments suggested it was often difficult for her to determine which parts of the text she could not comprehend after reading the passage only once. Successive readings within sessions seemed to help her identify these parts, such as grammatical ambiguities (Sessions 14, 20, 27, 28, 29, 30, 32, 33, 34, 41, 43, 44, 48, 52, 56, 58, 61, 65, 68):

> August 20---There was one grammatically ambiguous point which I couldn't figure out while reading along with the audio recording. During the third reading along with the audio recording, however, I finally realized the sentence had a participial construction. On lines 6 to 9 of page 164, it says "Choosing their kitten was a game they played every year. This was great sport, the only sad thing about it being the thought that they would have to part with their new pets as soon as Mama could find homes for them."

RR seems to provide scaffolding: Helps reader judge importance of unfamiliar vocabulary or phrases. RR helped Naomi to determine how critical unfamiliar vocabulary words or phrases were (Sessions 4, 21, 42). She seemed to use the context to determine how to deal with these unfamiliar words or phrases. If she judged the words or phrases to be unimportant for understanding the passage as a whole, she chose to skip them. However, if she thought those unfamiliar vocabulary words or phrases were critical for understanding the meaning of the passage, she consulted a dictionary to access their meaning at the end of the RR session (She had been instructed not to use a dictionary while she was doing RR because we thought the use of a dictionary in the middle of reading would hamper her comprehension):

> June 29---I ran into a few unfamiliar words but was still able to understand the passage. For some of them I could figure out their meanings from the context, but when that was not possible, I was able to keep reading because I knew it would not significantly affect my overall comprehension.

RR seems to provide scaffolding: Helps readers guess meanings of unknown words or phrases or grammatically ambiguous points. After repetitive readings of a text Naomi became able to deal with unknown words and phrases by guessing their meanings from context (Sessions 5, 23, 24, 29, 33, 36, 37, 51):

> August 4---I couldn't figure out the passage from lines 6 to 12 on page 130 of *The Moffats*, "Mama was the only person she (= Catherine-the-cat) had any use for. And she missed her dreadfully. She tried constantly to break away from this intolerable bondage in the kitchen and get into the sitting room, where Mama was. Finally she learned there was no use in this. One of those children foiled her each time. So she maintained a sullen silence for the rest of Rufus's illness." I didn't know the

> expressions "to have any use for" or "to foil," and these added to my difficulty in understanding this part. However, when I read the passage two or three more times, I could make a fair guess from the context.

RR seems to provide scaffolding: Helps reader retain vocabulary in memory. Through the repeated exposure to text, Naomi was able to pay particular attention to vocabulary words, phrases, and some grammatical structures used in the text (Sessions 7, 25, 26, 45, 49). This prepared her for acquisition of the new vocabulary:

> June 27---There are many dialogs in *The Moffats*. So various specific verbs such as "boom," "gasp," and "beam" are used in place of "say." I wasn't so sure of all of their meanings, but I felt I was still able to understand the passage. I also found it interesting that I could read onomatopoeic words such as "tramp, tramp" and "swish, swish" by guessing from the context.

This effect was not only limited to receptive learning. Naomi felt that she would be able to use many of her newly acquired vocabulary productively:

> June 30---By rereading, I hope I will be able to learn expressions that I can use for my writings and conversations. Thinking this way keeps me motivated to do rereading exercises.

Naomi commented that through repeated readings of passages she could retain vocabulary words and phrases and, this caused her to become aware of the stylistic features of *The Misfits* expressed through grammatical structures:

> September 25--- I noticed that relative pronouns were omitted and some adverbial phrases and clauses were inserted. Even if I didn't understand them during the first reading, I was able to understand them after repeated readings. The passage from *The Misfits*, with its roundabout expressions and lengthy sentences, is not as easy to understand as that from *The Moffats*. However, RR made it easier to comprehend.

RR seems to provide scaffolding: Helps reader recall word meanings in later readings within a RR session. The repeated readings within each RR session seemed to enable Naomi to recall vocabulary where the meanings had slipped her mind during her first reading of a passage:

> July 18---There were some words whose meanings I couldn't recall in the initial silent reading, but subsequent rereading helped me remember their meanings. Among these were "bid" as in "bid a good-bye" and "drowsy." Learning vocabulary words by reading a lot and guessing from context may be the best way, I thought.

RR Does Not Benefit Reading Comprehension

RR may lead reader to boredom and demotivation. Naomi reported some detrimental features of RR, namely, boredom and demotivation caused by excessive repetition in RR. At one point, for instance, she mentioned that excessive repetition caused her to lose concentration:

> June 27---There were some grammatically ambiguous points I couldn't make out while reading, but I decided not to worry much and keep on reading. Even at the end of the session, however, I still couldn't understand them. I sometimes found myself losing concentration while reading along with

> the audio recording. I'm thinking of reducing the number of times I read along with the recording because I felt bored by the 4th or 5th time during today's session. I'll make a decision considering my performance in the next session.

RR alone cannot lead reader to better comprehension beyond a certain level. Some of Naomi's comments pointed to the notion that RR alone often did not lead to better comprehension of a passage beyond a certain level. Naomi pointed out that some incomprehensible points in the text did not become comprehensible simply by reading the text repeatedly (Sessions 2, 3, 8, 48, 56, 68). At the same time, she speculated that perhaps her incomplete comprehension was due to the number of unknown words in a given passage. Even repeated reading did not help to lead her to better understanding:

> July 4---No matter how many times I read the same passage, it didn't help me understand it any better when there were many unfamiliar words. I think I could understand much better if I were able to look up words that were important to understanding the passage.

Naomi also noticed that her assumed meaning of words in texts were sometimes misunderstandings:

> September 2---There were many vocabulary words and expressions that I didn't know. So, my comprehension after my first reading of the passage was about 70% to 80%. While reading along with the recording, I think I was able to better understand, and by the end I achieved 90% comprehension. I wanted to read the passage again after I looked up the meanings of those words. And I found that there were some words whose meanings I had misunderstood. Also, there were parts of the passage in which I had guessed the meanings incorrectly. I became unsure as to whether I was able to understand as much as 90% of the passage. For example, I mistook "at bay" for "at the harbor," but it actually means "about to be caught." I also mistook "row" for "a line," but it meant "a noisy fight." I thought I needed to check the vocabulary words to see if they were used in the meanings I knew. For me, RR is important, but checking my comprehension is important as well.

Beneficial Features of the Audio Model

Audio reading model paces the reader. Naomi thought the audio model that she listened to while reading the text paced her reading and that it enabled her to read faster.

> June 26---By reading along with the recording, I felt I could read faster because I could get auditory input of the text as well as the print.

Audio reading model helps with comprehension of dialogs. The audio model also worked to enhance Naomi's comprehension. She indicated that the auditory reading model helped her understand the dialogs embedded in the text better (Sessions 13, 57, 63).

> July 10---In this session's passage it was difficult to understand Bob's lines because of subject omissions and grammatically incorrect usages. Reading the passage along with the recording made it easier to understand the story. It is easier to understand passages with dialogs while listening to the text on audio recording than while reading them silently.

Since the dialogs in the text were performed on audio recording by different voices for different

characters, and included sound effects, the audio model provided Naomi with character-specific prosodic information (rhythm and intonation) that matched the dialogs. This seems to have facilitated Naomi's comprehension of the passages.

> September 13---When there are four characters in the story passage, it becomes too complicated to understand their relationships. I could not catch whose lines were directed to whom during the initial reading, but the subsequent readings along with the audio recording made it possible for me to understand the relationships.

We speculate, as did one reviewer for this report, that reading with an audio model helps readers chunk the text into meaningful clauses and phrases. This is an aspect of audio-supported RR that needs further investigation.

Non-beneficial Features of the Audio Model

While the audio model seemed to have helped Naomi read text faster and better, it also seemed to pose some difficulties (Sessions 3, 28, 39). While she read along with the audio recording right after she had read a new session passage for the first time, she felt she was not allowed to think over ambiguous points in the text. This was frustrating, especially when re-reading the text did not help her guess meaning from context, and these ambiguous points remained incomprehensible throughout the RR session.

> July 28---In the past two sessions, I read text along with the recording after I read the text passage once and timed my reading. By doing so, however, I had to read along with the recording while there were still some ambiguous points remaining in the passage. My comprehension did not improve any further, regardless of how many times I reread the passage.

She also noticed that reading along with an audio model did not help when the passage contained unknown vocabulary words and grammatical ambiguities.

> August 12---I commented in yesterday's session that reading became a lot easier after reading along with an audio reading model because of the sound input. This, however, holds true for only those passages that do not contain overly difficult vocabulary and grammar. I felt that reading along with the audio reading model did not help much when reading passages contained unknown words and grammatical ambiguities.

Having the audio model set the pace of reading often deprived Naomi of a chance to think over ambiguities in the text. This effect was especially pronounced when she faced a large number of unknown words and grammatical ambiguities in a single passage.

Discussion

The issues addressed in the study were: (a) whether and how an advanced-level L2 learner develops her silent reading rate and comprehension with RR; (b) advantageous and disadvantageous features of RR; and (c) advantageous and disadvantageous features of the use of an auditory reading model. We will discuss these issues in turn, and will then focus on what implications these results have for future pedagogical applications of RR.

The first research question was how an advanced-level L2 learner develops her reading rate and comprehension using RR. Naomi, an advanced-level reader with good comprehension skills, further improved her silent reading rate and comprehension through RR. Her rate on the first reading of a new, unpracticed RR treatment text averaged 110.48 wpm for the first five sessions, and 148.35 wpm for the last four sessions, with a gain of 37.87 wpm. As for the test passages Naomi's first reading rate for the pretest passage was 114.26 and that for the posttest passage was 138.31 with a gain of 24.05 wpm.

It is interesting to know that an advanced-level learner like Naomi still had room for reading fluency development as suggested by her steadily increasing reading rates above. This may be a difference between L2 and L1 learners since, in L1 settings, fluency develops mostly for early readers (children) whose word recognition skills are underdeveloped. In L2 settings, however, reading fluency may still be developed even for adult advanced-level learners, with concomitant improvement in reading comprehension (Gorsuch, 2010; Gorsuch & Taguchi, 2008). Thus fluency development is a potentially worthwhile curricular goal at all L2 learning levels. This should be confirmed by future studies with larger samples.

Engaging in RR also improved Naomi's reading comprehension of new, unpracticed passages (see Table 4 above), even as an advanced learner. This confirms results from another study done using RR with advanced, graduate-level ESL students (Gorsuch, 2010). It is interesting, however, to notice that, by her second reading of the posttest text, Naomi seemed to comprehend less than she had on the second reading of the pretest. She speculated that her seemingly lower achievement on the second reading of posttest resulted from the text containing information relevant to a particular postest item and that this key piece of information had evaded her attention during the first and second takings of the posttest. More specifically, Naomi failed to understand the part of text that says the front door was open and that the window shades were up. This key information was supposed to lead to the correct answer to the question, "When they went back to the house, what did they discover?"

By the third reading of the posttest, her comprehension was on par with her comprehension level on the pretest. This comment is indicative of the way in which RR and Automaticity Theory work. With each reading of the text, Naomi's higher-order comprehension processes were invoked to the point where she became aware that some key pieces of information had eluded her, and that she needed to find the information. This could not have happened if she had read a text just once while struggling with resource-demanding word recognition and parsing processes. As her fluency increased with each reading of the text, more of her cognitive resources were freed to achieve an ever more nuanced comprehension of the text.

The second research question addressed which features of RR were beneficial or non-beneficial for Naomi's comprehension. Her feedback has provided a detailed account on what happened with an advanced-level reader while engaged in RR. Her feedback, in addition to the quantitative measures above (see Table 4), showed that RR does help a highly proficient L2 reader improve her comprehension. Repeated exposure to texts enabled her to gradually catch more of the main ideas and details, and to establish more connections between sentences and even paragraphs at the same time, all elements of higher-order comprehension.

Naomi's enhanced comprehension may have come from the various forms of scaffolding with which we believe RR provides L2 readers. The scaffolding may bridge the gap between what a reader can do at the moment and what they will be able to do in the future. Specifically, RR enabled Naomi to distinguish parts of text she had understood from parts she had not. This awareness is often missing to readers when they read a text for the first time, and only once. Automaticity Theory (LaBerge & Samuels, 1974; Samuels, 1994) explains this as resulting from a lack of attentional resources due to the cognitive burden expended on undeveloped decoding skills of readers, resulting in an inhibition of higher-order comprehension processes. Repeated exposure to the same passages liberates readers from this burden, consequently enabling them to direct more attention to comprehension. In this, and other studies, it has been shown that this practice effect transfers to the reading of new, unpracticed passages (e.g., Dowhower, 1989; Morgan & Lyon, 1979; Young, Bowers, & MacKinnon, 1996).

The results with Naomi also suggest that RR may enable L2 readers to learn to deal with lexical and grammatical ambiguities by utilizing context to guess their meaning or by just skipping them to grasp the whole picture while ignoring trivial details (see Table 5). Sometimes their guesses work well, but other times they may not work well, depending on the contextual information at the reader's disposal. Moreover, the results suggest RR facilitates better retention of words and phrases than reading text only once.

At the same time, Naomi's feedback also revealed some detrimental features of RR. If too many repetitions are required from L2 readers, it may discourage them from engaging in reading. Reading the same passage again and again may be boring unless readers see direct benefits from rereading the same passage. Also, RR alone sometimes does not lead to better comprehension in cases where the text contains many unfamiliar words and phrases (e.g., Grabe, 2009, pp. 270–271; Hirsh & Nation, 1992; Nation, 2001, pp. 146–147). Readers may not be able to guess meaning from context because of limited information available from the context (see Table 5).

The third research question addressed beneficial and non-beneficial aspects of the use of an audio reading model with RR (see Table 6). Naomi found that the audio reading model paced her reading and helped her read faster. It also helped her understand dialogs embedded in the text by providing character-specific prosodic information. On the other hand, she felt the use of the audio reading model sometimes inhibited her comprehension by allowing her little time to process ambiguities in the text. Also, text that contained difficult vocabulary or grammatical ambiguities was not made clearer through use of the audio model, thus resulting in her frustration.

Using the Results to Improve RR Pedagogy

These findings suggest how we may better implement the pedagogical applications of RR. Critically we need to determine the optimal number of times that a passage should be read with and without an auditory reading model. In L1 RR research, L. O'Shea, Sindelar, and O'Shea (1985) have shown that four repetitions is optimal. In the current study, Naomi suggested that three re-readings after the initial reading in each session would be sufficient:

> July 8---The passage for this session was rather easy to read, so I could read without much difficulty. I think three times reading along with the audio recording is sufficient to understand the passage.

The fact that Naomi's comprehension reached a ceiling after her third reading on both the pretest and posttest (see Table 4) suggests that three to four repetitions may be sufficient. The decision on the number of repetitions, however, should be based on each reader's achieved level of fluency. Rereading is rewarding and beneficial as long as a balance between the number of repetitions and readers' motivation is maintained as suggested in the results section above.

Another pedagogical practice suggested by the results is that readers should be given an opportunity to confirm the accuracy of the assumed meanings of unknown words or phrases before continuing to the next rereading. The higher level of proficiency a reader has achieved, the more likely they will need to check the accuracy of their predictions. Such opportunities will enable readers to better understand the passage and rescue them from frustration when their access to unfamiliar vocabulary items is denied. Naomi described such a case below:

> August 22---This session passage described a game in which children chose their kittens. There were several words that were used to describe the kittens' movements and the children's activities in the game. These included "wistful," "nonchalantly," "whack at," "teeter over," "purr," and "whirr up." I don't see these words in newspapers or magazines, but I think many of these words are used in daily life. I was able to understand the passage without knowing these words, but I would have enjoyed the scene much better if I had been allowed to check the meanings of those words and then read the passage again.

One important issue that bears mentioning is Naomi's relatively slow reading rate on her first reading of the passages (see Tables 1, 2, and 3). This may have had to do with her purpose in reading, which may have been affected by her knowledge that the focus of the study was on the pedagogical utility of RR for developing L2 reading skills and language development. As her learner profile shows, Naomi is a skillful English L2 reader with much reading experience and high-level L2 proficiency. Nonetheless, her mean reading rate for the first reading of RR treatment text was slow 131.44 wpm (*SD* = 15.10) as compared to a mean of 181.02 (*SD* = 49.14) for intermediate to advanced-level Chinese learners of English that was reported in a study by Fraser comparing Chinese readers' reading rates between their L1s (Mandarin) and their L2s (English) (2007, p. 381). This higher L2 reading rate by the Chinese native speakers was for their natural and ordinary type of reading called "rauding" (Carver, 1990). In "rauding," readers integrate ideas in sentences and process them as fast as their cognitive speed allows (Carver, 1990; Fraser, 2007, p. 374), with few eye regressions to review text, and few comprehension checks. In simple terms, "rauding" is the typical type of reading we do in our daily lives. For English native speakers, the typical "rauding" rate for a university student is 260 to 300 wpm (Carver, 1990, p. 146).

Looking at how Naomi performed RR, it seems that the type of reading Naomi engaged was reading to learn, not "rauding." Fraser (2007) indicates that reading to learn involves not only understanding the ideas in the text but remembering them (p. 374), so this reading process adds more cognitive load on readers than "rauding." Carver (1990) suggests that readers engage in reading to learn when they read a text that is difficult to understand through "rauding" alone. Based on the fact that, during her RR treatment, Naomi was constantly engaged in questioning semantically and syntactically ambiguous parts of the texts so as to achieve a high-level of comprehension, we speculate that she often employed reading to learn. In her July 7th entry, for

example, she realized the sentence she did not understand had an inversion of the subject and the verb. There were multiple diary entries that strongly suggested that she was reading to learn. Fraser (2007) pointed out that readers reading in their L2 slow down their reading rate to 200 wpm or less when they read text to learn (p. 377). If Naomi was engaged in reading to learn, it explains why her reading rates for new, unpracticed passages remained slow throughout the entire treatment.

Another reason to believe that Naomi was reading to learn is indicated by the ratio of unknown words in the passages. Nation (2001) posited that extensive reading (ER) becomes possible when readers know 95% or more of the vocabulary words in a given text. He differentiated two types of ER according to how much vocabulary readers know in the text they read: ER for L2 language growth and ER for L2 reading fluency development. When the ratio of known words in the whole passage is between 95 to 98%, readers will read to develop their L2 vocabulary and grammar. When the known word ratio is more than 98%, readers may more effectively read the text to build fluency (pp. 149–150). We think the type of reading that Naomi engaged in was reading to learn, that is, reading to develop her L2 language. We calculated the ratio of unknown words in the way described in the Materials section above. Out of the 70 passages used in Naomi's RR sessions, 16 passages contained unknown words and phrases exceeding the 2% threshold. Thus, it is possible that Naomi was engaged in questioning semantic ambiguities in text as she used reading to learn. This may have caused her to read at less than her natural and ordinary reading rate.

Fraser (2007, p. 377) pointed out that L1 and L2 readers' rates are differentially affected by tasks. While L1 readers can maintain their optimal reading rate (i.e., 260 to 300 wpm) in performing such tasks, L2 readers have to slow down "to a rate associated with learning (i.e., about 200 wpm or less)." And even for tasks that do not require learning, such as taking a follow-up test, L2 readers often read at a reading rate for learning (Oller & Tullius, 1973). Thus, Naomi's slow mean reading rate for her first reading (i.e., 131.44 wpm) throughout the RR treatment can be associated with a rate for reading to learn, which is characterized by her questioning grammatical and vocabulary ambiguities in text and by her learning and consolidation of various vocabulary and grammar items. The current study suggests that RR can be used for increasing L2 reading fluency, and for L2 language development when the text contains 2 to 5% of unknown words or phrases. For the text with less than 2% unknown words or phrases, readers can focus on developing their reading fluency toward the level of automaticity.

Limitations of the Present Study

This is a qualitative study using a single subject, diary-based approach, and as such, one limitation is the participant's subjectivity. Therefore, the data could be idiosyncratic and the results of the present study may not be generalized to other L2 readers. Future quantitative and qualitative research with a larger sample of different L2 proficiency levels is needed to confirm the findings from the current study. One interesting issue is how the unknown vocabulary ratio in the text affects the way RR benefits L2 readers. Further research will show how best RR can be used in classroom settings or for individual L2 learner's studies.

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