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Transfer Effects of Repeated EFL Reading on Reading New Passages: A Preliminary Investigation

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Abstract

In English as a foreign language (EFL) contexts, there has been a growing recognition that reading provides important opportunities for second language (L2) development in second language learners (Day & Bamford, 1998). This is particularly true in EFL settings in which sources of L2 input are limited (Gebhard, 1996). However, EFL learners face a number of problems effectively utilizing reading as a venue for L2 development. One of the more salient problems is that EFL learners' reading rates may be slow, indicating that they are reading laboriously word by word (Coady, 1979). Mikulecky (1990) suggests that L2 readers are trapped in a feeling of security, in that they believe reading every word leads to better understanding of the text meaning. Unfortunately, such slow reading may discourage learners from practicing reading. It is clear that methods that help students learn to read faster and with better comprehension may encourage students to read more and more fully utilize opportunities for growth in the L2 through reading. This study focuses on one such method -- repeated reading (RR) -- and its use with nine first year Japanese university EFL students of beginner to intermediate English proficiency.
Keywords: repeated reading, reading transfer, reading rates, reading fluency, reading comprehension

Introduction

The Role of Word Recognition Skills in Successful Reading

Studies on eye-movement have directed the attention of reading researchers to the critical role word recognition skills play in reading. Cognitive psychologists have used computers in order to track and record eye-movements of normal reading of skilled first language (L1) English readers. Some major findings are:

a. Most of the content words and about 40% of the function words receive direct fixation. Even when readers skip, they rarely skip more than one single word (e.g., Adams, 1990; Just & Carpenter, 1980, 1987).
b. Readers can discriminate letter-level information as far as four character spaces to the left of fixation and 14 to the right (McConkie & Rayner, 1976; Underwood & McConkie, 1985). Thus, the perceptual span, or the area the eyes can see at one fixation, is asymmetric and extremely small even for skilled readers. This also suggests that readers use some partial information from the parafovea (i.e., the first two or three letters of a word on the next fixation) to help process that word. It is recognized only when the word receives direct fixation (McConkie, Zola, Blanchard, & Wolverton, 1982; Rayner, 1975).
c. Readers are extremely sensitive to letter-level features of text. Even when they can expect high semantic, syntactic, or orthographic predictability, they still appear to process individual letters completely. For example, Rayner and Bertera (1979) masked one letter in foveal vision and found that the absence of even one letter in a word reduced reading speed by 50%.

In sum, most reading experts believe that skilled reading involves the accurate, rapid, and automatic recognition of words. And this word recognition is achieved effortlessly and very quickly.

Second and foreign language (henceforth L2) reading researchers are beginning to acknowledge the crucial role that automaticity in the word recognition skills of a reader plays in reading (Day & Bamford, 1998; Grabe, 1991; Silberstein, 1994). Based on the remarks by Alderson and Urquhart (1984) and Wallace (1992) that there seems to be no clear distinction between L1 and L2 reading, Day and Bamford (pp. 15-16) suggest that L2 readers in English are most likely to go through the same cognitive processes that characterize reading English in L1. Therefore, if too much of L2 readers' attention resources are spent on decoding words in print, their comprehension will be disrupted. This is especially true of L2 readers whose native language is typically written with a different orthography. Thus, automatic word recognition constitutes an indispensable component of fluent L2 reading, as it does in L1 reading.

L2 readers' less developed word recognition skills may also cause them to read more slowly than L1 readers. This slow reading constitutes a major problem for L2 readers because if they cannot read fairly quickly, they are unlikely to read much or with enjoyment. If they cannot enjoy reading, it seems unlikely they will acquire reading skills. The situation of L2 readers seems to be a vicious cycle (Nuttall, 1996, p. 127). In addition, if learners cannot read faster, they are unlikely to read better because of short-term memory overload. According to Smith (1988), when readers read slower than 200 WPM (words per minute), they are likely to read a text in "isolated units rather than as meaningful sentences," (p. 79) and the construction of the text's meaning is not executed effectively.

Repeated Reading in L1 Contexts

One major problem with slow reading in L2 learners lies in their less developed word recognition skills. L2 readers read slowly, attending to almost every word in a text. Although a

number of approaches have been suggested for developing word recognition skills, the most common is to have the reader read a great amount of material so that automaticity in word recognition skills may be achieved naturally, through practice. Although this is the approach that many L2 reading teachers encourage their students to take (e.g., Day & Bamford,1998), it takes time and effort on the part of L2 readers before their word recognition skills are adequately developed and automatized.

The method of repeated reading (RR) has been extensively studied in L1 reading and is deemed a "deceptively simple but extraordinary powerful" method in developing readers' word recognition skills (Dowhower, 1994, p. 343). Samuels (1979) developed the RR method as a means of helping unskilled readers achieve automatic word recognition. RR consists of having students re-read a short passage silently or aloud until they are able to read it with ease. This procedure is called *unassisted* or *nonassisted* RR; no oral reading model of the passage is supplied. *Assisted* RR, on the other hand, is a variation of Samuels' procedure in which a live or audiotaped model of the text is provided for the reader. Students read a passage silently while listening to it being read aloud.

Reading research in L1 has provided robust empirical evidence which demonstrates the beneficial effects of RR (see Dowhower, 1989, 1994). Despite the difference in procedure between assisted and unassisted RR, re-reading a passage has been found to increase a student's oral reading rate and accuracy (Carver & Hoffman, 1981; Chomsky, 1976; Dahl, 1974; Dowhower, 1989; Herman, 1985; Rashotte & Torgesen, 1985; Samuels, 1979; Young, Bowers, & MacKinnon, 1996). This in turn leads to better comprehension of the passage (Dowhower, 1989; Herman, 1985; O'Shea, Sindelar, & O'Shea, 1985; Young et al., 1996). Practice effects of re-reading a passage for L1 readers are carried over to a new unpracticed passage with regard to reading rate and accuracy (Carver & Hoffman, 1981; Dowhower, 1989; Faulkner & Levy, 1994; Herman, 1985; Rashotte & Torgesen, 1985; Samuels, 1979) and comprehension (Dowhower, 1989; Morgan & Lyon, 1979; Young et al., 1996). Repeated reading enables L1 readers to read in larger and more meaningful phrases (Dowhower, 1989).

It has been discovered, however, that unless the degree of overlapping vocabulary between the passages is high, the transfer of reading gains to a new unpracticed passage is minimal in terms of reading rate (Rashotte & Torgesen, 1985). This implies that using a series of passages or a whole story may be more effective for pedagogical use of RR because of a higher degree of overlap in vocabulary. Finally, the use of context is found to be crucial to facilitating successful RR in L1 settings. Practice in recognizing words in isolation, as in the case of a list of words, does not lead to better comprehension of the passage that contains those words (Dahl, 1974; Fleisher, Jenkins, & Pany, 1979).

Use of Repeated Reading in L2 Settings

Some L2 reading researchers have suggested that RR might work as a means of developing word recognition skills and reading speed in L2 readers. For example, Grabe (1991) suggested that RR might be equally effective for L2 readers who are slower and less accurate in decoding than L1 readers. Anderson (1994) included RR among the several methods he proposed to develop L2 readers' reading fluency.

Few studies, however, have explored the possibility that the RR method would be effective in improving reading rate and comprehension of L2 readers. Taguchi (1997) made a rare attempt to investigate the effectiveness of this method in FL reading. He conducted RR with 15 beginning to intermediate Japanese university EFL students three times a week over a 10-week period. The silent reading rate of the students increased significantly within the practiced passages. Three re-readings of the text while listening to an exact audiotaped version significantly enhanced the students' silent reading rate. Three more re-readings without the aid of the audiotaped model further increased their silent reading rate. However, despite the gains within the practiced passages, Taguchi failed to observe any transfer effect to new unpracticed passages in terms of oral and silent reading rates.

Although some support for the use of RR has been provided by Taguchi (1997), no control group was used, nor was comprehension measured. Moreover, no transfer of gains from RR practice to new passages was observed in this study, although transfer is the main finding of RR research in L1 settings. L2 readers could greatly benefit from RR if they would be able to read faster and comprehend better when they read new unpracticed passages. The present preliminary study investigates the effects of RR on reading rate and comprehension using a control group, and also examines transfer effects of reading gains from RR. The research questions are:

1. Does the RR method significantly help foreign language (FL) readers improve their silent reading rate when reading a new passage?

2. Does the RR method significantly help FL readers improve their reading comprehension when reading a new passage?

Method

Participants

The participants were drawn from a class of 32 first-year Japanese students who were learning English as a foreign language at a university near Tokyo. Twenty-six students volunteered to participate in this study. Of the 26 students, 8 did not fulfill the required number of RR sessions, so the number of the participants analyzed in the present study was 18. The 18 participants were paid the equivalent of $10.00 in Japanese yen for their involvement. Among the participants, there were four males and 14 females. At the time of the study, they had been studying at the university for one month. They had studied English formally in junior and senior high schools for a total of 6 years. Their major at the university was Japanese Linguistics, and all their courses other than English were taught in Japanese. They had ten 90-minute English classes a week: two reading classes, two writing classes, four conversation classes, and two classes designed to integrate the four skills of reading, writing, listening, and speaking.

Materials

Texts. The textbooks used for the RR treatment group were selected from the Heinemann New Wave Readers series, Level 5. They were *The Missing Madonna* (McLean, 1991) and *Away*

Match (Axbey, 1991). These textbooks were considered to be the appropriate level for the students in the RR group according to the investigators' empirical observations of 3 years of implementation of the RR method in EFL classes at the university.

The average readability estimate of the Flesch-Kincaid, Fog, and Fry formulas was 4.80 (*SD* = 0.43) for *The Missing Madonna* (U.S. 4th grade level), and 4.83 (*SD* = 0.39) for *Away Match* (also U.S. 4th grade level). Since the students were to do RR three times a week for a total of 28 sessions, the two books were each segmented into 28 portions. Each portion was 334 to 383 words long, which took roughly two minutes to read at a rate of 180 words per minute. One hundred eighty words per minute was considered to be the optimal rate for the students in the present study, based on the fact that students averaged about 115 WPM on their first reading of the pretest passage and on the RR treatment passage from *The Missing Madonna* as well. An increase to 180 WPM was considered to be a meaningful increase for pedagogical purposes. Out of 28 RR sessions, 24 were from *The Missing Madonna* and the remaining 4 were from *Away Match.* See Appendix A for excerpts from the two books.

Pretest and posttest. Test sheets 4A and 4C of the *Ekwall/Shanker Reading Inventory* (Shanker, Ekwall, & Ekwall 1993) were used for pre- and post-tests for both the experimental RR group and the control non-RR group to examine the effects of the RR treatment.Test sheet 4A was used as the pretest and 4C for the posttest to assess reading gains in silent reading rate and comprehension which were expected from the RR treatment. While the passages were purported to measure the reading level equivalent to that of a U.S. fourth grader, their readability level was estimated to be from U.S. 6th to 9th grades according to Flesch-Kincaid, Fog, and Fry formulas (4A, *M* = 7.10, *SD* = 1.42; 4C, *M* = 7.70, *SD* = 1.63), compared to the U.S. 4th grade levels for readings used in the RR experimental treatment (see Table 1 for readability estimates on all three formulas). This has implications that will be outlined in the section The Limitations of This Study. The length of the passages were 176 words for the pretest and 183 words for the posttest. Finally, the *Ekwall/Shanker* 4A and 4C passages were not about culturally specific topics and were thus deemed appropriate for the purposes of the study.

Table 1: *Readability Estimates for Repeated Reading and Pretest and Posttest Passages*

Passage	Flesch-Kincaid	Fog	Fry	M	SD
The Missing Madonna	4.20	5.20	5.00	4.80	.43
Away Match	4.30	5.20	5.00	4.83	.39
Pretest	6.20	9.10	6.00	7.10	1.42
Posttest	7.20	9.90	6.00	7.70	1.63

Note: *SD* was calculated using the *N* – 1 formula.

Comprehension tests for the pretest and posttest. The pretest and posttest passages from the *Ekwall/Shanker Reading Inventory* have 10 item questions. See Appendix B for the two passages, and Table 2 for the questions.

Table 2: *Pre- and Posttest Comprehension Questions*

Pretest Questions	Posttest Questions
1. What do some people enjoy doing?	1. What do we call a place that is dry and often hot?
2. Why can exploring caves be dangerous?	2. What do some people think a desert is?
3. Why have many people been lost in caves?	3. What do some deserts have living in them?
4. What do people who explore caves often take with them?	4. What is it about some plants and animals that enables them to live in the desert?
5. What is the string tied to outside the cave?	5. Where do some desert plants store water?
6. How do they use the string to find their way out?	6. Where do some animals that live in the desert get their water?
7. What is a cavern?	7. What has sometimes happened to people who have been lost in the desert?
8. Where is one of the largest known caves?	8. What does the word survive mean?
9. What else does Mammoth Cave contain besides enormous caverns?	9. Why did it say someone might enjoy living in the desert?
10. Why would someone who explored caves need to be brave?	10. Why do you think it would be a good idea to learn how to survive in the desert?

The students' answers to the comprehension questions were scored by one of the investigators and another bilingual Japanese teacher with native competency in English. After scoring the tests, all the students' answers were compared to calculate the interrater reliability which was computed using the following formula:

Interrater reliability = Agreements / (Agreements + Disagreements) * 100

The two scorers agreed on 92.1% of the answers, and any disagreements were resolved through discussion. Each answer was given a score of 2 points for a correct answer, 1 point for a partially correct answer, and a zero for a wrong answer or no answer. The maximum score for each test was 20. It seemed reasonable to eliminate some of the detrimental effects that might be caused by students' limited use of English in answering the questions. Thus, students were allowed to answer in either English or Japanese. For answers written in English, it was decided that answers containing some minor grammatical or punctuation errors would not be considered wrong. As for answers written in Japanese, those that contained a minor mistake in the use of verb tense were not considered wrong answers. One point was subtracted from the assigned score for answers with redundant information. When answering the comprehension questions, the students were not allowed to refer to the test passages.

The data on the two vocabulary questions in both the pretest (number 7) and posttest (number 8) were excluded from the analysis of the pre- and post-test questions because the target vocabulary words in each of the tests could not be considered at the same level of difficulty for the Japanese participants of this study. The word *cavern* in the pretest was considered more difficult than the word *survive* in the posttest since the word *survive* has already obtained the status of a borrowed word in Japanese, while *cavern* has not. Since the inclusion of data on the above questions could cause inequality between the two tests, the data for scores on these two vocabulary questions were excluded, thus making the maximum score for each test 18, comprised entirely of comprehension questions. Unfortunately, it was found in a later analysis with similar students that the pretest was slightly more difficult than the posttest. This had implications that will be outlined in the discussion section below.

Word overlap among the pretest, posttest, and RR treatment passages. The degree of vocabulary overlap was measured for the pretest, posttest, and RR passages that were used in the RR treatment. The pretest and posttest passages had 176 words and 183 words respectively, while the RR treatment passages totaled 10,355 words. The vocabulary overlap was determined by counting each word only once even if it appeared more than once in the passages. Counted in this way, the total number of words appearing in each passage was 98 for the pretest passage, 88 for the posttest passage, and 1,541 for the RR treatment passage. To determine the degree of overlap among the passages, we followed two studies on L1 repeated reading which measured the degree of word overlap (Rashotte & Torgesen, 1985; Younget al., 1996). Neither study identified different forms of a word as the same word. Similarly, we treated different forms of a word as different words. For example, *be, is, are, was,* and *were* were treated as different words, as were *ask* and *asked,* and *calm* and *calmly. Policeman, policemen,* and *policeman's* were considered three different words. The amount of word overlap between the pretest and the posttest passages was 33.67%for the pretest and 37.50%for the posttest, and the number of shared words was 33. The degree of vocabulary overlap was fairly high between the pretest and the RR treatment passages (60.2%) and also between the posttest and the RR treatment passages (55.68%). This may have given an advantage to the RR experimental group because students could capitalize on this word commonality, which would be reflected in higher posttest scores in reading rate and comprehension.

Procedure

The present study was conducted for 10 weeks from the beginning of May to the middle of July in 1996. Thirty to 40 minutes of each regularly scheduled English class were spent on reading. The 18 participants were matched according to their scores on a TOEFL™ test that was administered prior to the study. Based on their Reading Section scores and total scores on the TOEFL™ test, half of the participants (n = 9) were assigned to the experimental group, who received the RR treatment, and the other half to the control group (n = 9), who did not receive the RR treatment.

To determine that students in the experimental group were not statistically different from students in the control group at the outset of the study, descriptive statistics for the students' scores on the reading section of the TOEFL™, total scores on the TOEFL™, word per minute (WPM) scores for seven silent readings of the pretest passage, and comprehension (Comp)

scores for three trials on the pretest comprehension questions (after having read the passage one, three, and seven times) were calculated (see Table 3).

Table 3: *Descriptive Statistics for Pretest Experimental and Control Group Comparisons*

Experimental (Repeated Reading) Group

Measure	M	SD	Min/Max	Skewness	Kurtosis
TOEFL™ reading	42.11	2.76	38/48	-.21	-.85
TOEFL™ total	421.89	22.17	387/453	.04	-1.10
WPM 1	113.25	19.85	75.43/148.73	-.11	.35
WPM 2	106.49	27.02	74.53/155.29	.61	-.62
WPM 3	106.16	27.17	78.81/153.04	.64	-1.09
WPM 4	125.71	68.91	62.49/293.33	1.73	2.09
WPM 5	142.87	47.55	89.49/245.58	1.05	.43
WPM 6	151.25	49.07	86.56/257.56	.91	.68
WPM 7	158.96	60.62	91.03/270.77	.90	-.45
Comp 1	7.44	3.05	2/12	-.42	-.54
Comp 2	11.44	3.09	7/16	.02	-1.19
Comp 3	13.44	2.55	10/18	.43	-.81

Control (Non-Repeated Reading) Group

Measure	M	SD	Min/Max	Skewness	Kurtosis
TOEFL™ reading	42.22	3.96	36/48	-.16	-1.11
TOEFL™ total	422.67	28.44	367/460	-.41	-.08
WPM 1	115.70	25.64	89.49/173.11	1.41	.85
WPM 2	96.37	15.13	78.22/121.38	.51	-.92
WPM 3	120.34	38.39	84.48/211.20	1.58	1.59
WPM 4	110.26	17.05	93.45/142.70	.77	-.71
WPM 5	112.96	10.26	95.14/124.24	-.63	-1.05
WPM 6	125.57	25.59	102.52/185.26	1.49	1.38
WPM 7	136.63	27.52	101.54/188.57	.76	-.45
Comp 1	5.67	4.12	1/12	.63	-1.05
Comp 2	9.11	4.65	1/17	-.03	-.38
Comp 3	13.11	2.37	8/16	-.98	.49

Note: *SD* was calculated using the $N - 1$ formula.

Because the *N* sizes for the experimental ($n = 9$) and control ($n = 9$) groups were small, and because many of the distributions in Table 3 above were not normal, 12 comparisons using the Mann Whitney U test, a nonparametric procedure, were conducted. The *p* value was set at .0042 (.05 divided by 12 for 12 comparisons). There were no significant differences between the experimental group and control group on any of the 12 measures.

The experimental (RR) treatment. The implementation of RR was based on Taguchi (1997). For each reading session in the present study, the nine participants in the experimental group were required to follow the procedure below for the 28 sessions of the RR treatment:

1. Students read the previous passage to remember what they had read in the last session. This step was skipped only when they started a new textbook.

2. Students timed their first reading of a passage with a stopwatch.

3. Students read the passage three times while listening to the exact taped version with headphones.

4. Students read the passage silently three more times and timed each of their readings with a stopwatch.

Thus, in every session, students read each passage seven times. During the session, they were encouraged to read quickly, but were told to try to understand the passage at the same time. A record sheet was provided for the students to record their reading time and check off the number of repetitions they did while reading along with the audiotape. By doing this, they avoided making mistakes with the RR procedure. Makeup sessions where given to students who missed RR sessions. Special care was taken so that the number of RR sessions did not exceed three per week.

The control treatment. The nine students in the control group read Power Builder cards from the SRA *Reading Laboratory 2c* (Parker, 1989) during the RR sessions. The Power Builder cards provided the students with a wide range of reading selections at different levels of difficulty so that they could read what they choose and progress from one level to another at their own pace.

Measures for the Pretest and Posttest

The participants' silent reading rates and comprehension were measured on both the pretest and posttest. Their reading rate was calculated for each of the seven readings of the test passages. The students completed reading comprehension tests for each of their three readings: at the first, third, and seventh readings (see Table 4 for a summary of the research design).

Table 4: *Research Design Summary for Pretest and Posttest Administrations*

Measure	Description of Task
Pretest: Ekwall/Shanker Reading Inventory (4A)	The students read the pretest passage seven times. They recorded their reading time for each of the seven readings. Then they answered 10 comprehension questions after they read the passage the first time, the third time, and the seventh time.
Regular repeated reading session (Experimental Treatment)	Each new passage was read silently seven times for a total of 28 treatment sessions. For each session, students first read the passage from the previous session. Students then silently read the new passage for the first time and recorded their reading time. For the second, third, and fourth readings, students read the passage while listening to the audiotaped version. For the fifth, sixth, and seventh readings, students read the passage silently, and recorded their reading times.
Posttest: Ekwall/Shanker Reading Inventory (4C)	The students read the posttest passage seven times. They recorded their reading time for each of the seven readings. Then they answered ten comprehension questions after they read the passage the first time, the third time, and the seventh time.

Results

WPM in the Pretest and Posttest

Table 5 shows the descriptive statistics for words per minute (WPM) on the first readings of the pretest and posttest passages for the experimental and control groups:

Table 5: *Word per Minute Rates of Students' First Readings of Pretest and Posttest Passages*

Experimental (Repeated Reading) Group

Measure	M	SD	Min/Max	Skewness	Kurtosis
WPM Pretest	113.25	19.85	75.43/148.73	-.11	.35
WPM Posttest	153.50	37.88	99.82/203.33	-.19	-1.34

Control (Non-Repeated Reading) Group

Measure	M	SD	Min/Max	Skewness	Kurtosis
WPM Pretest	115.70	25.64	89.49/173.11	1.41	.85
WPM Posttest	126.19	31.94	91.50/183.00	.69	-.75

Note: *SD* was calculated using the $N - 1$ formula.

For the experimental group, their mean WPM reading score increased from 113.25 for the pretest to 153.50 for the posttest. The WPM reading rate of the control group increased, but to a lesser degree: 115.70 for the pretest to 126.19 for the posttest. To see if the difference between the pretest and posttest scores for the two groups was statistically significant, two paired *t*-tests were calculated with the level of significance set at $p < .025$ (.05 divided by 2 for two comparisons). For the experimental group, the difference between the pretest and posttest WPM reading scores was significant: $t(8) = -3.158$, $p = .0134$. The difference between the control group pretest and posttest WPM reading scores was not significant: $t(8) = -2.501$, $p = .0369$. In addition, to determine whether there were significant differences between the experimental and control groups in the WPM reading scores on the pretest and posttest, two paired *t*-tests were calculated with the *p* value set at .025 (.05 divided by 2 for two comparisons). The differences between the two groups were not significant either on the pretest, $t(8) = .244$, $p = .814$, nor on the posttest, $t(8) = -1.875$, $p = .098$.

Comprehension Scores on the Pretest and Posttest

Table 6 shows descriptive statistics for the comprehension scores on the first, third, and seventh readings of the pretest and posttest passages for both participant groups.

Table 6: *Comprehension Scores for the Pretest and Posttest Passages*

Pretest

Experimental Group	M	SD	Min/Max	Skew	Kurtosis	K
First reading	7.44	3.05	1/12	.10	-1.21	18
Third reading	11.44	3.09	7/16	.02	-.54	18
Seventh reading	13.44	2.55	10/18	.43	-.81	18

Control Group	M	SD	Min/Max	Skew	Kurtosis	K
First reading	5.67	4.12	1/12	.63	-1.05	18
Third reading	9.11	4.65	1/17	-.03	-.38	18
Seventh reading	13.11	2.37	8/16	-.98	.49	18

Posttest

Experimental Group	M	SD	Min/Max	Skew	Kurtosis	K
First reading	9.33	2.35	5/13	-.18	-.25	18
Third reading	13.67	2.65	9/17	-.18	-.80	18
Seventh reading	15.00	1.87	12/17	-.73	-.75	18

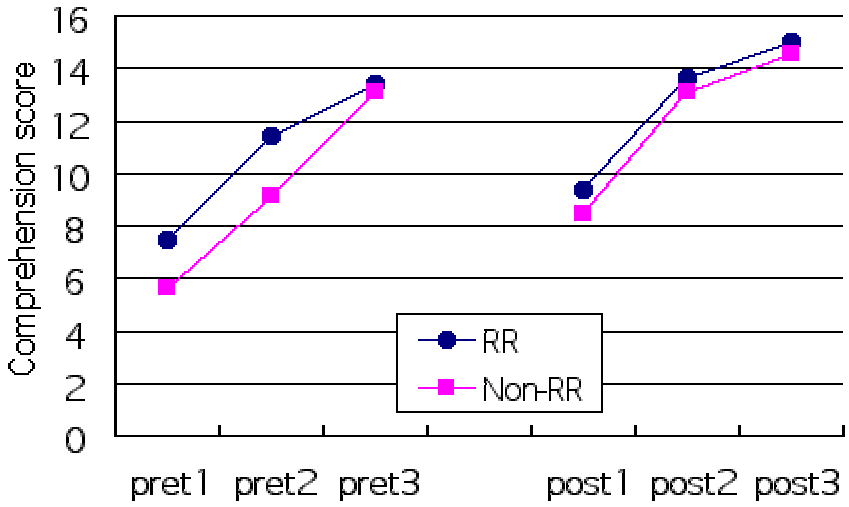
Control Group	M	SD	Min/Max	Skew	Kurtosis	K
First reading	8.44	2.07	5/12	.26	-.33	18
Third reading	13.11	1.27	11/15	-.21	-.97	18
Seventh reading	14.56	1.01	13/16	.22	-1.00	18

Note: *N* - 1 formula used to calculate standard deviation; *K* = total possible points on the measure.

In the pretest, comprehension scores for both experimental and control groups increased from the first to the seventh readings. The same was also true for the posttest comprehension scores for both groups. In addition, the first reading comprehension scores for both groups were somewhat

higher on the posttest than on the pretest. Finally, while there were increases for both groups from the first to third readings in both the pretest and posttest, the increases for the experimental and control groups were very similar; the experimental group's scores were only slightly higher than the control group's (see Figure 1).

Figure 1. *Mean comprehension scores for pretest and post*



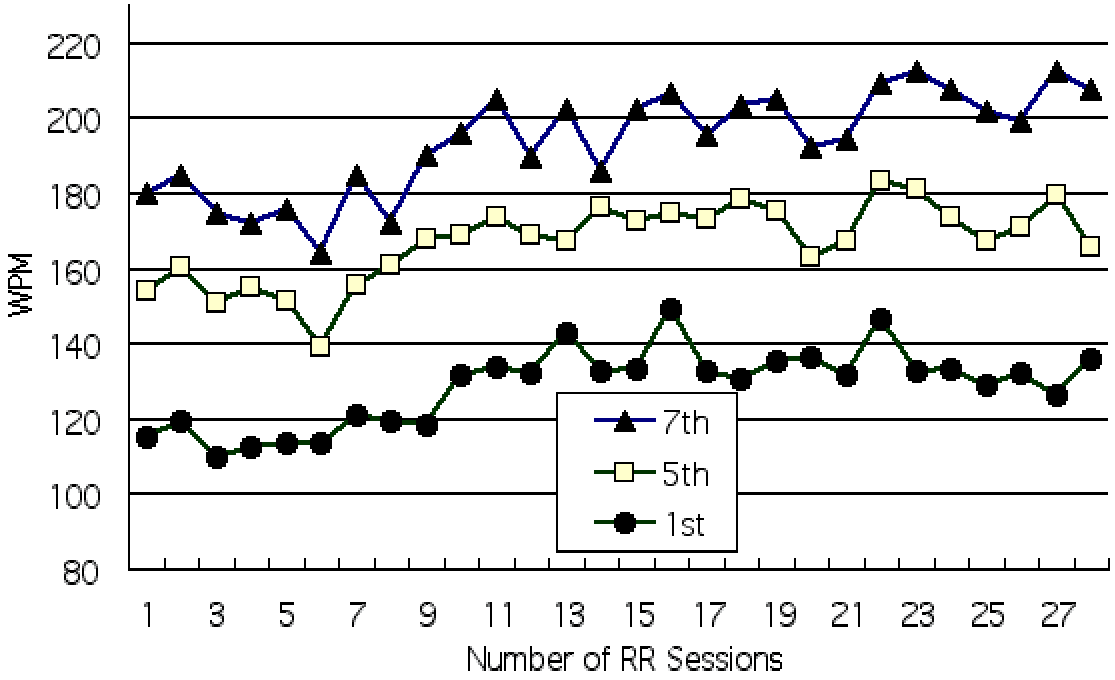
Six repeated measures *t*-tests were calculated to test for significant increases in either group's comprehension scores on the pretest or posttest with *p* set at .0042 (.05 divided by 12 for 12 comparisons). That is to say, the first and third, the third and seventh, and the first and seventh reading comprehension scores were compared for the experimental group for both the pretest and posttest. The same was then done for the control group.

For the pretest with the experimental group, there were significant increases in comprehension scores from the first to the third readings, $t(8) = -5.506$, $p = .0006$. and from the first to seventh readings, $t(8) = 5.427$, $p = .0006$. For the pretest with the control group, there was a significant increase in comprehension scores from the first to the seventh readings: $t(8) = 5.910$, $p = .0004$. For the posttest with the experimental group, there was a significant increase in comprehension scores from the first to the third readings, $t(8) = -8.667$, $p = .0001$, and from the first to seventh readings, $t(8) = 6.757$, $p = .0001$. For the posttest with the control group, there were significant increases in comprehension scores from the first to the third readings, $t(8) = -4.874$, $p = .0012$, and from the first to seventh readings, $t(8) = 6.757$, $p = .0001$.

To determine whether there were significant differences between the experimental and control groups' scores on the first and seventh readings of both the pretest and posttest, four *t*-tests were conducted with the *p* value set at .0125 (.05 divided by 4 for four comparisons). The first and seventh reading scores of the experimental group were compared to the first and seventh reading scores, respectively, of the control group for the pretest; the same was done for the posttest. There were no significant differences between the experimental and control groups on any of the four comparisons.

As far as comprehension scores are concerned, the RR method did not differentiate the reading performance of the experimental group from that of the control group. The reading comprehension scores for both groups improved equally as the number of re-readings increased from one to three, and from three to seven (see Table 6 and Figure 1). Nevertheless, it is interesting to note how much FL readers, regardless of classroom instructional treatments, can improve their reading comprehension when they read repeatedly. The results of the follow-up tests for the trial main effect show that the differences in mean comprehension scores were significant among three trials for the pretest as well as among those for the posttest. On both the pretest and posttest, the experimental group's comprehension scores increased significantly from the first to the third readings. The control group, on the other hand, failed to achieve significance on the pretest.

Figure 2. *Average WPM for the First, Fifth, and Seventh Readings*



Transfer of Reading Gains from RR within the Experimental Group

In order to evaluate the transfer of increases in reading rate from RR within the experimental group, a paired-samples *t*-test was conducted on the WPM data from the first reading of the 1st RR session passage and that from the first reading of the 28th RR session passage. These two passages were approximately the same level of readability. The average readability score of the Flesch-Kincaid, Fog, and Fry formulas was 4.30 (*SD* = 1.42) for the 1st session passage (from *The Missing Madonna*) and 4.47 (*SD* = 1.63) for the 28th session passage (from *Away Match*). The experimental group's mean WPM increased from 114.98 (*SD* = 24.99) in the 1st session to 135.63 (*SD* = 42.89) in the 28th session. The difference between these two means was not

significant: $t(8) = -1.868$, $p = .099$. These findings are congruent to those reported in Taguchi's 1997 study which failed to find significant transfer of gains in WPM from the first silent reading of the 1st session passage to the first silent reading of the 28th session passage. However, if all the means of the WPM for the 1st, 3rd, and 7th readings are plotted on a graph, a different picture appears (see Figure 2 and Table 7). As the graph shows, the participants in the experimental group showed generally consistent growth in their silent reading rate. At the 25th session of the RR treatment, the participants finished the first book, *Missing Madonna*, and began reading the second book, *Away Match.* At the time of this session there were declines in the participants' WPM.

Table 7: *Average Silent Reading Rates of the Experimental Group from the 1st to 28th Session.*

Session No.	1st reading (WPM)	5th reading (WPM)	7th reading (WPM)
1	114.98	153.86	180.06
2	119.26	160.32	184.83
3	109.74	150.74	174.45
4	112.32	155.02	171.85
5	113.42	151.44	175.68
6	113.33	139.29	163.89
7	120.98	155.72	184.73
8	119.22	160.94	171.90
9	118.11	167.65	190.01
10	131.85	168.73	195.84
11	133.82	173.57	205.11
12	132.31	169.04	189.77
13	142.51	167.34	202.27
14	132.64	176.21	185.72
15	133.25	172.72	202.48
16	149.11	174.59	206.65
17	132.43	172.83	195.42
18	130.41	178.62	203.17
19	135.40	175.14	205.16
20	136.27	163.09	192.24
21	131.59	167.33	194.15
22	146.36	183.02	209.13
23	132.84	181.30	212.23

24	133.04	173.73	207.69
25	128.74	167.50	202.05
26	132.31	170.95	199.39
27	126.05	179.73	212.69
28	135.63	165.82	207.71

Discussion

The results of this study are inconclusive. The silent reading rate of the experimental group improved significantly from the initial reading of the pretest passage to that of the posttest passage. Moreover, as Figure 2 shows, the pattern of progress in the experimental group's reading speed is evident. These findings may provide support for the claim that the subjects in the experimental group were successful in enhancing their word recognition skills. However, within the RR treatment passages, the experimental group's silent reading rate did not significantly improve from the initial reading of the 1st session passage to the 28th session passage. Moreover, the RR group's first reading rates of the posttest passage were not significantly faster than those of the non-RR group. So, it is not clear whether the subjects in the experimental group successfully improved their word recognition skills as a result of the RR treatment. If they had improved their word recognition skills, then they should have been able to read the 28th session passage much faster than the first session passage (before the RR treatment). Also, they should have been able to perform significantly better than the control group in first time reading rate of the posttest passage.

With regard to reading comprehension, the reading performances by the experimental group were not significantly different from those by the control group; transfer effects from repeated reading were not apparent. There were no significant differences between the groups on either the pretest or posttest. This study failed to find transfer effects from repeated reading practice to a new unpracticed passage in terms of reading comprehension. There are some factors that may explain the partial transfer of reading rate and the lack of transfer in reading comprehension. Gains in reading speed on the posttest may have been due to sampling of the text by participants in both groups. Since both groups read the pretest and posttest passages as many as seven times, it is possible that part of their reading involved text sampling, especially as the number of text reading repetitions began to accumulate. In other words, the participants may not have practiced their word recognition skills to a full extent while re-reading the text. This may account for the partial transfer in reading speed. The optimal number of re-readings in the RR treatment should be investigated in future research so that readers can maximize their practice in word recognition skills. As for the lack of transfer in reading comprehension, it is possible that the gains the experimental group participants achieved in their silent reading rate were inadequate to elicit substantial gains in their reading comprehension.

Smith (1988, p. 79) states that 200 WPM is the minimal reading rate for monolingual readers of English to sustain comprehension. For ESL/ESL readers, Dubin and Bycina (1991, p. 198) suggest that a rate of 200 WPM is an absolute minimum for readers to read with full comprehension (see Jensen, 1986, p. 106; Nuttall, 1996, p. 56, for comments stating that 300 WPM is the optimal reading rate). In the present study, the rate of 153 WPM that the

experimental (RR) group achieved in the first reading of the posttest was considerably lower. Thus the readers were not entirely able to free themselves from word recognition tasks. This slow reading rate may have inhibited the RR group from processing the text efficiently and thus from performing better in reading comprehension.

Another factor may be the lack of the participants' readiness to use appropriate higher order comprehension skills that could facilitate better comprehension. Automaticity Theory (LaBerge & Samuels, 1974; Samuels, 1994) suggests that slow decoders have difficulty in comprehending texts because most of their cognitive resources are spent on word recognition. However, as learners' word recognition skills gradually improve, they are able to direct more of their cognitive resources to understanding the text. At the same time, the theory seems to imply that good word recognition skills alone are not sufficient to facilitate comprehension; the reading comprehension process is a complex process in which lower order word recognition skills and higher order comprehension skills are coordinated for the efficient processing of text. Readers who do not have higher order comprehension resources may not be ready to utilize the cognitive resources freed from word recognition tasks through RR, and thus their comprehension may remain unimproved even though their word recognition skills develop.

A third factor may be increased knowledge from repetitive reading of a text. The present study failed to show whether the gains in silent reading rate and reading comprehension within both the pretest and posttest were due to improved word recognition skills. When readers read a text seven times, they should have a fairly clear idea of what it is about. So, the improved comprehension by both groups may not be surprising if the gains were due to knowledge accumulation from repetitive text readings.

Fourth, in an analysis done with 18 students similar to the original study participants, it was found that the pretest comprehension questions may have been slightly easier than the posttest questions. Thus, the two tests were not equivalent in difficulty. The 18 students in the later pre- and posttest comparisons scored a mean of 3.94 (*SD* = 2.65) on the pretest comprehension questions, and a mean of 7.78 (*SD* = 3.96) on the posttest questions (difference in means = 3.83; i.e., students were, on average, likely to get two questions or more correct on the posttest questions). If the original participants experienced the same (the two tests as non-equivalent), the findings for reading comprehension increases may be held in doubt.

However, we note that within the pretest and posttest for both the experimental and control groups, participants' comprehension scores increased with repeated reading. Both groups showed steady incremental growth in their mean comprehension scores (see Figure 1). These data seem to suggest the difficulty L2 readers have in understanding an FL text; that is, L2 readers may need multiple readings for deeper processing of a text.

The Limitations of this Study

This is a preliminary study aimed at exploring the transfer effects of repeated readings on unpracticed passages. There are several limitations that should be considered in future studies on repeated reading. One limitation is the fact that the pretest and posttest passages may have been too difficult for the participants in this study, and consequently were not sensitive enough to reveal gains from RR. There was a discrepancy in the readability estimates between the pretest

and posttest passages and the RR treatment passage. According to the average readability estimates of the Flesch-Kincaid, Fog, and Fry formulae indicated the passages in these texts were more suited to 6th to 9th graders. The mean readability estimates for *The Missing Madonna* and *Away Match* (the treatment passages) were lower, suggesting that the texts were easier (see Table 1). Second, for the reading comprehension questions, the mean score of all the participants in this study on the pretest was 6.56 (*SD* = 3.63) out of 18, while that on the posttest was 8.89 (*SD* = 2.19) out of 18 after they read the test passages once. The participants' scores were only about 35 percent of total possible scores on the pretest and 50 percent on the posttest. It was after participants' first reading of the test passages that their comprehension was measured for any transfer effects. Therefore, it is possible that the test passages themselves were rather difficult and inappropriate for measuring the transfer effects.

In addition, the test passages did not share much similarity with the RR treatment passages in terms of content. Theoretically, vocabulary overlap is considered a critical factor in the success of the RR treatment. The focus of many RR studies has been the word recognition process, and the role played by other postlexical factors such as use of schemata and syntactic difficulty has been neglected. However, these factors seem to play a vital role in the RR treatment. It has been reported in several L1 repeated reading studies (e.g., Dahl, 1974; Fleisher et al., 1979) that the RR method is successful only when context is used by readers to comprehend. In other words, it is re-reading passages, not isolated words, which leads to successful RR. Therefore, if the passages were controlled in regard to syntactic difficulty and content, as well as vocabulary, results of future studies may be different.

A second limitation of the study is the small number of the subjects (*N* = 18). It may have been difficult to find significant differences with such a small sample.

A third limitation is that the RR treatment, which consisted of 28 sessions and was extended to 10 weeks, may have been too short for the EFL readers in the experimental group to demonstrate significant gains. As Figures 1 and 2 show, it seems that the transfer effects from repeated reading are subtle compared to the rapid growth of gains in reading speed and comprehension that both groups showed when they read the same passages repeatedly. The *p* value approached significance in the statistical analyses of the reading rate means the experimental group achieved in their first and last sessions of repeated reading. This suggests that with more practice, the experimental group could demonstrate significantly greater transfer effects in reading speed. It would be interesting to know whether their pattern of progress in their first silent reading rate would clearly be demonstrated after the 28th session.

The fourth limitation involves the control group. Since the subjects in the control group were able to read texts that were at an appropriate level, they did not constitute a control group in a strict sense. These participants were also provided with an enriched reading experience, while the experimental group engaged in repeated reading. Therefore, it is possible that the results would be significantly different with a control group that does not have an enriched reading environment.

Conclusion

The present study explored transfer effects from repeated reading on unpracticed passages. The results suggested there was a partial transfer in silent reading rates, but that there was a lack of transfer in reading comprehension. These inconclusive findings suggest future routes of research, however. We hope that further research will illuminate whether repeated reading is a worthwhile method of developing word recognition skills of EFL/ESL readers, and improving their comprehension as well.

References

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print.*. Cambridge, MA: MIT Press.

Alderson, J. C., & Urquhart, A. H. (1984). *Reading in a foreign language*. Essex, UK: Longman.

Anderson, N. J. (1994). Developing active readers: A pedagogical framework for the second language reading class. *System, 22,* 177-194.

Axbey, S. (1991). *Away match.* Oxford: Heinemann.

Carver, R. P., & Hoffman, J. V. (1981). The effect of practice through repeated reading on gain in reading ability using a computer-based instructional system. *Reading Research Quarterly, 16,* 374-390.

Chomsky, C. (1976). After decoding: What? *Language Arts, 53,* 288-296.

Coady, J. (1979). A psycholinguistic model of ESL reader. In R. Mackay, B. Barkman, & R. Jordan (Eds.), *Reading in a second language: Hypotheses, organization and practice* (pp. 5-12). Rowley, MA: Newbury House.

Dahl, P. J. (1974). *An experimental program for teaching high speed word recognition and comprehension skills.* Washington, DC: National Institute of Education, Office of Research. (ERIC Document Reproduction Service No. ED 099812)

Day, R.R., & Bamford, J. (1998). *Extensive reading in the second language classroom*. Cambridge: Cambridge University Press.

Dowhower, S. L. (1989). Repeated reading: Research into practice. *The Reading Teacher, 42,* 502-507.

Dowhower, S. L. (1994). Repeated reading revisited: Research into practice. *Reading & Writing Quarterly: Overcoming Learning Difficulties, 10,* 343-358.

Dubin, F., & Bycina, D. (1991). Academic reading and the ESL/EFL teacher. In M. Celce-Murcia (Ed.), *Teaching English as a second or foreign language* (2nd ed.; pp. 195-215). New York: Newbury House.

Faulkner, H. J., & Levy, B. A. (1994). How text difficulty and reader skill interact to produce differential reliance on word and content overlap in reading transfer. *Journal of Experimental Child Psychology, 50,* 1-24.

Fleisher, L. S., Jenkins, J. R., & Pany, D. (1979). Effects on poor readers comprehension of training in rapid decoding. *Reading Research Quarterly, 15,* 30-48.

Gebhard, J. G. (1996). *Teaching English as a foreign or second language.* Ann Arbor: University of Michigan Press.

Grabe, W. (1991). Current developments in second language reading research. *TESOL Quarterly, 25,* 375-406.

Herman, P. A. (1985). The effect of repeated readings on reading rate, speech pauses, and word recognition accuracy. *Reading Research Quarterly, 20,* 553-564.

Jensen, L. (1986). Advanced reading skills in a comprehensive course. In F. Dubin, D. e. Eskey, & W. Grabe (Eds.), *Teaching second language reading for academic purposes* (pp. 103-124). Reading, MA: Addison-Wesley.

Just, M. A., & Carpenter, P. A. (1980). A theory of reading: From eye fixations to comprehension. *Psychological Review, 87,* 329-354.

Just, M. A., & Carpenter, P. A. (1987). *The psychology of reading and language comprehension*. Newton, MA: Allyn and Bacon.

LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology, 6,* 293-323.

McConkie, G. W., & Rayner, K. (1976). Asymmetry of the perceptual span in reading. *Bulletin of the Psychonomic Society, 8,* 365-368.

McConkie, G. W., Zola, D., Blanchard, H. E., & Wolverton, G. S. (1982). Perceiving words during reading: Lack of facilitation from prior peripheral exposure. *Perception & Psychophysics, 32,* 271-281.

McLean, A. C. (1991). *The missing madonna.* Oxford: Heinemann.

Mikulecky, B. S. (1990). *A short course in teaching reading skills.* New York: Addison-Wesley.

Morgan, R., & Lyon, E. (1979). Paired reading: A preliminary report on a technique for parental tuition on reading retarded children. *Journal of Child Psychology and Psychiatry, 20,* 151-160.

Nuttall, C. (1996). *Teaching reading skills in a foreign language* (2nd ed.) Oxford: Heinemann.

O'Shea, L. J., Sindelar, P. T., & O'Shea, D. J. (1985). The effects of repeated readings and attentional cues on reading fluency and comprehension. *Journal of Reading Behavior, 17,* 129-142.

Parker, D. H. (1989). *SRA reading laboratory 2c* (1989 ed.). Chicago: Science Research Associates.

Rashotte, C. A., & Torgesen, J. K. (1985) Repeated reading and reading fluency in learning disabled children. *Reading Research Quarterly, 20,* 180-188.

Rayner, K. (1975). The perceptual span and peripheral cues in reading. *Cognitive Psychology, 7,* 65-81.

Rayner, K., & Bertera, J. H. (1979, October). Reading without a fovea. *Science, 206,* 468-469.

Samuels, S. J. (1979). The method of repeated readings. *The Reading Teacher, 32,* 403-408.

Samuels, S. J. (1994). Toward a theory of automatic information processing in reading, revisited. In R. B. Ruddell, M. R. Ruddell, & H. Singer (Eds.), *Theoretical models and processes of reading* (4th ed) Newark, DE: International Reading Association.

Shanker, J. L., Ekwall, H. E., & Ekwall, E. E. (1993). *Ekwall/Shanker reading inventory* (3rd ed.). Boston: Allyn and Bacon.

Silberstein, S. (1994). *Techniques and resources in teaching reading.* New York: Oxford University Press.

Smith, F. (1988). *Understanding reading* (4th ed.) Mahwah, NJ: Lawrence Earlbaum Associate.

Taguchi, E. (1997). The effects of repeated readings on the development of lower identification skills of FL readers. *Reading in a Foreign Language, 11,* 97-119.

Underwood, N. R., & McConkie, G. W. (1985). Perceptual span for letter distinctions during reading. *Reading Research Quarterly, 20,* 153-162.

Wallace, C. (1992). *Reading.* Oxford: Oxford University Press.

Young, A. R., Bowers, P. G., & MacKinnon, G. E. (1996). Effects of prosodic modeling and repeated reading on poor readers fluency and comprehension. *Applied Psycholinguistics, 17,* 59-84.

Appendix A

Reading from The Missing Madonna (McClean, 1991)

1. An Art Lesson

It was three o'clock on a hot August afternoon. I had my office window open and my feet on the desk. I picked up the sign that said PETER MACARI, Private Investigator and wiped the dust off it. Business was slow, but that was all right today. I'd had a nice lunch at the best Italian restaurant in Edinburgh. I'd drunk a little wine and now I felt sleepy. I liked Edinburgh, capital of Scotland, and usually a dark, grey town. But today it was nice to look at the view from my office window. You could see down the hill to Princes Street Gardens. Crowds of people were sitting

on the grass enjoying the sunshine. Next week, when the Edinburgh Festival started, the crowds would be even bigger. I felt like joining the people sitting on the grass. You don't get a lot of sunshine in Edinburgh. I yawned. The doorbell rang in the outer office. I heard voices, then Helen looked in from the outer office.

'There's a lady to see you, Mac,' she said.

'Tell her I'm busy,' I said. 'And stop calling me Mac.'

'You'll want to see her, Mac. I know you. I'll show her in.'

Reading from Away Match (Axbey, 1991)

1. Man of the match

It was the final: Sporting v Atletico. Maria Santana looked around her. She could see the blue and white colours of the Atletico supporters, but mostly it was a sea of red. Red jackets, red T-shirts and red scarves. She too was wearing a red Club Sporting cap.

'Come on, Sporting,' she shouted.

'Spor-ting, Spor-ting,' Maria's friends joined in.

Maria knew her parents, her brother and all her friends were watching the game on television at home. Everyone in Spain wanted to see the final between these two top basketball clubs.

'I'm sure we're going to win,' thought Maria. 'And if we win, we'll be champions for the first time. We will win. We must.'

Sporting had reached the final last year too, but then they had lost. Now they had another chance. Maria turned to her friend, Angela. 'I know we can do it,' she said. 'We're going to make history.'

Appendix B

Pretest: 4A Ekwall/Shanker Reading Inventory (Shanker, Ekwall, & Ekwall, 1993)

Some people enjoy exploring the many caves in this country. This can be a lot of fun but it can also be dangerous because you might get lost. Many people have been lost in caves because they did not know what to do to find their way out.

One thing that people who explore caves often take with them is a ball of string. The string serves an important purpose in keeping them from getting lost. They tie one end of the string to a stake outside the cave and unroll the string as they walk along. This way, when they want to leave the cave, all they have to do to find their way out is to follow the string.

Some caves may appear small at the opening, but when you get inside there may be many giant rooms or caverns in them. One of the largest known caves in the world is Mammoth Cave in Kentucky. It contains enormous caverns and underground rivers, and may take up as much space as 78 square miles.

Pretest: 4C Ekwall/Shanker Reading Inventory (Shanker, Ekwall, & Ekwall, 1993)

A desert is a place where the weather is dry and often hot. Some people think it is a place where there is nothing but sand. This is true sometimes, but some deserts have many kinds of plants and animals living in them. The kinds of plants and animals living there usually do not require much water. For example, some desert plants can store water in their leaves and exist for long periods of time without rain.

Some animals that live in the desert get all of the water they need by eating the leaves of plants that have water in them. People who have been lost in the desert have died because they had no water to drink. Some of these people would not have died if they had known how to survive. People who know how to survive in such a dry place often know how to obtain water from cactus plants.

A person may enjoy living in the desert because he thinks it is a beautiful place, but another person may think the same place is not pretty at all.

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