



저작자표시-비영리-변경금지 2.0 대한민국

이용자는 아래의 조건을 따르는 경우에 한하여 자유롭게

- 이 저작물을 복제, 배포, 전송, 전시, 공연 및 방송할 수 있습니다.

다음과 같은 조건을 따라야 합니다:



저작자표시. 귀하는 원저작자를 표시하여야 합니다.



비영리. 귀하는 이 저작물을 영리 목적으로 이용할 수 없습니다.



변경금지. 귀하는 이 저작물을 개작, 변형 또는 가공할 수 없습니다.

- 귀하는, 이 저작물의 재이용이나 배포의 경우, 이 저작물에 적용된 이용허락조건을 명확하게 나타내어야 합니다.
- 저작권자로부터 별도의 허가를 받으면 이러한 조건들은 적용되지 않습니다.

저작권법에 따른 이용자의 권리는 위의 내용에 의하여 영향을 받지 않습니다.

이것은 [이용허락규약\(Legal Code\)](#)을 이해하기 쉽게 요약한 것입니다.

[Disclaimer](#)

교육학석사학위논문

Effects of Repeated Reading and Theme-
Based Narrow Reading on Korean EFL
Middle School Learners' Vocabulary
Learning and Reading Comprehension

반복읽기와 주제관련 좁혀읽기가 한국 중학교
학생들의 어휘학습과 독해에 미치는 효과

2015년 8월

서울대학교 대학원

외국어교육과 영어전공

Effects of Repeated Reading and Theme-
Based Narrow Reading on Korean EFL
Middle School Learners' Vocabulary
Learning and Reading Comprehension

by
Soo-yeon Kim

A Thesis Submitted to
the Department of Foreign Language Education
in Partial Fulfillment of the Requirements
for the Degree of Master of Arts in Education

At the
Graduate School of Seoul National University

August 2015

Effects of Repeated Reading and Theme-
Based Narrow Reading on Korean EFL
Middle School Learners' Vocabulary
Learning and Reading Comprehension

반복읽기와 주제관련 좁혀읽기가 한국 중학교
학생들의 어휘학습과 독해에 미치는 효과

지도교수 이 병 민

이 논문을 교육학 석사 학위논문으로 제출함

2015년 6월

서울대학교 대학원
외국어교육과 영어전공
김 수 연

김수연의 석사학위논문을 인준함

2015년 8월

위 원 장 _____

부위원장 _____

위 원 _____

Effects of Repeated Reading and Theme-
Based Narrow Reading on Korean EFL
Middle School Learners' Vocabulary
Learning and Reading Comprehension

APPROVED BY THESIS COMMITTEE:

JIN-WAN KIM, COMMITTEE CHAIR

YOUNGSOON SO

BYUNGMIN LEE

ABSTRACT

L2 reading has been considered crucial in English as a Foreign Language (EFL) settings as a means to provide learners with plenty of language input. However, to assure successful L2 reading input, sufficient reading comprehension accompanied by well-developed vocabulary knowledge should be prerequisite (Grabe, 2009). Thus, to guide learners to become better L2 readers, researchers have come up with a number of reading treatments that facilitate learners' vocabulary learning and reading comprehension. Considering the growing importance of L2 reading, the present study examined the effects of repeated reading (RR) and theme-based narrow reading (TBNR) on Korean EFL learners' vocabulary learning and reading comprehension, using varying levels of texts. It also investigated how EFL learners perceive their engagements with repeated reading and theme-based narrow reading.

To answer the study's questions, 99 Korean EFL middle school students were divided into two groups; one group received the RR treatment and the other group received the TBNR treatment. The RR group read the same text repeatedly while receiving the exact same input. On the other hand, the TBNR group read thematically related texts while receiving input repeated, but at the same time contextually different. In total, 15 individual reading sessions were implemented over 15 weeks, one of which had its own distinctive reading texts and pre/post-test vocabulary and reading comprehension sets. Three levels of texts were used for

this study: texts within learners' reading ability (low-level), texts slightly beyond learners' reading ability (mid-level), texts far beyond learners' reading ability (high-level). The data were analyzed by using repeated measures MANOVA followed by univariate mixed ANOVAs with post hoc analyses.

The results of the current study have shown that TBNR was significantly more effective than RR in enhancing learners' vocabulary knowledge as well as reading comprehension across all three levels of text. As for the relationship between reading treatment and text difficulty, the effects of RR and TBNR were correlated with text difficulty. Accordingly, the current study provides some evidence on which level of texts should be chosen for learners' reading ability in relation to reading treatments. As for the learners' perception of the reading treatment, the TBNR group generally had more favorable attitudes toward the reading treatment they received than the RR group.

In regard to the findings of the current study, some pedagogical implication can be drawn for L2 teachers and learners. The present study suggests using RR and TBNR to make L2 reading input more comprehensible, not only with texts within learners' reading ability, but also with text beyond learners' reading ability. However, with its proved effectiveness, TBNR can be more highly recommended than RR for vocabulary learning and reading comprehension, especially when the text level is within learners' reading ability. Lastly, given the need of providing learners with thematically related texts, the present study gives some suggestions for developing reading materials for TBNR.

Key Words: repeated reading, narrow reading, theme-based narrow reading,
reading treatment, text difficulty, vocabulary learning, reading
comprehension, L2 reading input

Student Number: 2004-22039

TABLE OF CONTENTS

ABSTRACT	i
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
CHAPTER 1. INTRODUCTION	1
1.1. Purpose and Significance of the Study.....	1
1.2. Rationale of the Study	5
1.3. Research Questions	10
1.4. Organization of the Thesis	10
CHAPTER 2. LITERATURE REVIEW	11
2.1. Theoretical Background of Repeated Reading and Narrow Reading	11
2.2. Effects of Repeated Reading in an L2 Context	14
2.3. Effects of Narrow Reading in an L2 Context.....	23
2.4. Text Difficulty for Repeated Reading and Narrow Reading.....	27
CHAPTER 3. METHODOLOGY	30
3.1. Participants	30
3.2. Materials.....	33
3.3. Procedure.....	40

3.4. Test Instruments	42
3.5. Scoring	45
3.6. Data Analysis.....	47
CHAPTER 4. RESULTS AND DISCUSSION	49
4.1. Results	49
4.1.1. Effects of RR and TBNR on Vocabulary Learning and Reading Comprehension of Texts with Varying Levels of Text Difficulty.....	69
4.1.2. Learners' Perceptions of RR and TBNR	64
4.2. Discussion	69
4.2.1. Effects of RR and TBNR on Vocabulary Learning and Reading Comprehension across the Three Levels of Texts	69
4.2.2. Effects of Text Difficulty on Vocabulary and Reading Comprehension Gains for RR and TBNR	75
4.2.3. Learners' Perceptions of RR and TBNR	83
CHAPTER 5. CONCLUSION.....	86
5.1. Summary of Findings and Implication.....	86
5.2. Limitation and Suggestions.....	91
REFERENCES.....	93
APPENDICES	100
ABSTRACT (KOREAN)	132

LIST OF TABLES

Table 3.1. Descriptive Statistics of the Reading Test Scores for the Learners' Reading Ability.....	32
Table 3.2. T-test Comparison for the Results of the Reading Test Scores for the Learners' Reading Ability.....	32
Table 3.3. List of Articles and Readability	38
Table 4.1. Descriptive Statistics of the Vocabulary and Reading Comprehension Score Differences of RR and TBNR across the 15 Sessions	51
Table 4.2. Descriptive Statistics of the Vocabulary and Comprehension Score Differences of RR and TBNR Depending on Text Difficulty	52
Table 4.3. Results of Repeated Measures MANOVA.....	54
Table 4.4. Results of Univariate Mixed ANOVAs for the Vocabulary and Reading Comprehension Gains	56
Table 4.5. Results of Post Hoc Analyses Using Between-Subjects ANOVAs for the Reading Treatment Effects on the Vocabulary and Reading Comprehension Gains across the Three Levels of Text.....	60
Table 4.6. Results of Post Hoc Analyses Using Within-Subjects ANOVAs with a Bonferroni Adjustment for Text Difficulty Effects on the Vocabulary and Reading Comprehension Gains for Each Reading Treatment Group	62
Table 4.7. Descriptive Statistics of the Questionnaire Results.....	66
Table 4.8. T-test Comparison for the Questionnaire Results of RR and TBNR.....	67

LIST OF FIGURES

Figure 3.1. Lesson Procedure	42
Figure 3.2. Example Questions from the Reading Comprehension Test.....	43
Figure 3.3. Modified Vocabulary Knowledge Scale	44
Figure 4.1. Bar Graph of the Descriptive Statistics of the Vocabulary and Comprehension Score Difference of RR and TBNR Depending on Text Difficulty.....	52
Figure 4.2. Vocabulary Gains across Text Difficulty by Reading Treatment	57
Figure 4.3. Reading Comprehension Gains across Text Difficulty by Reading Treatment.	57
Figure 4.4. Items in the Questionnaire	65
Figure 4.5. Different Sentences Delivering the Same Ideas in Different Texts.....	74

CHAPTER 1.

INTRODUCTION

This study examined the effects of repeated reading and theme-based narrow reading on Korean EFL learners' vocabulary learning and reading comprehension, using varying levels of texts. It also investigated how EFL learners perceive their engagements with repeated reading and theme-based narrow reading. The purpose and significance of the study is presented in Section 1.1, followed by the rationale of the study in Section 1.2. The research questions and the organization of the thesis are presented in Section 1.3 and Section 1.4, respectively.

1.1. Purpose and Significance of the Study

L2 reading has been considered crucial in English as a Foreign Language (EFL) settings as a means to provide learners with plenty of language input (Day & Bamford, 1998). While a sufficient amount of spoken input is limited for EFL learners, readily accessible L2 reading input is abundant in various forms. Especially more recently, as L2 reading input is becoming increasingly available by virtue of computers and the Internet, much more emphasis has been put on L2 reading (Grabe, 2009). However, how effectively L2 reading input works on L2

acquisition depends on how well one comprehends text (Krashen, 1985). Krashen (1985) insisted that the more one comprehends text while reading, the more one acquires a language. To assure good reading comprehension, however, various component skills of L2 reading should be operated efficiently (Grabe, 2009). L2 reading is a complicated process which integrates both lower-level processes – rapid and accurate decoding skills and higher-level processes – the construction of meaning of text based on prior knowledge (Eskey, 2005). Successful L2 reading is ensured when these two aspects of reading processes are executed efficiently (Grabe, 2009).

One of the most essential factors of the lower-level processes of L2 reading is word recognition, which requires readers to identify the meaning of the extensive vocabulary while reading (Perfetti, 2007). Successful L2 reading cannot be accomplished without fast and accurate word recognition, since how effortlessly readers identify words determines the amount of attention resources readers can allocate to the higher-level of reading processes which affect reading comprehension (Lagerge & Samuels, 1974). Accordingly, efficient word reading has been considered as the basis of successful L2 reading (Perfetti & Hogaboam, 1975).

While it is true that word recognition is the foundation of L2 reading (Gough, 1984), the ultimate purpose that is accompanied by successful word reading is reading comprehension (Eskey, 2005). According to Grabe (2009), in order to

comprehend texts successfully, the higher-level reading process, which processes the new information in relation to the knowledge readers already have, should be conducted efficiently. The way readers construct the meaning of the text is determined depending on how readers link the text with their prior knowledge. Thus, what information readers receive and how it is combined with what they already know is crucial for successful reading comprehension (Kintsch, 1998).

In conclusion, well-developed vocabulary knowledge that enables fast and accurate word recognition and good reading comprehension, which results from efficient meaning construction of text, determine the success of L2 reading (Eskey, 2005).

Yet, it is common that many L2 readers read texts slowly and laboriously with insufficient comprehension (Anderson, 1999). L2 readers not only frequently encounter difficult or unfamiliar words while reading but also often fail to derive meaning from text, which then impedes their L2 reading process. Korean EFL middle school learners are no exception for the L2 reading problem characterized as poor reading comprehension with slow word reading. As most Korean EFL middle school learners read L2 texts with an aim to improve their performance on English tests, they tend to read L2 text laboriously, while translating individual sentences into Korean one by one, focusing on analyzing sentence structure. Accordingly, the process of L2 reading is often painstaking. Furthermore, even though improving L2 reading ability is one of the primary

objectives for Korean middle school English lessons, the class-time assigned to achieve this aim is often not sufficient. Therefore, to assure abundant L2 reading input for Korean EFL learners, it is necessary to have them read authentic and meaningful L2 texts independently outside of classes. However, for most Korean middle school learners, reading authentic L2 reading texts seems to be a huge challenge. Many of them have difficulties in reading the entire text thoroughly, failing to overcome the reading barriers like unfamiliar vocabulary and incomprehensible sentences. Thus, to guide learners to become better readers, instructors should provide effective reading treatments that enhance learners' L2 reading ability. Knowing a better way to make reading texts more comprehensible, learners can get L2 input more effectively, which will then lead them to better L2 acquisition.

In regard to the issues Korean middle school learners have with L2 reading, and considering the growing importance of providing EFL learners with comprehensible L2 reading input, the current study aims to investigate the effect of two reading treatments, repeated reading and theme-based narrow reading, on L2 reading.

1.2. Rationale of the Study

In light of developing learners' L2 reading ability, researchers have come up with a number of reading treatments. Among them, repeated reading (RR) has been considered one of the most effective ways to enhance readers reading fluency and comprehension. Suggested by Samuels (1979), repeated reading requires readers to read a short text repeatedly until they acquire desirable reading fluency. As the number of text reading repetitions accumulates, improvement in word recognition and reading speed takes place, which in turn facilitate fluent reading ability. A number of studies have demonstrated beneficial effects of RR on L2 reading (Chang, 2012; Gorsuch & Taguchi, 2010; O'Shea, Sindelar, & O'Shea, 1985; Samuel, 2008; Taguchi, 1997; Taguchi & Gorsuch, 2002; Taguchi, Takayasu-maass & Gorsuch, 2004; Taguchi & Gorsuch, 2008; Taguchi, Gorsuch, Takayasu-Maass, & Snipp, 2012). However, some non-beneficial aspects of RR should be also noted. The most noticeable non-beneficial feature of RR is associated with reading comprehension. Taguchi et al. (2012) revealed that RR alone couldn't make readers comprehend text better beyond a certain level; some of the unfamiliar vocabulary and grammatically ambiguous points in text did not get any clearer with the help of RR, which then hindered reading comprehension. Another shortcoming of RR is its effects on broadening readers' contextual knowledge of the theme they read. Given the fact that RR asks readers to read exactly the same texts multiple times, sometimes

RR may not provide enough information available to figure out the meaning from context. Taguchi et al. (2012) also revealed that the primary feature of RR, reading the same text repeatedly, caused boredom and demotivation in reading. Considering that readers reading interest plays an important role in L2 reading (Grabe, 2009), the tedium resulted from RR can prevent readers from engaging in reading actively.

Along with RR, another reading treatment considered to facilitate L2 reading is narrow reading (NR). NR focuses on decreasing the scope of text variety in reading (Krashen, 2004). In opposition to reading diversely, NR asks readers to read a number of texts written by a single author, in a single genre, or in a single topic (Cho & Krashen, 1995). As related texts share a large number of words and provide abundant relevant contexts, the benefit of NR is to have readers encounter vocabulary repeatedly and develop topic familiarity (Cho & Krashen 1995; Krashen, 2004). Thus, with NR, while getting accustomed to the area they read, readers learn to read more quickly and fluently (Cho & Krashen, 1995). NR can be done in several ways depending on the ways in which the scope of reading texts are confined. One popular way is to read texts that are confined to a single topic (Krashen, 2004).

As one variation of topic-related NR, this study proposes theme-based narrow reading (TBNR), which asks readers to read thematically closely related texts. For TBNR, readers successively read several texts on one specific theme

that is very concrete such as ‘Kim Yuna won an Olympic gold medal;’ and the reading texts are tightly related to the theme. Accordingly, in TBNR, the degree of similarity among texts is very high, enabling readers to get high repetition of vocabulary and context of the theme.

The reason for adopting TBNR for the current study is that on the one hand it shares substantial similarities with RR, but on the other hand has its own traits that are expected to have different effects on L2 reading compared to RR.

RR and TBNR seem to be similar in the ways they benefit L2 readers. Foremost, the distinctive feature that RR and TBNR share is that both expose readers to the same input multiple times with the aim to make the input more comprehensible. According to Samuel (1979), repeated input promotes word recognition. As both RR and TBNR allow repetitive exposure to the same input to a greater or lesser degree, both methods give readers chances to improve their word recognition, which then enables readers to free their limited attention from the text decoding process, and facilitate higher-level reading processes that positively influence reading comprehension. In this regard, both RR and TBNR are considered to lessen the burden of readers’ cognitive load while reading, allowing readers to comprehend text better.

In addition, the positive effect of repeated input of RR and TBNR extends to vocabulary learning. It is well known that L2 readers learn vocabulary while they

are reading without explicit vocabulary learning (Krashen, 1989; Huckin & Coady, 1999). Nagy and Herman's Vocabulary Learning Hypothesis (1985) states that learners acquire the most vocabulary through multiple exposures to the vocabulary, which is often the case in RR and TBNR. Being repeatedly exposed to unknown words through RR and TBNR, readers would gradually develop better knowledge of the words.

Furthermore, studies have shown that repetitive input builds learners' confidence in reading and motivation to read, as it provides a number of practices that help learners improve their reading fluency (Cho & Krashen, 1995; Samuels, 1979). As readers gain more reading fluency with the help of RR and TBNR, they will notice they can comprehend texts better, which in turn will increase confidence and motivation in L2 reading (Cho & Krashen, 1995).

Although RR and TBNR share significant similarities, the degree of the contribution of each method on L2 reading could be different depending on their distinct traits. The most prominent trait of RR is high frequency of repetition, and the significant merit of TBNR is allowing learners to approach the same input in multiple ways. In other words, RR allows the exact same input to be repeated and TBNR provides input that is repeated, but at the same time contextually different. In this respect, research needs to be done in order to investigate which method would benefit L2 reading more. Nevertheless, so far, a comparison of RR and TBNR has not been directly investigated in first language

nor second language research.

Along with the relative effectiveness of RR and TBNR on L2 reading, another inquiry that arises regarding both methods is how they interact with text difficulty. This is particularly important for EFL learners who oftentimes encounter texts that seem to be huge barriers to overcome. To read a text independently, readers need to know at least 95% of the vocabulary in the text (Nagy, Herman & Anderson, 1985). However, not every case can meet this requirement in EFL settings. Learners with limited L2 proficiency often have difficulties in comprehending texts beyond their reading ability. Thus, to ensure efficient L2 input through reading, learners need to have means to facilitate their reading processes depending on the levels of text they read. Thus, it is meaningful to compare the effects of RR and TBNR on L2 reading in relation to text difficulty.

In light of the issues mentioned above, this study examined the effects of repeated reading and theme-based narrow reading on Korean EFL learners' vocabulary learning and reading comprehension, using varying levels of texts. It also investigated how EFL learners perceive their engagements with repeated reading and theme-based narrow reading.

1.3. Research Questions

For the purpose of the present study, the following research questions are considered:

1. How do the effects of RR and TBNR differ in regard to EFL learners' vocabulary learning and reading comprehension of texts with varying levels of difficulty?
2. How do EFL learners perceive their engagement with RR or TBNR?

1.4. Organization of the Thesis

This chapter presents the overall introduction of the study and research questions. Chapter 2 reviews previous studies concerning the research questions. Chapter 3 outlines the subjects, materials, procedure, test instruments, scoring, and data analysis of the study. Chapter 4 contains the results and discussion of the current study. Chapter 5 concludes the present study with a summary of the findings regarding to the research questions, pedagogical implication, limitation of the present study, and suggestions for future studies.

CHAPTER 2.

LITERATURE REVIEW

This chapter surveys the literature with regard to the present study. Section 2.1 introduces theoretical background of repeated reading and narrow reading, and Section 2.2 and Section 2.3 review studies that are related to repeated reading and narrow reading in L2 settings, respectively. Lastly, Section 2.4 reviews studies regarding text difficulty for RR and TBNR.

2.1. Theoretical Background of Repeated Reading and Narrow Reading

Repeated reading, which asks readers to read the same text repeatedly until they reach a desired level of fluency, was initially devised to develop reading fluency in struggling L1 readers (Samuels, 1979). According to Samuels (1979), as readers continue to read texts repeatedly, they show an increase in reading speed and word recognition accuracy, which in turn results in improvement in reading fluency. There are two methods in repeated reading. One is assisted repeated reading method which uses an audio recording to help readers follow along, and the other is unassisted repeated reading which does not involve an audio recording (Samuel, 1979). Repeated reading is based on the theory of

automatic information processing in reading (LaBerge & Samuels, 1974). Automaticity theory insists that the human brain can process only a limited amount of information at a time. Considering the limited capacity of the human brain and the complex nature of reading processes, automaticity theory suggests that the lower-level of reading processes, such as word recognition, should be automatized so that readers can allocate more of their attention to the higher-level of reading processes that affect reading comprehension (LaBerge & Samuels, 1974). As repeated reading helps readers improve reading fluency with automatized word recognition, it frees readers from decoding text laboriously and decreases readers' cognitive load. Consequently, repeated reading enables learners to focus more of their attention towards more complex reading processes and enhances readers' reading comprehension.

Narrow reading (NR) was proposed in opposition to the prevalent idea that a wide variety of topics in reading materials would benefit readers (Krashen, 2004). It is often the case that L2 English courses introduce texts on diverse topics. However, texts that have different topics have different contexts and vocabulary. Having less advanced readers move from topic to topic prevents them from acquiring enough contextual knowledge and vocabulary needed to comprehend a text, which in turn discourages the readers to continue reading (Krashen, 2004). Advocators of narrow reading suggest that reading a number of texts in a single topic area is more efficient to facilitate readers' reading processes, since it

enables readers to get a great deal of topic-related vocabulary and contexts (Cho & Krashen, 1995). Researchers have reported that incidental vocabulary learning takes place while learners encounter unfamiliar words many times in different contexts (Paribakht & Weshe, 1999). Because a great deal of topic-related vocabulary is repeated among texts within a single topic, narrow reading has the advantage of facilitating vocabulary learning (Schmitt & Carter, 2000). While providing readers with repetitive exposure of the same vocabulary, narrow reading lowers learner's burden of vocabulary learning. Moreover, the distinctive advantage narrow reading has on vocabulary learning is that it enables readers to encounter words repetitively in a wide variety of contexts. As readers have chances to see how the same words are used in various ways, readers' understanding of the words is enhanced more efficiently (Shaffer, 2005). Another advantage of narrow reading is it provides readers with diverse texts in a single topic, allowing learners to broaden their background knowledge of the topic and make future reading more understandable (Krashen, 2004). As readers read more, they know more about the topic, and their topic familiarity as well as background knowledge of the topic is enhanced, which will then facilitate the L2 reading process (Cho & Krashen, 1995).

In sum, to be a proficient L2 reader it is necessary that learners have chances to practice reading quickly and accurately (Grabe, 2009). Since repeated reading and narrow reading provide repetitive exposure to related vocabulary and

contexts, both of them are considered to be effective ways to provide such necessary practice to become a proficient reader (Krashen, 2004; Samuels, 1979). With accumulative exposure to the same input, repeated reading and narrow reading enable learners to lessen the cognitive burden of decoding the texts, have chances to practice reading fluency and facilitate not only vocabulary acquisition but also reading comprehension. Furthermore, researchers suggested that both reading methods motivate learners to read more and have more interest in reading as they allow readers to have more confidence in L2 reading (Cho & Krashen, 1995; Samuels, 1979; Taguchi, 1997)

2.2. Effects of Repeated Reading in an L2 Context

Although many studies in L1 have proven the positive effects of RR on reading fluency and the causal relationship between improved reading fluency and better reading comprehension (Therrien, 2004; Pikulski & Chard, 2005), RR has not been widely implemented in L2 contexts. Nevertheless, a series of studies done by Taguchi and his associates (Gorsuch & Taguchi, 2010; Taguchi, 1997; Taguchi & Gorsuch, 2002; Taguchi, Takayasu-maass & Gorsuch, 2004; Taguchi & Gorsuch, 2008; Taguchi, Gorsuch, Takayasu-Maass, & Snipp, 2012) presented some notable results on the effects of RR in L2 context. The main focus of their successive studies was to see if RR enhances reading rate, and also if improved reading rates lead readers to better reading comprehension.

Taguchi (1997) implemented ten-week, twenty-eight-session RR treatments on fifteen Japanese learners of English to investigate how RR influences participants' oral and silent reading rates. Each session included seven times of silent reading with and without an accompanied audio recording. The result of the study showed significant improvement in participants' silent reading rate within the practiced passages. However, the gains from RR practice did not transfer to new, unpracticed texts.

Focusing on RR transfer effects on new unpracticed passages, Taguchi and Gorsuch (2002) investigated the relationship between increased reading rate and comprehension with eighteen Japanese university freshmen over a ten-week period. The experimental group had RR treatments with twenty-eight reading sessions, whereas the control group was provided with a wide range of different reading passages over the same number of reading sessions as the experimental group. The results revealed only partial RR transfer effects with participants' reading rates, and no significant transfer effects for comprehension enhancement. Moreover, the differences in the gains of reading rates and comprehension between the RR group and the control group were not significant, which means the study failed to show whether improved word recognition skills were the reason for the improvements in reading rate and comprehension. The researchers speculated the lack of clear transfer effects were ascribed to the shortness of the treatment.

Taguchi, Takayasu-maass, and Gorsuch (2004), compensated for the vulnerable points of the previous study. With an expanded RR treatment period (seventeen weeks) and increased RR sessions (forty-two sessions), they again investigated the effects of assisted RR on silent reading rates and comprehension. Two methods, assisted repeated reading and extensive reading, were compared with twenty Japanese university students. However, the result did not show much difference compared to that of the previous study. Assisted RR significantly improved students' silent reading rates and reading comprehension within RR sessions, but this practice did not transfer to new, unpracticed passages. Moreover, no significant differences were found between the groups. The researchers found the reason for the insignificant effect of RR to be shortcomings in the reading comprehension measure. The difficulty level of the pre-test and post-test texts was not the same and the test format was not sensitive enough to detect comprehension gains.

Using more sensitive and well-constructed comprehension measures, short-answer and recall tests, Taguchi and Goursh (2008) investigated sixteen-week RR treatments with low-intermediate Vietnamese English learners. The study showed that the experimental group increased their reading rate for the RR treatment passages and significantly performed better than the control group on both comprehension measures. However, the experimental group's reading rate was about the same as the control group on the post-test. The researchers explain

this was caused because the experimental group noticed they would be tested on the post-test, and read more slowly, wanting to do well on the test.

Based on the quantitative evidence for the positive effect of RR, Goursh and Taguchi (2010) offered additional evidence with qualitative evidence. They used the form of open-ended, post-reading student reports written over the length of an eleven-week RR treatment for thirty young adult EFL learners in Vietnam. Analyses of students' reports revealed the positive effects RR has on FL learners' reading fluency and comprehension development, as well as general language development. To capture a clearer picture of the inner process of how RR promotes L2 reading fluency and comprehension, Taguchi, Gorsuch, Takayasu-Maass, and Snipp (2012) used a diary study approach, which consisted of more than 70 RR sessions with an L2 advanced-level reader. The participant reported positive effects of repetitive input and the auditory model of a text provided in assisted RR, which researchers considered contributed to improved comprehension. However, what is noticeable with this study is that it also revealed some non-beneficial aspects of RR. According to the qualitative results, it was shown that RR alone is not enough to make readers comprehend text better beyond a certain level, and RR may lead readers to boredom and demotivation, which is likely to inhibit readers' actively engaging in L2 reading.

In regard to the above studies that showed RR has some facilitative effect on improving reading fluency and reading comprehension, Chang (2012)

investigated the effect of timed reading and repeated oral reading. Over a thirteen-week period, eighteen students and seventeen students engaged in timed reading and repeated reading, respectively. The timed reading group read 52 passages under time constraints which made the students feel time pressure and facilitated their reading fluency. Students' reading rate and comprehension were gauged at three occasions: pre-intervention, post intervention, and delayed post-intervention. Overall, the results showed the timed reading group enhanced reading rates and reading comprehension, while repeated reading group showed a significant increase in the reading rates, but not with reading comprehension. As a follow up study, Chang and Millett (2013) examined the effects of timed repeated reading on improving reading rates and reading comprehension with a control group. Thirteen EFL students read 26 passages over a thirteen-week period. Each passage was read five times under time constraints. Participants were tested on both practiced texts and unpracticed texts before and after the reading treatment. The results showed that the RR group not only read faster but also comprehended better with both practiced and unpracticed texts. The comprehension levels moved from an unsatisfactory level (51% and 49 % in the pre-tests) to an acceptable level (70% and 66 % in the post-tests). The researches by Chang (2012) and Chang and Millett (2013) are meaningful in that they showed increased reading rates enhances reading comprehension. Based on these studies, it can be concluded that it is worthy of including reading rate buildup activities to facilitate L2 reading.

Most of the L2 research investigating the effects of repeated reading has mainly focused on how repeated reading contributes to improvement in reading fluency and comprehension. On the other hand, few researchers have investigated the effect of repeated reading on vocabulary learning.

Han and Chen (2010) implemented a set of reading courses based on repeated reading method to examine the scope and depth of vocabulary acquired by learners. They tried to see both intentional and incidental learning of vocabulary. For the intentional learning the participant was informed prior to a learning task that there would be a vocabulary retention test followed by the task. In contrast, for the incidental learning the participant was not informed of the vocabulary test in advance. One heritage speaker of Mandarin, learning Chinese as her L2 took twenty sessions of repeated reading treatments. Based on the participant's interest, two authentic reading materials were selected. One was theme-related passages and the other was an independent article. From each passage, four to five words were identified by the participant for memorization for the intentional vocabulary learning. Words that the participant had not intentionally studied, but had encountered while reading were used for measuring intentional vocabulary learning. Vocabulary gains throughout the course were measured via seven tasks. Overall, the results showed positive effects of repeated reading on vocabulary acquisition. Both intentional and incidental word knowledge were enhanced. Additionally, receptive and

productive knowledge of words were also improved. However, the gains were differential. The participant significantly outperformed in recognizing and producing intentional words over incidental words. And her recognition of the target words was more accurate than production. Even though the study showed that repeated encountering of unknown words facilitates vocabulary enhancement, the result can not be generalized since it examined only one subject.

Webb and Chang (2012) assumed that readers can acquire new words or intensify the meaning-form connection of partially known words by encountering them repeatedly through reading, and examined the effects of assisted and unassisted repeated reading on vocabulary learning. Eighty-two beginner EFL readers in Taiwan participated in two seven-week courses that provided repeated reading. The participants were divided into two groups and asked to read stories at least two times with or without an audio recording respectively. A total of fourteen texts were read over seven weeks. To measure students' vocabulary gains, a modified vocabulary knowledge scale (VKS) was adopted. The result indicated that both types of repeated reading can be useful methods for vocabulary learning, but when repeated reading is supported by an audio recording it is more effective than when it is not. The researchers insisted that the study showed strong ecological validity in that it used real reading texts written for L2 learners and the treatment was conducted in real EFL classrooms

rather than controlled conditions.

It is notable that many studies investigating the effects of RR on L2 reading used auditory models (Taguchi, 1997; Taguchi & Gorsuch, 2004; Taguchi et al., 2012; Webb and Chang, 2012). An auditory model accompanied while reading texts is considered to be a contributory factor that enhances learners' vocabulary knowledge and reading comprehension (Elley, 1989).

Vocabulary is acquired when the orthographic and phonological aspects of words are connected (Brown, Waring, and Donkaewbua, 2008). Perfetti and Hart (2001) showed that audio models facilitate rapid activation of links between the form and the pronunciation of words (Perfetti & Hart, 2001). That is, as audio models provide phonological activation of word forms, it is considered to activate links between the graphic form of a word and its phonological information, which then enables learners to learn vocabulary more efficiently.

Also, the phonological activation of an audio recording is helpful for reading comprehension because it facilitates fluent word recognition in learners. Fluent word reading is crucial for well-developed reading fluency, which allows readers to read text fast and accurately with good reading comprehension (Perfetti & Hogaboam, 1975). Thus, learners can benefit from auditory models in their reading comprehension through increases in reading fluency.

Furthermore, another benefit of reading-while-listening is it helps readers

read text in meaningful sense groups (Day & Bamford, 1989). L2 readers with low-proficiency English often have difficulty understanding lengthy sentences as they have a tendency to break sentences into small meaningless parts while reading. However, readers need to group words into meaningful units to facilitate better comprehension (Cromer, 1970; Smith, 2012). Thus, audio models are great help, in that it retains sentences' integrity, allowing students to access the appropriate semantic units (Elley, 1989). Taguchi (2004) showed that an auditory model accompanied by RR procedures helped learners understand stories better. He suggested that the audio recordings with speaker's expression of texts not only made reading more interesting and informative, but also helped students keep themselves motivated and willing to read. Thus, listening to an audio recording of a text, while getting repetitive input, seems to successfully facilitate learners' comprehension while reading.

To sum up, despite the inconclusive results of the previous studies on RR, some helpful suggestions can be drawn for the current study. EFL readers are able to improve their reading fluency and comprehension as well as vocabulary knowledge when they read repeatedly. Also, having multiple exposures to text accompanied by an audio reading model provides some scaffolding for L2 readers. In addition, L2 reading methods that focus on increasing reading rates have a positive impact on enhancing reading comprehension. Finally, a drawback is often mentioned regarding the use of repeated reading: the boredom that might

be encountered with the monotonous rereading process. However, repeated reading is also considered to benefit learners' reading motivation with its effect on improving learners' confidence in L2 reading (Moyer, 1982).

2.3. Effects of Narrow Reading in an L2 Context

L2 research on narrow reading is far rarer than repeated reading. Not many researchers have examined the effect of narrow reading on L2 reading comprehension and vocabulary acquisition. Lamme (1975) found that good readers in English as a first language tended to read more books by a single author and books from a series. Cho and Krashen (1994) revealed that adult second language learners developed considerable vocabulary knowledge and enthusiasm for reading after they had read books in a single series. With thirty-seven fourth grade Korean EFL students, Cho and Krashen (2005) found that reading authentic books from a single series improved students' reading comprehension and vocabulary acquisition. They also reported that after one-week narrow reading students showed improvement in both confidence and interest in reading English. However, since the study did not have a control group, there is a limit to ascribe the gains only to NR. Nevertheless, the study is helpful in that it presented how improved texts' familiarity, provided by narrow reading, can benefit beginning students.

Extending the idea of narrow reading, Krashen (1996) suggested narrow listening. Similar to narrow reading, narrow listening focuses on repeated input of a single topic, but the form of input is aural language. From his own experience, Krashen (1996) showed that repeated exposure to casual speech in a single topic of one's interest helps improve not only listening comprehension, but also language competence in general. He also suggested that contextual familiarity of narrow listening lowers the learners stress of second-language listening.

Supporting the effectiveness of narrow reading and narrow listening, Kimura and Ssali (2009) combined the two methods in instructional contexts. Based on a single theme, a course integrating two types of instructions, a listening focused lesson and a reading focused lesson, were provided to forty-nine Japanese university students. The study revealed that the combination of two methods enhanced learners' topic familiarity, contextual knowledge and recycling of the specialized and high-frequency words, which in turn make the language input more comprehensible.

Few studies have investigated NR in terms of vocabulary acquisition. Min (2008) compared the effectiveness of reading plus vocabulary-enhancement activities (RV) and narrow reading (NR) on vocabulary acquisition and retention among EFL secondary school students. Fifty male Chinese speakers in Taiwan took part in this experiment by taking a weekly two-hour session over five weeks.

Their English proficiency was intermediate and they voluntarily chose one of two courses. Fifty target content words which were not familiar to the participants were tested prior to the research and after the research. During the course, both RV group and NR groups read five main reading passages followed by reading comprehension questions. After reading each main passage, the RV group was provided with a variety of vocabulary-enhancing exercises which gave the participants three or four chances to practice each target word. The NR group read additional reading passages that were thematically related to the main passages and enabled the participants exposure to target words two or three more times. For the test instrument, researchers modified the Paribakht and Wesche (1997) Vocabulary Knowledge Scale (VKS). The result showed the RV group significantly outperformed on both the acquisition and retention tests. However, the study shows its limitation in distributing the participants for each treatment. Considering that participants were informed specifically about the courses before they voluntarily chose one of the courses, there's a possibility that participants who were more motivated in learning vocabulary chose the RV course and less motivated participants chose the NR course. Although Min (2008)'s study showed that narrow reading, which has its focus on incidental vocabulary learning, was not as efficient as reading with intentional vocabulary activities, it should be noted that NR also did cause significant improvement in vocabulary acquisition.

The studies mentioned above showed how reading in a single topic area can benefit readers. Then, a question arises as to the degree of similarity among texts. Few studies have provided meaningful insights for choosing narrow reading texts. Schmitt and Carter (2000) investigated what aspects of NR benefits vocabulary acquisition. The study proposed newspapers as an effective source of reading to encourage vocabulary development. By comparing a series of topic-related news reports and a collection of unrelated stories, Schmitt and Carter (2000) revealed that topic-related texts have higher recurrence of content words and fewer word types. Since a great deal of words repeatedly reoccurs, topic-related texts reduce the lexical burden of decoding the words and consequently facilitate vocabulary acquisition. The study also investigated the learners' attitudes toward narrow reading and found that students clearly perceived the value of narrow reading in reading comprehension and vocabulary acquisition. However, the study did not examine how much vocabulary learners actually acquired after the treatment. Even though the analysis of two types of reading materials showed which one is more effective for incidental vocabulary learning, it does not guarantee that a learner's actual vocabulary gain in narrow reading might be higher than reading unrelated stories. Thus, further research should compare the actual vocabulary gains by these two types of reading.

Supporting Schmitt and Carter's study (2000), Shaffer (2005) investigated the effect of variations in degree of text similarities on the extent of lexical

advantage. Using corpus studies, the study revealed that if the degree of similarity between texts increased, increase in lexical repetition was also observed. That is, the higher the degree of similarity between narrow reading texts was, the more lexical advantages readers would get for vocabulary acquisition. Another noticeable finding of the study is that in order to maximize the lexical advantage from narrow reading, texts should not only share a specific theme, but also be very closely related in terms of the scope of the theme. For example, a set of news articles focusing on the same specific event in one specific country had more lexical advantage than another set of news articles also focusing on the same specific event, but in different countries. This suggests that to efficiently facilitate vocabulary acquisition through narrow reading the degree of the similarity between texts should be kept very high.

In conclusion, even though not many researchers have examined the effects of narrow reading in L2 settings, some findings relevant to the current study can be highlighted. That is, narrow reading can be used as a reading intervention that fosters vocabulary learning and comprehension, providing necessary repetition of words and topic-related knowledge. The degree of similarities between texts used for narrow reading should be high to decrease readers' learning burden of vocabulary and allow them to have more advantage in facilitating reading processes. Also, narrow reading can improve readers' confidence and interest in L2 reading. Lastly, although scarcely any researchers have investigated narrow

reading while listening, the effects of narrow listening on improving listening comprehension may give some insights for using audio models accompanied with narrow reading.

2.4. Text Difficulty for Repeated Reading and Narrow Reading

Text difficulty is an important issue to the teachers who wish to choose appropriate materials for learners at a variety of reading ability levels. It is also critical to reading material developers. Providing learners with reading material that is not appropriate for their reading ability can damage their reading process and demotivate them (Fulcher, 1997). Thus, appropriacy of a text difficulty in relation to reading methods should be considered for successful L2 reading. Receiving assistance with appropriate level of reading materials, readers will have wider accessibility for variety of reading materials (Young & Greig, 1995).

Regarding the level of text difficulty for repeated reading and narrow reading, easy texts are often recommended (Krashen, 2004; Samuels, 1979). However, both methods are also considered to be effective for texts beyond readers' reading ability. Moyer (1982) suggested that repeated reading could be used for normal readers struggling with difficult texts given in regular classroom instruction. Similarly, Han and Chen (2010) found that repeated reading enabled

readers to decode texts that are fairly beyond their current reading ability. They emphasized that this trait of repeated reading is particularly notable for EFL students who are oftentimes given texts that seem to be huge barriers to overcome. Also, Hyönä and Niemi (1990) proposed that repeated reading may make greater improvements with difficult texts than with easy texts, and Kuhn and Stahl (2003) proposed that assisted repeated reading is an effective way to foster reading skills of less fluent readers rather than fluent readers.

As for the narrow reading, Krashen (1995) used authentic books written for native speakers of English for the beginning EFL students with limited English competence. Although the texts were not matched to the students' current competence, repeated contexts enabled the students to comprehend the stories beyond their reading ability. Krashen (2004) suggested that narrow reading provides scaffolding that allows readers to process more advanced input, which means it has the potential to facilitate students' understanding of challenging and demanding texts.

In conclusion, the findings of RR and NR relevant to text difficulty suggest that students should be able to process texts beyond their current reading level with the help of RR and NR. However, hardly any studies so far have directly investigated the effects of text difficulty in relation to RR and NR. Thus, it is considered to be worthy of examining the effects of varying levels of text difficulty in regard to RR and TBNR.

CHAPTER 3.

METHODOLOGY

This chapter outlines the method of the present study. Section 3.1 describes the participants of this study, and Section 3.2 presents the materials. Section 3.3, Section 3.4 and Section 3.5 explains the procedures, test instrument and scoring, respectively. Lastly, Section 3.6 presents the data analyses used for the present study.

3.1. Participants

Ninety-nine EFL 9th grade students studying at D-middle school in Seoul participated in this study. Their average age was fifteen years old. Participants had studied English as a foreign language for six years as a regular school curriculum. Some of them had started to learn English from kindergarten and a few of them had experience studying abroad. Because of a regional feature that shows great enthusiasm for English education, students in D-middle school had higher levels of English competence compared to the same grade students in schools in other districts. D-middle school has level differentiated English classes according to students' achievement level: advanced classes, high-intermediate classes, low-intermediate classes, and beginner classes. Each

student's achievement level was determined based on their mean score from four regular school test scores of the previous school year. Each achievement level consisted of four classes. Four intact advanced classes participated in this study - two randomly chosen classes received the RR treatment and the other two received the TBNR treatment. In each class there were about thirty students respectively. However, after a mid-term exam that was administered in the middle of this study, some students belonging to the advanced class were allocated to different levels and new students came in. Thus, only students who participated from beginning to end of the experiment without moving between levels were included for the analysis. The final subject numbers were fifty for RR and forty-nine for TBNR. The homogeneity of the two reading treatment groups with their L2 reading ability were verified with an independent t-test which was conducted on students' reading test¹ score that is intended to gauge the learners' L2 reading ability. Table 3.2 ascertains that the two reading treatment groups have the same level of L2 reading ability: the difference between the means of the RR group and the TBNR group was not significant, $t(97) = -.485, p > .01$.

¹ The reading test provided by MetaMetric was a 35-question reading comprehension test. For each question, there was a short paragraph followed by an incomplete sentence. Students were asked to read the paragraph carefully, and based on what they read select the word that best completes the sentence. There were four answer choices to consider. The total score of the test was 35.

Table 3.1.
Descriptive Statistics of the Reading Test Scores
for the Learners' Reading Ability

Reading treatment group	N	Mean	SD	Std. Error Mean
RR	50	22.00	4.77	0.67
TBNR	49	22.45	4.43	0.63

* score 22 means Lexile reader measure is 1090L

Table 3.2.
T-test Comparison for the Results of the Reading Test Scores
for the Learners' Reading Ability

F	Sig.	T	df	Sig. (2-tailed)
.040	.842	-.485	97	.629

The English classes were taught by the researcher 3 times a week. Each lesson was 45 minutes and aimed to improve general English proficiency, covering four skills of English. One regular class from each week was allocated for this study. Participants were unaware of the purpose of the experiment and took it as a part of their regular lessons. As for the participants' motivation, even though some texts used for this study were beyond students' proficiency, students' motivation

to read the texts was fairly high since all the texts were selected considering students' interest and were included as test material for their regular mid-term and final exams. As students in these classes cared a lot about their test scores, it seemed that the fact the texts would be part of their exams affected the quality of students' motivation and attention for reading.

3.2. Materials

The reading materials used in the study were authentic online news articles. The reasons for using online news articles was they are easy to access and have the distinct advantage of providing a number of different texts that deal with the same theme. Keyword search on an online news website while limiting the search to a specific date provides various articles closely related to a single specific theme. This trait of online news articles is of great merit for TBNR, since it lessens the burden of finding thematically related reading texts. Moreover, news articles follow similar formats when they are written. Considering that text structure is one of the components that affect reading comprehension (Carrell, 1992), the uniformity in the text structure of news articles was beneficial. Once students became familiar with the way news articles were organized, their reading comprehension throughout this study would not be burdened by unfamiliar text structures. Furthermore, news articles are interesting to readers because they discuss current events that can intrigue readers.

For choosing news articles that were appropriate for this study, students' reading abilities and the difficulty levels of news articles were estimated using a Lexile measure². The recommended readability of texts that a reader should read is shown as "Lexile range", which ranges from 100L below one's Lexile measure to 50L above. Texts in this range are considered to be at an appropriate difficulty level for a reader, while texts out of this range are regarded to be too easy or too difficult for the reader.

For the present study, texts with diverse Lexile ranges were used. Considering that the aim of this study was to see the effects of reading treatments on reading comprehension and vocabulary acquisition, challenging texts which include some unfamiliar vocabulary were used. It was assumed that if texts were easy enough for the students to understand after one reading, it would be hard to identify any possible improvements that could be made by RR and TBNR.

Based on the average Lexile reader measure of the participants, which was 1090L, the texts used for this study were categorized into three groups of text difficulty. One was texts within the Lexile range, 990L~1140L (low-level), another was texts slightly beyond Lexile range, 1150L~ 1300L (mid-level), and

² Shown as a number followed by a letter "L", the Lexile measure indicates either an individual's reading ability (Lexile reader measure) or the reading demand of a text (Lexile text measure). Since both measures are shown on the same scale, it is useful to figure out the relationship between them. When used together, they predict how well a reader will likely comprehend a text at a specific Lexile level.

the other was texts far beyond the Lexile range, 1310L~1460L (high-level). Each group had five different themes that were used for five individual sessions respectively. The Lexile measures of the texts used for this study were analyzed using a Lexile Analyzer tool provided on the Lexile Website, and the participants reading ability was estimated with a reading test provided by MetaMetrix.

For each reading session, three articles were selected: One main article which was used by both RR and TBNR treatments, and two additional articles which were thematically closely related to the main article but used only for TBNR treatment. Since articles in each session share the same specific theme, the degree of similarities between the articles within a session was maintained to be very high.

Considering the nature of the comparative study on which this study is based, two factors were carefully taken into account for choosing reading texts for RR and TBNR: similar readability of the reading texts within each reading session, and similar length of the reading texts throughout the entire reading study. After choosing the main news article that RR and TBNR would share, all efforts were made to find two different additional articles which were not only thematically related to the main article but also have similar readability. Using the text readability analysis software on the Lexile website, the difficulty levels of the probable texts were analyzed, and texts with the most similar readability as the main text were selected for TBNR. Nevertheless, if the readability gap between

the articles was considered to vary too much, modification of the additional reading texts took place to make the gap as little as possible. For modification, some of the difficult words were exchanged with easier ones and complex sentences were simplified. However, the modification was only done when the articles for TBNR had a much higher Lexile text measure than the main article. Word changes and sentences were kept to a minimum, and within the range that the content of the texts was not significantly altered. For some sessions it was inevitable that articles used for TBNR had different readabilities from the main article. If there was any modification of the texts, a native speaker of English revised the texts.

In addition to text readability, text length was also carefully considered. Since each treatment session had to be done during the regular 45-minute class, it was important to consider the time limitation when deciding the length of the texts. If texts were too long, all the procedures of the treatments were not covered within the given time. Given the time required for each step of the experiment, text length that took about four minutes to read was considered to be appropriate for this study. Thus, as part of a pilot test, randomly selected students from the four treatment classes were asked to read a text with 1230L which was considered to be the average text difficulty of the texts that were used for the current study. As a result, the average words per minute (wpm) for the students participating in this study was gauged to be roughly 100 wpm. Accordingly, an approximately

400 word long text was revealed to be adequate for this study. Articles longer than 400 words were shortened by removing some parts where a new subject which is not closely related to the main theme appeared, or quotes that provided additional explanation.

After adapting the readability and the length of the texts, an audio-recorded version of each text was made by a native speaker of English in order to have the students read texts while listening to the corresponding audio recording. The length of each audio recording was adjusted to be about four minutes, maintaining a rate of 100 words per minute. There were several reasons for using the audio-recorded version of the text; (1) Previous studies indicated that when reading is assisted with an audio recording, vocabulary acquisition and reading comprehension is facilitated (Taguchi, 1997; Taguchi & Gorsuch, 2004; Taguchi et al., 2012; Webb and Chang, 2012); (2) Through the pilot test, it was revealed that quite a few students had a habit of re-reading sentences when they found them challenging. Struggling to get the meaning of the challenging sentences, they often got stuck in the middle of the text, not finishing reading the whole text. As can be expected, this would impede the process of RR and TBNR. Having students read with the audio recording of the text, it was possible to get them to read the whole text from the beginning to the end; (3) Since the audio recording of a text made students read the texts all together, pre and post-tests were administered to every student at the same time, which makes it easier to finish

the experiment within the limited time.

Lastly, the themes of the newspaper article were chosen considering students' interest. In advance of choosing newspaper articles for RR and TBNR, students' news interest areas were surveyed as a part of the pilot test. The survey results indicated that politics and the economy were the least popular fields of interest, which were then excluded when choosing news articles for this study. Table 3.3 shows the list of articles and their readability included in the study.

Table 3.3.
List of Articles and Readability

Session	Theme (Headline)	Level	Text Lexile measure		
			Main Text	TBNR 1	TBNR 2
Session 1	Psy goes to Harvard to give talk	Mid	1190L	1210L	1210L
Session 2	Venezuela's El Sistema program	High	1430L	1450L	1400L
Session 3	South Korea's 'overexposure law' bans miniskirts	Mid	1240L	1200L	1250L
Session 4	Mars mission: one-way death trip to red planet	Low	1080L	1050L	1070L

Session 5	The approval of First U.S. artificial retina	High	1370L	1310L	1300L
Session 6	Curiosity Rover lands safely on Mars	High	1380L	1360L	1350L
Session 7	Giant pandas: Canada welcomes a pair from China	Mid	1260L	1210L	1300L
Session 8	Dolphin memory may be even better than Elephants	Low	1000L	990L	1030L
Session 9	Google begins testing its augmented-reality glasses	High	1400L	1360L	1350L
Session 10	School district hires company to follow kids' Facebook, Twitter	Low	1100L	1190L	1150L
Session 11	Sugary drinks over 16-ounces banned in New York City	Mid	1220L	1230L	1270L
Session 12	Honey bees are dying Putting America at risk of a food disaster	High	1310L	1290L	1390L
Session 13	Malala Yousafzai, teen shot by Taliban, addresses U.N.	Mid	1160L	1100L	1190L
Session 14	Pakistan earthquake: hundreds dead in Balochistan	Low	1050L	1030L	1020L
Session 15	iPad pooches: Tablet training goes to the dogs	Low	1120L	1130L	1180L

3.3. Procedure

The experiment was conducted from August to December in 2013. The participants were divided into two groups, RR and TBRR, and different reading procedures applied for each group. Fifteen individual reading sessions, one of which was conducted as an independent trial, having its own distinctive reading and testing materials, were conducted. Students in both groups participated in fifteen reading sessions that were part of their regular English classes. The researcher of this study, having nine years of teaching experience at a middle school as an English teacher, was the instructor for both groups. Treatments were done once a week over 15 weeks. The order of the text difficulty was randomly assigned to each reading session. Each session for both groups took 45 minutes and followed the same procedure consisting of five phases: vocabulary pre-test, reading a main text, reading comprehension pre-test, RR or TBNR treatment, and vocabulary and reading comprehension post-test.

Prior to the experiment, both groups were given instructions on the procedures of the treatments, RR and TBNR, respectively. However, the purpose of this study was not notified, and the students considered the treatments as parts of extended reading lessons. Also, students were notified that the articles they were going to read would be on the regular school exams. To check students' understanding of the treatments and to estimate the adequateness of the reading

materials, a pilot test was administered to the participants.

The first six minutes of the treatment session were used for a vocabulary pre-test. Before reading a main text, students in both groups were asked to answer ten questions that required the receptive and productive knowledge of the target vocabulary from the main text. After completing the vocabulary pre-test, both groups read the same main text A silently with an accompanying audio recording, and were required to complete a comprehension pre-test. They answered ten comprehension questions without referring back to the passage they had just read. After the comprehension pre-test different treatments were applied to each group. In the RR group, students read the main text A three times repeatedly. In the TBNR group students read two different texts B and C successively, and went back to the main text A to read it one more time. Texts B and C were thematically closely related to the main text A. Again each reading procedure for both groups was accompanied by their audio recordings. After both groups finished their reading procedures, the participants took a post-test about the main text A. Without referring back to the main text A, they took the same vocabulary test and comprehension test they took as the pre-test to see how well they comprehended the main text A, and how much vocabulary they learned after going through the designated reading procedure.

Figure. 3.1.

Lesson Procedure

Repeated Reading	Theme-Based Narrow Reading	Time Allotment
Vocabulary pre-test	Vocabulary pre-test	6 min.
↓	↓	
Reading main text A	Reading main text A	4-5 min.
↓	↓	
Reading comprehension pre-test	Reading comprehension pre-test	7 min.
↓	↓	
Reading main text A three times	Reading TBNR text 1 Reading TBNR text 2 Reading main text A	12-13min.
↓	↓	
Vocabulary post-test Reading comprehension post-test	Vocabulary post-test Reading comprehension post-test	15 min.
↓	↓	
Consolidation	Consolidation	1min.

3.4. Test Instruments

To assess the effects of RR and TBNR on students' reading comprehension and vocabulary acquisition, two types of tests were administered: a short answer reading comprehension test, and the modified Vocabulary Knowledge Scale

(VKS) of Min (2008), which was adopted from the Paribakht and Wesche (1993) VKS³.

The comprehension test contained ten open-ended, short answer questions, intending to verify how well learners understood given texts. The questions were in English. Students were allowed to answer either in English or Korean and encouraged to write detailed answers (Appendix 4).

Figure. 3.2.

Example Questions from the Reading Comprehension Test

- In Bruck's study how did the dolphin react to her friend's whistle?
- Why can dolphins remember their friends better than human?
- How does dolphins' good memory help them in the wild?
- How did Bruck test dolphin's memory for his study?
- What does Bruck want to find out for his next study?

³ The different levels of word knowledge that VKS gauges are shown in a hierarchical order from total unfamiliarity of word recognition, the speculative meaning of a word, and the exact meaning of a word, to the ability to use the word in a sentence (Paribakht & Wesche, 1993). According to Paribakht and Wesche (1993), the categories on VKS can be classified into two types of vocabulary knowledge: One is perceived knowledge and the other is actual knowledge learners acquired. As VKS is intended for measuring the progression in development of vocabulary knowledge, this study used the modified VKS of Min(2008) which used the scale as a means to measure learners' actual vocabulary knowledge acquired from reading treatments.

Ten lexical items were selected to be included in the vocabulary test. All of them were content words, which were considered to be unfamiliar to the participants. The vocabulary test was composed of vocabulary words written in English, which the students would then self-report their vocabulary knowledge. Students were allowed to write the meanings of the target words in Korean or write synonyms in English (Appendix 5).

Figure. 3.3.

Modified Vocabulary Knowledge Scale

<p>I. I don't remember having seen this word before.</p> <p>II. I have seen this word before, but I don't know what it means.</p> <p>III. I know this word. It means _____. (Give the meaning in English or Chinese.)</p> <p>IV. I can use this word in a sentence. _____ (Write a sentence.) (If you do this section, please also complete III.)</p>

The advantages of using the VKS for this study are as follows: First, according to Paribakht and Wesche (1997), VKS is considered to be suitable for measuring vocabulary gains during relatively short instructional periods. Second, VKS is designed to measure both learners' receptive and productive knowledge of a particular word (Wesche & Paribakht, 1994). Since it requires learners to write not only the meaning of a target word but also a sentence using the target word, it is considered to be more accurate in measuring learners' knowledge of vocabulary. Furthermore, the self-report categories of VKS implement

unprompted measuring. As it requires learners to demonstrate their knowledge of the words without any clue instead of providing them with possible answers to choose from, VKS can more accurately measure learners' vocabulary knowledge (Min, 2008).

To illustrate learners' feedback toward RR and NR, a questionnaire was administered after all fifteen sessions had finished. The questionnaire consisted of five Likert scales questions, asking how EFL learners see their engagement with RR or TBNR. The survey questions were mainly about how students perceive the effects of RR or TBNR (Category 1), their interest regarding RR or TBNR (Category 2), and their behavioral intentions regarding the future use of RR or TBNR (Category 3).

3.5. Scoring

To see the effects of each reading treatment on reading comprehension and vocabulary acquisition, scoring was used in advance. Scoring was calculated by counting the correct answers on the comprehension and vocabulary test. Short answer questions on the comprehension test were each scored from 0 to 1 depending on how well the student's answer demonstrated understanding of the texts. A correct answer received one point, a plausible approximate answer received half a point, and a question incorrectly or not answered received 0

points. The possible maximum score was 10. As for scoring the vocabulary test, No points were given to category I and II. Category III received one point if the meaning-translation or synonyms were correct, but if a semantically approximate explanation or translation were given, it received half a point. A word that couldn't be inferred or student put no answer will receive 0 points. To score category IV⁴, a semantically and grammatically correct sentence using the target word received one point, while semantically correct, but grammatically incorrect use of the target word in sentences received half a point. Semantically incorrect use of the target word in a sentence, or no answer received 0 points. If the target word was correctly used, the score for category IV would not be affected by the errors in other parts of the sentence. The vocabulary test was scaled to 20 points. The same scoring system was used for the pre-test and post-test. To score the questionnaire, five Likert items, used to measure learners' perception of each reading treatment, were valued as follows: strongly disagree = 1 point, disagree = 2 points, neutral = 3 points, agree = 4 points, strongly agree = 5 points.

⁴ The modified VKS assigns one point for the correct productive word knowledge only when the use of the target word is both semantically and grammatically correct in a sentence. However, the original VKS splits the productive word knowledge into two levels for scoring, to reflect both semantic knowledge and grammatical exactness of the use of the target word in a sentence context (Paribakht & Wesche, 1993).

3.6. Data Analysis

Fifteen texts used for this study were grouped into three categories based on their text difficulty: high-level, mid-level, and low-level. For the data analysis, a score gain for each subject for every vocabulary and comprehension pre-and post-test set was computed by subtracting the subject's pre-test score from the post-test score. Then, the students' vocabulary and reading comprehension score gains from fifteen individual sessions were grouped into three categories according to their text difficulty. The mean of the students' score gains for each level of text difficulty was computed for further analyses. The reasons for using students' score gains for data analysis are as follows; (1) As the focus of this study is to compare the vocabulary and comprehension gains acquired through the respective reading treatment, instead of using the mean post-test scores, using the mean differences between the pre-test scores and the post-test scores was considered to be appropriate for the analysis; (2) The group homogeneity within each experiment session was verified with the results from an independent T-test conducted on the groups' performance on each vocabulary and comprehension pre-test (Appendix 8). Thus, pre-test scores were not considered as a covariate variable; (3) As the reading texts used for this study were challenging enough to make improvements on most of the students' vocabulary knowledge and reading comprehension, ceiling effects that might have affected the data analysis were hardly observed.

A number of different data analyses, using SPSS (Statistical Package for Social Science) 20, were applied for this study to answer the research questions: To compare the effects of reading treatments (one between-subjects factor) and text difficulties (one within-subjects factor) on students' vocabulary and reading comprehension gains (two dependent variables), a repeated measures MANOVA (one between one within MANOVA) was computed followed by univariate mixed ANOVAs with post hoc analyses. To analysis the questionnaire results, Cronbach's alpha was run to determine if the scale was reliable, and then an independent-samples t-test was conducted to see whether different responses were made between groups.

CHAPTER 4.

RESULTS AND DISCUSSION

This chapter presents the results and discussion of the study. The first section examines the effects of RR and TBNR on vocabulary learning and reading comprehension of texts with varying levels of difficulty, followed by the survey results of learners' perception of RR and TBNR. The second section presents the discussion of the results.

4.1. Results

The results of the current study are presented in two parts. First, the effects of RR and TBNR on vocabulary learning and reading comprehension of texts with varying levels of text difficulty are investigated in section 4.1.1. In section 4.1.2, students' perception on RR and TBNR is examined.

4.1.1. Effects of RR and TBNR on Vocabulary Learning and Reading Comprehension of Texts with Varying Levels of Text Difficulty

The purpose of this study is to compare the effects of RR and TBNR on L2 reading, using fifteen texts, of which five are at a high-level, another five are at a

mid-level, and five more are at a low-level. The study focuses on students' vocabulary learning and reading comprehension, which are considered to attentively reflect the effects of reading treatments on L2 reading.

The vocabulary and reading comprehension gains (post-test minus pre-test) of the RR group and the TBNR group across the fifteen sessions are displayed in Table 4.1. The statistical significance of the vocabulary and reading comprehension gains of the RR and TBNR group across the fifteen sessions are presented in Appendix 6⁵. More detailed raw scores of each trial of pre-tests and post-tests are shown in Appendix 7. The vocabulary and reading comprehension gains, averaged from 5 trials of each difficulty level, of the RR group and the TBNR group, arranged by level (high, mid, low), are shown in Table 4.2.

⁵ The primary purpose of this study was to compare the effects of RR and TBNR. However, it is still worthy of noting that whether each reading treatment made statistically significant difference between learners' pre-test scores and post-test scores in every individual session that uses varying levels of text difficulty. In other words, verifying whether all the score differences shown in table 4.1 are statistically significant or not is necessary. The paired-t test results from Appendix 6 show that after receiving the reading treatment students in both groups significantly improved their performance on vocabulary and reading comprehension post-tests. The significance of the improvement, $p < .01$, was consistent with all 15 sessions, which implies that RR and TBNR were effective in enhancing learners' vocabulary knowledge and reading comprehension not only with texts within learners' reading ability but also with texts beyond learners' reading ability.

Table 4.1.

**Descriptive Statistics of the Vocabulary and Reading Comprehension
Score Differences of RR and TBNR across the 15 Sessions**

Session	Text level	Vocabulary				Reading Comprehension			
		RR		TBNR		RR		TBNR	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Session 1	Mid	2.72	1.70	4.18	2.40	2.28	1.55	3.52	1.43
Session 2	High	2.28	1.51	3.02	2.60	1.76	1.00	2.41	1.43
Session 3	Mid	2.07	1.77	4.08	2.81	2.13	1.62	3.34	1.56
Session 4	Low	1.98	1.75	3.48	2.14	2.37	1.76	4.26	1.35
Session 5	High	2.92	1.71	3.55	2.81	2.50	1.92	2.84	2.03
Session 6	High	2.29	1.83	2.15	1.65	2.58	1.66	3.13	1.69
Session 7	Mid	2.77	2.49	3.40	2.48	2.00	1.63	3.73	1.68
Session 8	Low	1.75	1.64	3.68	2.62	2.09	1.57	4.17	1.66
Session 9	High	2.27	2.06	3.00	1.83	2.53	1.73	3.15	1.86
Session 10	Low	1.55	1.58	3.18	2.19	2.16	1.41	4.07	1.58
Session 11	Mid	3.19	2.74	3.60	2.74	2.15	1.38	2.67	1.64
Session 12	High	1.58	1.50	2.48	1.95	1.77	1.27	2.93	1.36
Session 13	Mid	1.86	1.61	4.19	3.23	2.24	1.65	3.80	1.86
Session 14	Low	2.13	1.83	4.86	3.17	1.71	1.16	4.68	1.77
Session 15	Low	1.98	2.10	4.08	2.73	1.32	1.43	3.97	1.61

*RR: Repeated Reading

*TBNR: Theme-Based Narrow Reading

*High: Text difficulty far beyond learners' reading ability

*Mid: Text difficulty slightly beyond learners' reading ability

*Low: Text difficulty within learners' reading ability

Table 4.2.

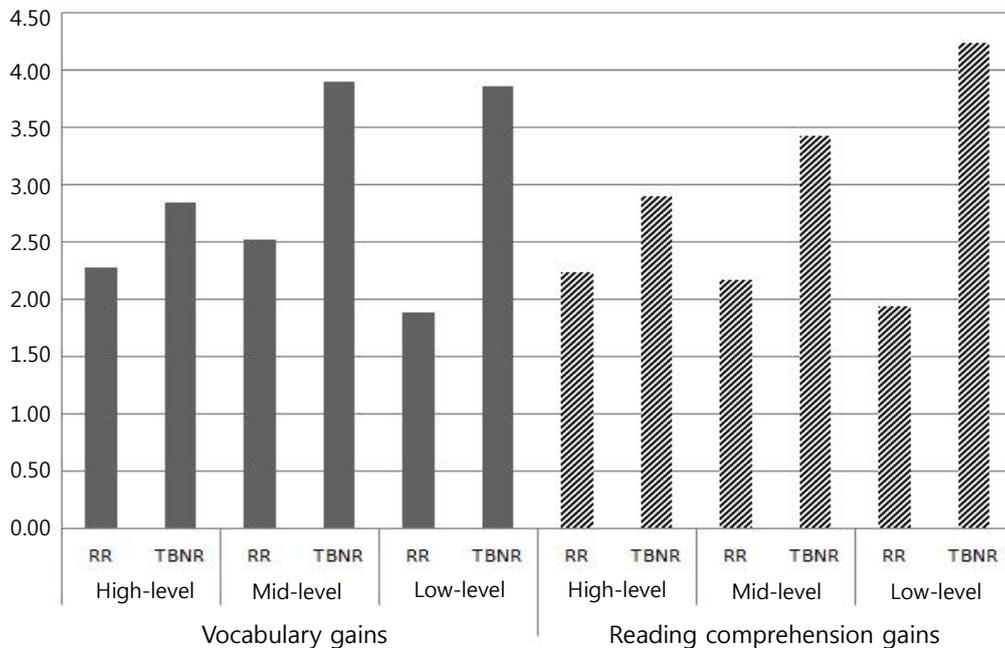
Descriptive Statistics of the Vocabulary and Reading Comprehension Score Differences of RR and TBNR Depending on Text Difficulty

Measures	Reading treatment	Text difficulty*								
		High-level			Mid-level			Low-level		
		Mean	SD	N	Mean	SD	N	Mean	SD	N
Vocabulary gains	RR	2.27	1.14	50	2.52	1.42	50	1.88	1.16	50
	TBNR	2.84	1.37	49	3.89	1.72	49	3.86	1.55	49
Reading Comprehension gains	RR	2.23	1.06	50	2.16	.95	50	1.93	.93	50
	TBNR	2.89	1.15	49	3.41	.88	49	4.23	1.06	49

* Text difficulty consists of three levels.

Figure 4.1.

Bar Graph of the Vocabulary and Reading Comprehension Score Difference of RR and TBNR Depending on Text Difficulty



To test the effects of the reading treatments and text difficulties on students' vocabulary and reading comprehension gains, a repeated measures MANOVA was conducted: "reading treatment" (RR and TBNR) as a between-subjects variable, "text difficulty" (high-level, mid-level, and low-level) as a within-subjects variable.

In advance running the repeated measures MANOVA, assumptions that underlie the analysis were tested. Preliminary assumption checking revealed that data was normally distributed, as assessed by Shapiro-Wilk test ($p > .05$); there were no univariate or multivariate outliers, as assessed by boxplot and Mahalanobis distance ($p > .001$)⁶, respectively; there were linear relationships as assessed by scatterplot; there was no multicollinearity as assessed by Pearson correlations; and there was homogeneity of variance-covariance matrices, as assessed by Box's M test ($p > .001$)⁷. The statistical results of the repeated measures MANOVA are summarized in Table 4.3.

⁶ To test multivariate outliers with the value of Mahalanobis distance, alpha level of .001 is commonly used.

⁷ To test homogeneity of variance-covariance matrices with Box's M test, significance level (p -value) of .001 is commonly used.

Table 4.3.
Results of Repeated Measures MANOVA
(Wilks Lamda Output)

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial eta squared
Between subjects						
Intercept	.072	619.024	2.000	96	.000	.928
reading treatment	.563	37.244	2.000	96	.000	.437
Within subjects						
text difficulty	.648	12.748	4.000	94	.000	.352
text difficulty * reading treatment	.546	19.511	4.000	94	.000	.454

The repeated measures MANOVA confirmed whether there were significant multivariate effects for two groups of reading treatment (repeated reading and theme-based narrow reading), for three levels of text difficulty (high-level, mid-level, and low-level), and for the interaction between reading treatments and text difficulties.

According to Table 4.3, the effects of the reading treatment and level of text difficulty used were statistically significant, $F(2, 96) = 37.244, p < .01$, and $F(4, 94) = 12.748, p < .01$. Based on the results, it can be inferred that RR and TBNR have statistically significant multivariate effects, and there also exist statistically significant multivariate effects between text difficulties. The results also

indicated that the reading treatment by text difficulty interaction effect was significant, $F(4, 94) = 19.511, p < .01$, which infers that there exist statistically significant multivariate effects between RR and TBNR depending upon the text difficulty.

However, as the result of the repeated measures MANOVA does not reveal how each independent variable (reading treatment and text difficulty) influence the separate dependent measures (vocabulary gains and reading comprehension gains), univariate mixed ANOVAs with a Bonferroni adjustment were conducted on both vocabulary and reading comprehension gains.

Table 4.4 shows whether there existed any statistically significant main effects of reading treatment and text difficulty, and the interaction effect between reading treatment and text difficulty on vocabulary and reading comprehension gains. Figure 4.2 and 4.3 illustrate the results of univariate ANOVAs with line graphs.

Table 4.4.**Results of Univariate Mixed ANOVAs
for the Vocabulary and Reading Comprehension Gains**

Measure	Source	Type III sum of squares	df	Mean Square	F	Sig.	Partial eta squared
	reading treatment	126.876	1	126.876	33.790	.000	.258
	error(level)	364.218	97	3.755			
Vocabulary gains	text difficulty	527.119	2	263.559	9.628	.000	.090
	text difficulty * reading treatment	615.439	2	307.719	11.242	.000	.104
	error(level)	5310.440	194	27.373			
	reading treatment	146.788	1	146.788	71.436	.000	.424
	error(level)	199.317	97	2.055			
Reading Comprehen- -sion gains	text difficulty	336.857	2	168.428	13.433	.000	.122
	text difficulty * reading treatment	850.247	2	425.123	33.905	.000	.259
	error(level)	2432.487	194	12.539			

Figure 4.2.

Vocabulary Gains across Text Difficulty by Reading Treatment

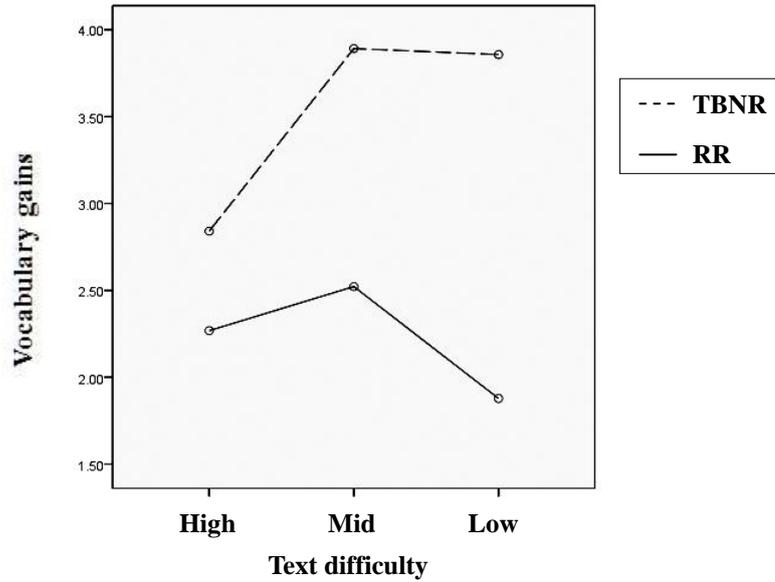
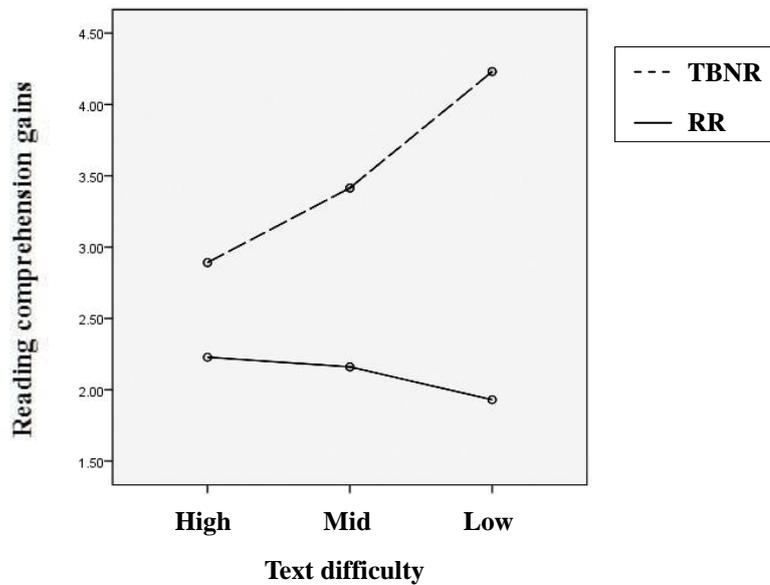


Figure 4.3.

Reading Comprehension Gains across Text Difficulty by Reading Treatment



The results of the univariate mixed ANOVAs revealed that the possible main effects of reading treatment and text difficulty for vocabulary gains have been shown to be significant, $F(1, 97) = 33.790, p < .01$; $F(2, 194) = 9.628, p < .01$. There also existed a possibly significant main effects of reading treatment and text difficulty on reading comprehension gains, $F(1, 97) = 71.436, p < .01$; $F(2, 194) = 13.433, p < .01$. The results imply that it was likely that the learners in the TBNR group generally gained more vocabulary and reading comprehension compared to the learners in the RR group. Also, learners' vocabulary and reading comprehension gains seemed to differ across the three levels of text. However, the main effects of the reading treatment and text difficulty should be interpreted with regard to the interaction effects between them.

According to the result of the univariate mixed ANOVAs, there were statistically significant interaction effects between reading treatment and text difficulty on both vocabulary gains, $F(2, 194) = 11.242, p < .01$ and reading comprehension gains, $F(2, 194) = 33.905, p < .01$. This indicates the effects that the reading treatments had on vocabulary and reading comprehension gains depended on the levels of text difficulty. The significant interaction between reading treatment and text difficulty is visualized in Figure 4.2 and 4.3; the lines representing RR and TBNR are not parallel. When an interaction effect is present, the interpretation of the main effects can be considered misleading. However, for the present study, as shown in Figure 4.2 and 4.3, it should be noted that the lines

representing RR and TBNR are not crossed, which means the interaction effects between reading treatment and text difficulty for vocabulary and reading comprehension gains were “ordinal.” This indicates that even though the effects of reading treatments on vocabulary and reading comprehension gains were different depending on text difficulties, the mean scores of vocabulary and reading comprehension gains of the TBNR group were always higher than those of the RR group across three levels of text difficulty (High, Mid, Low).

The results of the univariate mixed ANOVAs confirmed that TBNR overall, regardless of the varying levels of text, enabled learners to get higher score gains for vocabulary learning and reading comprehension. Despite this, the findings did not include a statistical analysis between the levels of text difficulty among both reading treatments (High TBNR & RR, Mid TBNR & RR, Low TBNR & RR), and their effects on vocabulary and reading comprehension gains. Additionally, statistically significantly different effects of text difficulty for vocabulary and reading comprehension gains within each reading treatment have not been concluded yet. In other words, which level of text difficulty would best work, in terms of statistical significance, for each reading treatment (TBNR: High / Mid / Low, RR: High / Mid / Low) is still left to be examined as well. Therefore, in order to investigate these issues, a couple of post hoc analyses were conducted.

The significant differences between the effects of RR and TBNR for

vocabulary and reading comprehension gains within each text difficulty were tested, using between-subject ANOVAs.

Table 4.5.

Results of Post Hoc Analyses Using Between-Subjects ANOVAs for the Reading Treatment Effects on the Vocabulary and Reading Comprehension Gains across the Three Levels of Text

Measure	Level	Source	Type III sum of squares	df	Mean Square	F	Sig.	Partial eta squared
Vocabulary gains	High	Reading treatment	8.120	1	8.120	5.136	.026	0.50
		Error	153.367	97	1.581			
	Mid	Reading treatment	46.437	1	46.437	18.687	.000	.162
		Error	241.043	97	2.485			
	Low	Reading treatment	96.936	1	96.936	51.600	.000	.347
		Error	182.226	97	1.879			
Reading Comprehension gains	High	Reading treatment	10.906	1	10.906	8.908	.004	.084
		Error	118.758	97	1.224			
	Mid	Reading treatment	38.909	1	38.909	46.088	.000	.322
		Error	81.890	97	.844			
	Low	Reading treatment	130.984	1	130.984	132.391	.000	.577
		Error	95.969	97	.989			

According to Table 4.5, there was statistically significant difference in vocabulary gains between RR and TBNR at all levels of text difficulty: the high-level, $F(1, 97) = 5.136, p < .05.$; the mid-level, $F(1, 97) = 18.687, p < .05.$; the low-level, $F(1, 97) = 51.600, p < .05.$ Also, there was a statistically significant difference in reading comprehension gains between RR and TBNR at all levels of text difficulty: the high-level, $F(1, 97) = 8.908, p < .05.$; the mid-level, $F(1, 97) = 46.088, p < .05.$; the low-level, $F(1, 97) = 132.391, p < .05.$

The result indicates that learners' vocabulary and reading comprehension gains of the TBNR group were statistically significantly greater than those of the RR group at all three levels of text. In other words, learners who read thematically related texts comprehended the texts better and learned more vocabulary compared to the learners who read the same texts repeatedly; and it was consistent not only with the texts that were within learners' reading ability but also with the texts that were slightly or far beyond learners' reading ability. This implies that in order to help learners improve vocabulary knowledge and reading comprehension, it is better to adopt TBNR than RR across the three levels of text.

To test whether there were any statistically significant differences between the effects of text difficulty for vocabulary and reading comprehension gains within each reading treatment, within-subjects ANOVAs with a post hoc test using a Bonferroni adjustment were run. Table 4.6 shows which specific text difficulties were significantly different from each other in vocabulary and reading comprehension gains for RR and TBNR.

Table 4.6.

**Results of Post Hoc Analyses Using Within-Subjects ANOVAs
with a Bonferroni Adjustment for Text Difficulty Effects
on the Vocabulary and Reading Comprehension Gains
for Each Reading Treatment Group**

Measure	Treatment	(I) level	(J) level	Mean Difference (I-J)	Std. Error	Sig.
Vocabulary gains	RR	High	Mid	-.254	.155	.321
		High	Low	.390	.160	.055
		Mid	Low	.644	.167	.001
	TBNR	High	Mid	-1.051	.248	.000
		High	Low	-1.016	.245	.000
		Mid	Low	.035	.262	1.000
Reading comprehen- sion gains	RR	High	Mid	.068	.143	1.000
		High	Low	.298	.126	.066
		Mid	Low	.230	.107	.108
	TBNR	High	Mid	-.522	.151	.003
		High	Low	-1.339	.170	.000
		Mid	Low	-.816	.151	.000

According to Table 4.6, the vocabulary gains for the RR group were statistically significantly greater with the mid-level texts ($M = 0.644$, $SE = 0.167$, $p < .05$) compared to the low-level texts. However, the vocabulary gains with the high-level texts were not statistically significantly higher compared to the low-level texts ($M = 0.390$, $SE = 0.160$, $p > .05$). Also, no statistically significant

difference was found between the high-level and the mid-level texts ($M = -0.254$, $SE = 0.155$, $p > .05$). This infers that RR better facilitated learners' vocabulary gains with the mid-level texts compared to the low-level texts.

On the other hand, the vocabulary gains of the TBNR group were statistically significantly greater with the mid-level texts ($M = -1.051$, $SE = 0.248$, $p < .05$) and the low-level texts ($M = -1.016$, $SE = 0.245$, $p < .05$) compared to the high-level texts. There was no statistically significant difference between the mid-level and the low-level texts ($M = .035$, $SE = 0.262$, $p > .05$). The result implies that TBNR was more effective in enhancing learners' vocabulary knowledge with the mid-level or low-level texts than the high-level texts.

Table 4.6 also shows the reading comprehension gains of the RR group were not statistically significantly different between high-level and mid-level texts ($M = 0.068$, $SE = 0.143$, $p > .05$), and were also between high-level and low-level texts ($M = 0.298$, $SE = 0.126$, $p > .05$). In addition, there was no statistically significant difference between the mid-level and the low-level texts ($M = 0.230$, $SE = 0.107$, $p > .05$). The result implies that the effect of RR on reading comprehension was not significantly affected by text difficulty. In other words, RR helped learners improve reading comprehension about the same across the three levels of texts.

On the other hand, the reading comprehension gains of the TBNR group were

statistically significantly greater with the mid-level texts ($M = -0.522$, $SE = 0.151$, $p < .05$) and the low-level texts ($M = -1.339$, $SE = .170$, $p < .05$) compared to the high-level texts. Also, there was statistically significant difference between the mid-level and the low-level texts ($M = -0.816$, $SE = 0.151$, $p < .05$). The result indicates that the effect of TBNR on reading comprehension became greater as the level of text difficulty decreased. That is, TBNR helped learners improve reading comprehension the most with the low-level texts.

In sum, the post hoc analysis revealed learners gained the most vocabulary when they read texts within or slightly beyond their reading ability, while using the theme-based narrow reading method. On the other hand, learners gained the least vocabulary when they read texts that matched their reading ability, while using the repeated reading method. As for the reading comprehension, learners' reading comprehension dramatically increased when they read thematically related texts within their reading ability, but their reading comprehension increased the least when they repeatedly read the texts across the three levels of texts.

4.1.2. Learners' Perceptions of RR and TBNR

The final research question was to investigate how EFL learners perceive their engagement with RR or TBNR. The questionnaire was mainly about students'

interest regarding RR or TBNR (Category 1), how students perceived the effects of RR or TBNR (Category 2), and their future intentions to use RR or TBNR (Category 3). The items in the questionnaire are shown in Figure 4.4, and the questionnaire sheet is presented in Appendix 9.

Category 1 and 3 consisted of 3 questions. Each scale had a high level of internal consistency, as determined by a Cronbach's alpha of 0.839 and 0.782, respectively. Category 2, which consisted of 4 questions, had also a high level of internal consistency with a Cronbach's alpha of 0.772.

Figure 4.4.

Items in the Questionnaire

Category	Q	Item
1	Q 1	Did you have interest in the reading lesson?
2	Q 2	Was the reading method helpful for reading comprehension?
2	Q 3	Was the reading method helpful for learning vocabulary?
1	Q 4	How did you feel about the reading lesson?
3	Q 5	Do you want to use the reading method in the future?
3	Q 6	Do you want to continue reading newspapers using the reading method?
3	Q 7	Would you like to recommend the reading method to others?
1	Q 8	Did you like the reading class?
2	Q 9	Has your interest in reading in English increased after the reading class?
2	Q 10	Has your confidence in reading in English increased after the reading class?

Table 4.7.**Descriptive Statistics of the Questionnaire Results**

Category	Q	Reading treatment	N	Mean	SD
Category 1	Q1	RR	50	3.36	1.025
		TBNR	49	3.94	.922
	Q4	RR	50	2.90	.909
		TBNR	49	3.69	.871
	Q8	RR	50	3.08	.752
		TBNR	49	3.86	.842
Category 2	Q2	RR	50	3.60	.904
		TBNR	49	3.86	.791
	Q3	RR	50	3.40	.857
		TBNR	49	3.69	.895
	Q9	RR	50	3.22	.648
		TBNR	49	3.65	.694
	Q10	RR	50	3.04	.605
		TBNR	49	3.47	.649
Category 3	Q5	RR	50	3.08	.877
		TBNR	49	3.84	.850
	Q6	RR	50	3.14	.969
		TBNR	49	3.73	.995
	Q7	RR	50	3.62	.697
		TBNR	49	4.14	.842

Table 4.7 shows the descriptive statistics of the questionnaire results which was done after the entire study was over. According to it, students in both RR and TBNR groups revealed positive attitudes toward the treatments they had received. The mean scores of each questionnaire item are mostly above 3. Note that with most of the questionnaire items students in the TBNR group assigned relatively higher scores than those in the RR group. To find out that if the mean score differences of each questionnaire items between the groups are statistically significant, an independent t-test was run as shown at Table 4.8.

Table 4.8.

T-test Comparison for the Questionnaire Results of RR and TBNR

Category	Q	F	Sig.	T	df	Sig. (2-tailed)
Category 1	Q 1	2.545	.114	-2.951	97	.004
	Q 4	.031	.860	-4.435	97	.000
	Q 8	1.437	.233	-4.848	97	.000
Category 2	Q 2	2.146	.146	-1.506	97	.135
	Q 3	.021	.884	-1.669	97	.098
	Q 9	4.045	.047	-3.208	96	.002
	Q 10	8.141	.005	-3.405	96	.001
Category 3	Q 5	.107	.744	-4.358	97	.000
	Q 6	.259	.612	-3.012	97	.003
	Q 7	1.263	.264	-3.370	97	.001

According to Table 4.8, with most questionnaire items, there were statistically significant differences between the RR group and the TBNR group. This implies that the TBNR group generally had more favorable attitudes toward the reading treatment they received than the RR group.

Examining the results in more detail, questionnaire items in Category 1 revealed that the students in the TBNR group enjoyed the reading procedure significantly more than those in the RR group. Similarly, Category 3, which shows students' future intentions to use RR or TBNR, had a significant difference between the RR and TBNR group. As it can be seen from the Table 4.8, students in the TBNR group are more likely to use TBNR and to recommend it to other students than those in the RR group. Also, note that TBNR affected students' view on reading newspapers more positively than RR.

Compared to the responses that suggested TBNR was more favorable to the participants than RR was, there were responses that made no significant difference between RR and TBNR. The results from questionnaire items 2 and 3 in Category 2 indicated that students in both groups thought similarly of the effectiveness of treatment they received. However, the results from other two items in Category 2, that asked if the methods learners received helped them have more confidence and interest in L2 reading, are noticeable in that students in the TBNR group assigned significantly higher scores. This implies that TBNR made learners have more confidence and interest in L2 reading than RR.

4.2. Discussion

The discussion of the current study is presented in three parts. First, the effects of RR and TBNR on vocabulary and reading comprehension gains across the three levels of texts are discussed in Section 4.2.1. In the Section 4.2.2, the discussion of the effects of text difficulty on vocabulary and reading comprehension gains for RR and TBNR is presented. Lastly, in Section 4.3.3, learners' perception of RR and TBNR is discussed.

4.2.1. Effects of RR and TBNR on Vocabulary Learning and Reading Comprehension across the Three Levels of Texts

The current study shows empirical evidences that theme-based narrow reading was more effective than repeated reading for vocabulary and reading comprehension across the three levels of text. Some possible interpretations can be made for the grounds of the results.

Foremost, repetitive word exposure, of which both repeated reading and theme-based narrow reading took advantage, is considered to be a significant factor in vocabulary acquisition (Shaffer, 2005). In the current study, repeated reading texts repeated target words four times, as learners read exactly the same text repeatedly; while, for theme-based narrow reading, many of the target words

on the vocabulary test did not necessarily repeat across the reading texts. Given the fact that the repeated reading group had more chances to encounter the target words than those who received theme-based narrow reading, it can be inferred that theme-based narrow reading had other advantages on vocabulary learning aside from the cumulative effect of multiple word exposures.

One possible reason can be suggested in terms of word-meaning inference. When learners encounter unknown words while reading, they make guesses to figure out the meanings of them (Grabe, 2009; Perfetti & Hart, 2001), and in the process of guessing word meaning, diverse contextual clues play a crucial role (Pulido, 2007). Although repeated reading gave learners several chances to make the guesses from contexts, the attempts could not have always been successful as the learners received the same input repetitively, resulting in limited textual clues. As for word-meaning inference, however, theme-based narrow reading seemed to be better able to help readers than repeated reading. Unlike repeated reading, theme-based narrow reading repeated the same vocabulary in a variety of contexts. In other words, theme-based narrow reading had diversity in word generation, which means it increased the chances to show how the same words could be used in different ways. Frequent encounters with variations in word usage are believed to facilitate learners' understanding of the word such as collocations, alternative meanings, register constraints, and grammatical behavior (Schmitt & Carter, 2000). Consequently, even though repeated reading

had a higher word repetition than theme-based narrow reading, it is likely that theme-based narrow reading had a higher potential to increase the likelihood of helpful contextual clues with its three varying texts, which in turn facilitated word-meaning inference and vocabulary learning.

Another possible advantage to theme-based narrow reading regarding vocabulary learning is an increase in topic familiarity. Topic familiarity is known to have a significant influence on word-meaning inference (Pulido, 2007). If readers are more familiar with texts they read, chances are it becomes easier to guess the meaning of words, and the guesses are more often correct (Pulido, 2007). As theme-based narrow reading provided more diverse topical knowledge with its two additional readings, students might have better increased their topic familiarity and facilitated the process of inferring the meaning of the unknown words.

Besides helpful contextual clues, another possible reason that the theme-based narrow reading group showed more improvement with vocabulary gains can be found with the vocabulary test. The Vocabulary Knowledge Scale used for this study was designed to measure both learners' receptive and productive knowledge of a particular word. As readers who read thematically related texts might have had more chances to see how the same words could be used in different sentences, it seems that they performed better on the vocabulary test that asked learners to make sentences using the target words.

The results of present study showed that theme-based narrow reading significantly better improved learners' reading comprehension than repeated reading across the three levels of text. As for this reason, most of all, improvement in vocabulary knowledge is considered to be most crucial. It was revealed that students in the theme-based narrow reading group gained more vocabulary than the repeated reading group. Considering that comprehension strongly depends on vocabulary knowledge (Koda, 1994; Perfetti & Hogaboam, 1975), it is no surprise that the theme-based narrow reading group outperformed the repeated reading group with their performance on reading comprehension.

Topic related knowledge is another possible factor that might have affected better reading comprehension of the theme-based narrow reading group. It is well known that topic-related knowledge is an indispensable factor for facilitating reading comprehension (Carrell, 1983). How readers construct the meaning of the text depends on what relevant information they receive about the text, and how it is incorporated with their prior knowledge (Langer, Bartolome, Vasquez, & Lucas, 1990). Consequently, if readers have more knowledge of a topic, their comprehension will be better than those with less knowledge (Carrell & Eisterhold, 1983). Krashen (2004) insisted that narrow reading helps readers enhance topic-related knowledge by exposing them to abundant topic related information. In the current study, while students in the repeated reading group reread the same texts, which were the only sources for them to get topic-related

information, students in the theme-based reading group could have enhanced their knowledge of the topic more efficiently by reading two additional texts. In other words, theme-based narrow reading asked readers to read the same theme as much as the repeated reading group, but in slightly different contexts. Even when texts share the same theme, there still exist many differences from text to text. Accordingly, the theme-based narrow reading group had a higher possibility of having readers gain more theme-related knowledge, which in turn enabled readers to make different attempts to derive meaning from the texts.

In sum, even though both repeated reading and theme-based narrow reading provide information on a theme, as for the diversity in theme-related knowledge, repeated reading did not seem to be as beneficial as theme-based narrow reading. Theme-based narrow reading provides more resources for readers, and the new information achieved through reading thematically related texts seems to influence learners' understanding of the texts and facilitates greater reading comprehension than repeated reading.

Along with contextual knowledge, another factor that promoted reading comprehension of the theme-based narrow reading group could be sentence-level comprehension. Given the fact that text consists of many sentences, sentence-level comprehension should not be overlooked when considering text-level comprehension (Scott, 2009). Failure in deriving meaning from individual sentences will impede the comprehension of the whole text (Scott, 2009).

According to Scott (2009), some complex syntactic features of sentences are taken into account for the main culprit that harms sentence-level comprehension. Considering that many of the texts used in this study were beyond students' reading ability, it was likely that they often had difficulties in comprehending sentences written with difficult syntactic features. However, as for the sentence complexity, compared to repeated reading, theme-based narrow reading seems to have provided better help. The prominent feature of theme-based narrow reading is showing readers sentences that deliver the same meaning, but are written differently with different syntactic features. As shown in figure 4.4, examining the texts used for theme-based narrow reading in this study easily revealed that sentences delivering the same meaning are written in various ways.

Figure 4.4.

Different Sentences Delivering the Same Ideas in Different Texts

Main text: Bruck says he can't yet say if the dolphins were matching lingering memories to dolphin faces ... Bruck says he is working on that for his next study.

TB NR text 1: They said the next effort is to see whether somehow the dolphins visualize their old buddies when they hear the whistle. Bruck says he is working on that.

TB NR text 2: Dr Bruck's next aim is to show whether the call brings a representational mental image of that individual.

As sentences in different texts are hardly identical even when they deliver the same ideas, a sentence in one text can be written in a more comprehensible way in another text. Accordingly, even though readers fail to understand a sentence in one text, they might figure out the meaning in successive readings. In this respect, theme-based narrow reading could act as an efficient intervention at the sentence level, provide greater chances of comprehending challenging sentences, and in turn lead to better reading comprehension.

Another factor that could have led the theme-based narrow reading group to improve reading comprehension more than the repeated reading group may be students' attitude toward the reading treatment. This will be discussed in more detail in section 4.2.3.

4.2.2. Effects of Text Difficulty on Vocabulary and Reading Comprehension Gains for RR and TBNR

The results of the present study showed variations in learners' vocabulary and reading comprehension gains depending on how each text difficulty is combined with two reading treatments. Accordingly, the current study provides some evidence on which level of texts should be chosen for learners' reading ability in relation to reading treatments.

First, the results revealed that learners in the repeated reading group learned

less vocabulary with the texts that matched their reading ability, compared to the texts that were beyond their reading ability. The possible reason for this can be initially ascribed to the fewer number of unknown words in the text within learners' reading ability. This would have left fewer words to learn, and lead to less vocabulary improvement. However, it is important to note the theme-based narrow reading group showed the most vocabulary improvement with the text within their reading ability, and there was no difference in vocabulary knowledge between the two reading treatment groups before they received each reading treatment (Appendix 8). From this, it can be inferred that learners in the repeated reading group failed to develop their vocabulary knowledge even though they could have learned more vocabulary. To explain this result, contextual clues, which help learners guess the meaning of words, should be taken into account. It seems that the reading materials within learners' reading ability (though most of their target words were already known to the learners) included some extremely difficult words which were unlikely for learners in the repeated reading group to infer by just rereading the text. In other words, as there were few contextual clues that could help learners infer the meaning of unknown target words, rereading the same text several times did not help learners guess the meaning of the difficult target words. However, it seemed that the learners who read thematically related texts successfully guessed the meaning of the difficult words in the texts that matched their reading ability with the help of additional contextual clues. This implies that theme-based narrow reading functions as a

more helpful resource for facilitating word-meaning inference than repeated reading. In short, even though there was more vocabulary for the learners to possibly learn with the text within their reading ability, repeated reading could not facilitate their vocabulary learning beyond a certain level. On the other hand, theme-based narrow reading successfully enhanced learners' vocabulary knowledge.

In addition, the results of the present study indicate that the learners in the repeated reading group had greater vocabulary gains when they read texts just beyond their reading ability compared with when they read texts that matched their reading ability. This implies that the challenging texts had a higher number of unfamiliar target words of which meanings were possibly inferred through the rereading process. In other words, without referring to any additional textual clues, learners could guess the meaning of the unknown target words in the texts slightly beyond their reading ability just with the help of repeated reading. Consequently, it can be inferred the vocabulary learning through repeated reading could be more effective when texts are just beyond the readers' reading ability, as there are more possible words to learn through repeated reading.

The results of the present study showed that text difficulty had significantly different effects on learners' vocabulary learning with theme-based narrow reading. While the texts within or slightly beyond readers' reading ability made a big difference with the learners' knowledge of the target words, the texts far

beyond readers' reading ability made less of a difference. This implies when text is far beyond learners' reading ability the advantages that theme-based narrow reading might have with vocabulary gains may be diminished. The possible reason for this is that when text difficulty was high, the theme-based narrow reading group failed to make use of helpful resources that might have acted as facilitators for vocabulary learning as much as they did with the text within the range of moderate difficulty. Students might have failed more often in inferring meaning of unknown words as they had little vocabulary knowledge associated with the texts they read. Pulido (2007) proposed that if readers have weak passage sight vocabularies, meaning that readers' vocabulary knowledge specific to a text is little, regardless of the degree of topic familiarity they have, they experience difficulty in inferring word-meaning. Accordingly, even though the theme-based narrow reading group had more available resources to facilitate vocabulary learning, it was not helpful enough when the texts were far beyond readers' reading ability. These helpful resources could not efficiently help the difficulties readers had with word recognition, resulting in less vocabulary knowledge gains.

The interaction effects between reading treatment and text difficulty on reading comprehension revealed that the mean score gap between the reading comprehension gains of the two reading treatment groups were different depending on text difficulty. As the level of text difficulty decreased, there was

increasingly a greater gap between the two reading treatment groups. Especially, when the texts were within learners' reading ability, the gap between the two reading treatment groups widened; learners in the theme-based narrow reading group showed more reading comprehension score gains ($M = 4.23$, $SD = 1.06$) than the learners in the repeated reading group ($M = 1.93$, $SD = .93$). However, it should be noted learners' in both reading treatment groups were statistically identical with their reading comprehension before they were involved in each reading treatment (Appendix 8). Thus, the fact that learners who repeatedly read the text did not improve their reading comprehension as much as the learners who read thematically related texts implies that limits may exist in regards to the effectiveness of repeated reading on reading comprehension. In other words, the result implies that repeated reading cannot improve learners' reading comprehension beyond a certain level. This is because some incomprehensible sections in the text still remain unresolved even after readers became exposed to repetitive input through repeated reading. This result is in accordance with the finding of a previous study that showed simply rereading text several times was not enough to enhance readers' reading comprehension (Taguchi et al., 2012). Additionally, it is worthy of note that the theme-based narrow reading group successfully comprehended what the repeated reading group failed to understand. This can be attributed to theme-based narrow reading providing learners with additional help so that learners could enhance their reading comprehension.

The current study also revealed that the effects of text difficulty on reading comprehension for theme-based narrow reading was more significantly different across the three levels of text compared to repeated reading. The text within learners reading ability made the most improvement with reading comprehension gains, followed by the text slightly beyond learners' reading ability, and then followed by the text far beyond learners' reading ability. This implies that when using theme-based reading, texts that are too challenging for learners could be the least favorable choice for reading comprehension gains, and providing texts that match the learners' reading ability would best ensure the effects of theme-based narrow reading on reading comprehension gains. Similarly to vocabulary gains, possible reasons that theme-based narrow reading had less effect on reading comprehension with text that are far beyond learners' reading ability can be found in the relationship between text difficulty and topic-related knowledge. Droop and Verhoeven (1998) suggested an increase in the topic familiarity of a text helps readers improve reading comprehension, but only when the text is within the reader's reading ability. If a text is linguistically too difficult, readers cannot take advantage of their topic-related knowledge on their reading comprehension because they are not able to understand the text with their limited target language proficiency. Also, Stahl and Jacobson (1986) showed that prior knowledge does not compensate vocabulary difficulty. When there are too many difficult words in a text, providing more topic-related knowledge does not facilitate readers' comprehension of the text. In this study, it seems learners in

the theme-based narrow reading group understood less additional topic-related knowledge that they needed to improve their reading comprehension when reading the texts far beyond their reading ability compared to texts within their reading ability. In other words, even though texts from all difficulty levels made enhancements on learners' reading comprehension with theme-based narrow reading, it is likely that the benefit from contextual or topic-related knowledge was more effective when texts were within moderate difficulty levels. Beyond this level, as text difficulty increase, the effect of contextual or topic-related knowledge seemed to diminish.

Even though the current study shows that theme-based narrow reading is more effective than repeated reading, a challenge with theme-based narrow reading is that finding thematically related texts is time and effort consuming. Thus, to help learners improve their vocabulary knowledge and reading comprehension, repeated reading could still be an option, as its method, rereading the same text many times, is a simple and easily adaptable methodology. However, in order to gain more benefits from repeated reading, it is necessary to consider which text difficulty to use. Unlike theme-based narrow reading, the results of the present study revealed that repeated reading improved reading comprehension similarly across all three levels of text difficulty. Thus, when using repeated reading for enhancing reading comprehension, text difficulty does not seem to be a crucial factor to be considered. With any levels of text difficulty, learners can improve

their reading comprehension to a similar extent using repeated reading. On the other hand, for vocabulary learning through repeated reading, texts that are just beyond readers reading ability could be a better choice compared to texts within learners reading ability.

In conclusion, the effects of repeated reading and theme-based narrow reading differ depending on which text level is used for each reading treatment. It seems that repeated reading benefits learners with their vocabulary knowledge and reading comprehension, if it uses texts that have enough unfamiliar words and incomprehensible components which could be possibly resolved by rereading. Even though the levels of text do not necessarily match learners' reading ability, learners may improve their vocabulary knowledge or reading comprehension through repeated reading as much as or even more than texts within their reading ability. However, theme-based narrow reading seems to be more affected by text difficulty. This is because learners need to understand and make use of the additional contextual clues or topic-related knowledge in order to benefit from theme-based narrow reading. That is, theme-based narrow reading enables learners to gain more vocabulary and reading comprehension when reading texts matched their reading ability so that learners can understand the helpful resources better.

4.2.3. Learners' Perceptions of RR and TBNR

The results from the questionnaire showed the theme-based narrow reading group generally had more favorable attitudes toward the treatment they received compared to the repeated reading group. The reason that the students who received theme-based narrow reading treatment had enjoyed the reading procedure more than those who received repeated reading treatment can be attributed to the reading process applied on each group. Unlike the repeated reading group that read the exact same texts repeatedly, the theme-based narrow reading group read slightly different texts. It seems the variations among the theme-based narrow reading texts more successfully held readers' interest. Considering that L2 reading is a laborious procedure that requires high motivation, and the reading texts used for the present study were demanding, the fact that theme-based narrow reading ranked more favorable in holding students' interest over repeated reading is worthy of notice. It might have better facilitated students' willingness to engage in the reading procedures, which then resulted in better performances on vocabulary learning and reading comprehension.

Also, the survey results revealed that students in both groups thought similarly regarding the effectiveness of the treatment they received. After receiving the repeated reading or theme-based narrow reading treatment, both groups noticed they became more able to comprehend texts with broadened vocabulary

knowledge. This could be attributed to the fact that both groups made significant improvement in their performance on the vocabulary and reading comprehension post-tests. Even though students in the theme-based narrow reading group showed better performance, it seems students in the repeated reading group were also equally aware of the value of their treatment. However, compared to the repeated reading group, the theme-based narrow reading group considered their reading treatment helped them have more confidence and interest in L2 reading. This may be ascribed to the number of different texts the theme-based narrow reading group read compared to the repeated reading group. As students in the theme-based narrow reading group read three times as many kinds of texts than the students in the repeated reading group, the diversity in reading input might have a more positive impact on students' attitudes towards reading.

As for the learners' behavioral intentions of future implementation of their reading treatment, the reasons the theme-based narrow reading group showed more positive attitudes compared to the repeated reading group can be explained by higher levels of interest and greater effectiveness. As students in the theme-based narrow reading group had more favorable attitudes toward their reading treatment than those in the repeated reading group, it is more likely participants in this treatment group will use this method in the future.

In conclusion, the feedback drawn from the questionnaire indicates that both repeated reading and theme-based narrow reading groups noted the positive

effects of the reading treatments on their L2 reading. However, it should be noted that theme-based narrow reading made reading more enjoyable, developed more confidence in L2 reading, and had a more positive influence on students' reading interest. Given the close relationship between learners' attitudes towards reading and their performance on reading (Grabe, 2004), it is likely that the greater the perception of the reading treatment, the more efficiently learners improved vocabulary knowledge and reading comprehension.

CHAPTER 5.

CONCLUSION

This chapter provides a summary and pedagogical implications of the study in Section 5.1. In addition, limitations of the current study and suggestions for further study are also mentioned in Section 5.2.

5.1. Summary of Findings and Implication

The primary focus of this study was to compare the effects of repeated reading and theme-based narrow reading on vocabulary learning and reading comprehension using varying levels of text difficulties. In addition, learners' perception of the reading treatments was also examined.

To answer the questions, ninety-nine Korean EFL middle school students were divided into two groups; one group received repeated reading and the other group received theme-based narrow reading. The repeated reading group read the same text four times repeatedly, while the theme-based narrow reading group first read a text which was the same as the repeated reading group, then successively read two additional texts which were thematically related to the first text, and then read the first text one more time. This allowed the repeated reading group to receive the exact same input each time and the theme-based narrow

reading group to receive repeated input but at the same time contextually different. In total, fifteen individual reading sessions were implemented over fifteen weeks. Each session included its own distinct reading texts, and pre-test and post-test vocabulary and reading comprehension sets. Three levels of texts were randomly assigned for each session: texts within learners' reading ability (low-level), texts slightly beyond learners' reading ability (mid-level), texts far beyond learners' reading ability (high-level). For data analyses, the means of the learners' score gains for each level of text difficulty were used. The data were analyzed by using repeated measures MANOVA followed by univariate mixed ANOVAs with post hoc analyses. As for the survey results, a t-test was performed.

The results of the current study have shown that theme-based narrow reading was significantly more effective than repeated reading in enhancing learners' vocabulary knowledge as well as reading comprehension across the three levels of text. This implies that students who read thematically related texts not only benefited from the effects of repetitive input, but were also provided with more contextual resources to infer word meanings than those who read the same text repeatedly. Also, the theme-based narrow reading group comprehended the texts better as a result of having more developed vocabulary knowledge and more topic-related information, which are considered to have positively affected their meaning construction process.

As for the relationship between reading treatment and text difficulty, the effects of repeated reading and theme-based narrow reading were correlated with text difficulty. Accordingly, the current study provides insights on which level of texts should be chosen for readers' reading ability in relation to reading treatments. Even though theme-based narrow reading significantly improved vocabulary knowledge and reading comprehension regardless of text difficulty, the present study shows that the effects were different depending on the text difficulty. The improvements were greater when the difficulty of a text was slightly beyond or within readers' ability for vocabulary learning, and the improvements dramatically increased as the text difficulty decreased for reading comprehension. This suggests that theme-based narrow reading has the greatest effect on vocabulary and reading comprehension gains when the text difficulty is within or just beyond readers' reading ability. On the contrary, when using repeated reading for enhancing reading comprehension, text difficulty does not seem to be a crucial factor. According to the results of the current study, with any levels of text difficulty, learners can improve their reading comprehension to a similar extent using repeated reading. However, for vocabulary learning through repeated reading, texts that are just beyond readers reading ability can be a better choice compared to the other levels of texts.

Furthermore, the feedback drawn from the questionnaire indicates that both repeated reading and theme-based narrow reading groups had favorable attitudes

toward the reading treatment they received. However, it should be noted that the theme-based narrow reading group found reading more enjoyable, developed more confidence in L2 reading, and had higher expectations of future use of their reading treatment. The positive attitude students had toward repeated reading and theme-based narrow reading is important. If students are aware that they can read better with the help of the reading treatments, they might be more motivated to utilize the opportunity to improve their L2 ability through reading.

In conclusion, even though both reading treatments help readers improve vocabulary knowledge and reading comprehension, theme-based narrow reading seems to have more positive effects on L2 reading than repeated reading. With its distinctive features, contextually different repeated input, theme-based narrow reading seems to not only duplicate the effects of repeated reading, but also compensates for the limitations of repeated reading.

In light of these findings, some pedagogical implications can be drawn for L2 teachers and learners. To ensure abundant L2 input in EFL settings, learners need to become fluent readers. However, this is difficult for any L2 reader, with limited L2 ability, to accomplish. To guide the students to become fluent readers, as a teacher, it is important to teach them how to manage L2 texts using the best methodology. Knowing a better way to make reading texts more comprehensible will help learners obtain L2 input more effectively, which will then lead them to better L2 acquisition.

This study suggests using repeated reading and theme-based narrow reading as methods to make varying levels of text more comprehensible. However, with its proved effectiveness, theme-based narrow reading can be more highly recommended than repeated reading for making reading texts as comprehensible as possible. Furthermore, the current study suggests that text difficulty should be considered when adopting reading treatments; as the effects of reading treatments vary depending on text difficulty. Additionally, when considering adopting theme-based narrow reading in educational settings, instructors should consider how to acquire texts of similar subject matter. Texts under one specific theme can be easily found in a multitude of online news websites, but a potential problem with news articles is they often have a high degree of reading difficulty. Thus, for lower-level learners, reading material developers should develop L2 reading materials that provide thematically related texts. Based on the present study, some suggestions can be made for developing reading materials for theme-based narrow reading; (1) It is recommended that the readability of the texts match learners' reading ability; (2) The degree of the similarities between texts should be kept close in order to ensure the effects of repetitive input; (3) The audio recordings of the texts is expected to be helpful as to facilitate the process of word recognition and reading comprehension.

5.2. Limitation and Suggestions

This study is limited in terms of not examining the transfer effects of repeated reading and theme-based narrow reading on reading comprehension of new texts. This is because the focus of the study was to compare the effectiveness of repeated reading and theme-based narrow reading on making input in progress more comprehensible not on improving learner's general reading proficiency. For a similar reason, vocabulary retention was not investigated either. However, research on these issues is expected to provide more insights into the effects of repeated reading and theme-based narrow reading on vocabulary acquisition and reading comprehension.

Another limitation of this study is it did not consider learners' individual L2 reading competence. Although each student's reading ability was estimated before the experiment, only the mean score of their Lexile scores was considered in choosing reading texts. Thus, for some students the reading texts could have been too difficult, which then could have influenced their performance on reading comprehension and vocabulary learning. Likewise, the wpm for the auditory recording was based on the mean wpm of randomly selected students, which then resulted in forcing some students to read texts following the standardized reading speed. This was inevitable since the experiments were done during regular class hours within limited time. However, for some students a

reasonable amount of time might have not been provided. Thus, future studies need to reflect individual's reading fluency on the process of repeated reading and theme-based narrow reading.

Another limitation is students' awareness of the post-tests. As this study followed the same format with every session, students were aware there would be a post-test with the same questions as the pre-test. Thus, it seems that students were highly motivated to figure out the meaning of the unknown target words or the answers for the reading comprehension questions. This may have affected the results.

Furthermore, the effects of the degree of similarity among texts used for theme-based narrow reading need to be investigated. In the study, three articles used for each theme-based narrow reading session maintained fairly high degrees of similarities, as they were all released on one specific day, sharing one specific theme. As may be expected, while there was great word repetition among these articles, relatively little contextual variation was found. According to Shaffer (2005), the degree of similarity between texts affects the level of word repetition and contextual variation. Thus, variation in the degree of similarity among texts can affect L2 vocabulary acquisition and reading comprehension differently. Therefore, further studies are needed to shed more light on these issues.

REFERENCES

- Anderson, N. J., & Cheng, X. (1999). *Exploring second language reading: Issues and strategies* (pp. 53-56). Boston, MA: Heinle & Heinle.
- Blum, I., Koskinen, P.A., Tennant, N., Parker, E.M., Straub, M., & Curry, C. (1995). Using audiotaped books to extend classroom literacy instruction into the homes of second-language learners. *Journal of Reading Behavior* , 27, 535-563.
- Brown, R., Waring, R., & Donkaewbua, S. (2008). Incidental vocabulary acquisition from reading, reading-while-listening, and listening to stories. *Reading in a foreign language*, 20(2), 136-163.
- Carrell, P. L. (1983). Some issues in studying the role of schemata, or background knowledge, in second language comprehension. *Reading in a foreign language*, 1(2), 81-92.
- Carrell, P. L., & Eisterhold, J. C. (1983). Schema theory and ESL reading pedagogy. *TESOL quarterly*, 553-573.
- Carrell, Patricia L. "Awareness of Text Structure: Effects on Recall*." *Language learning* 42.1 (1992): 1-18.
- Chang, A. C. S. (2012). Improving Reading Rate Activities for EFL Students: Timed Reading and Repeated Oral Reading. *Reading in a Foreign Language*, 24(1), 56-83.
- Chang, A. C., & Millett, S. (2013). Improving reading rates and comprehension through timed repeated reading. *Reading in a Foreign Language*, 25(2), 2.

- Cho, K. S., & Krashen, S. (1995). From *Sweet Valley Kids to Harlequins* in one year. *California English*, 1(1), 18-19.
- Cho, K., Ahn, K., & Krashen, S. (2005). The effects of narrow reading of authentic texts on interest and reading ability in English as a foreign language. *Reading Improvement*, 42(1), 58-65.
- Cromer, W. (1970). The difference model: A new explanation for some reading difficulties. *Journal of Educational Psychology*, 61(6p1), 471.
- Day, R., & Bamford, J. (1998). *Extensive reading in the second language classroom*. New York, NY: Cambridge University Press.
- Droop, M., & Verhoeven, L. (1998). Background knowledge, linguistic complexity, and second-language reading comprehension. *Journal of literacy research*, 30(2), 253-271.
- Elley, W. B. (1989). Vocabulary acquisition from listening to stories. *Reading Research Quarterly*, 174-187.
- Eskey, D. E. (2005). Reading in a second language. *Handbook of research in second language teaching and learning*, 563-580.
- Fulcher, G. (1997). Text difficulty and accessibility: Reading formulae and expert judgement. *System*, 25(4), 497-513.
- Gorsuch, G., & Taguchi, E. (2008). Repeated reading for developing reading fluency and reading comprehension: The case of EFL learners in Vietnam. *System*, 36(2), 253-278.
- Gorsuch, G., & Taguchi, E. (2010). Developing reading fluency and comprehension using repeated reading: Evidence from longitudinal student

- reports. *Language Teaching Research*, 14(1), 27-59.
- Gough, P. B. (1984). Word recognition. *Handbook of reading research*, 1, 225-253.
- Grabe, W. (2004). Research on teaching reading. *Annual Review of Applied Linguistics*, 24, 44-69
- Grabe, W. (2009). *Reading in a second language: Moving from theory to practice*. Ernst Klett Sprachen.
- Han, Z., & Chen, C. A. (2010). Repeated-reading-based instructional strategy and vocabulary acquisition: A case study of a heritage speaker of Chinese. *Reading in a Foreign Language*, 22(2), 242-262.
- Hyönä, J., & Niemi, P. (1990). Eye movements during repeated reading of a text. *Acta psychologica*, 73(3), 259-280.
- Hu, M., & Nation, I. S. P. (2000). Vocabulary density and reading comprehension. *Reading in a Foreign Language*, 23, 403-430.
- Huckin, T., & Coady, J. (1999). Incidental vocabulary acquisition in a second language. *Studies in second language acquisition*, 21(02), 181-193.
- Kimura, H., & Ssali, V. (2009). The case for combining narrow reading and listening [J]. *The Language Teacher*, 33(6).
- Kintsch, W. (1998). *Comprehension: A paradigm for cognition*. Cambridge university press.
- Krashen, S. D. (1985). *The input hypothesis: Issues and implications*. Addison-Wesley Longman Ltd.
- Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional

- evidence for the input hypothesis. *Modern Language Journal*, 73(4), 440-464.
- Krashen, S. D. (1996). The case for narrow listening. *System*, 24(1), 97-100.
- Krashen, S. (2004). The case for narrow reading. *Language Magazine*, 3(5), 17-19.
- LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive psychology*, 6(2), 293-323.
- Langer, J. A., Bartolome, L., Vasquez, O., & Lucas, T. (1990). Meaning construction in school literacy tasks: A study of bilingual students. *American Educational Research Journal*, 27(3), 427-471.
- Min, H. (2008). EFL vocabulary acquisition and retention: Reading plus vocabulary enhancement activities and narrow reading. *Language Learning*, 58, 73-115.
- Moyer, S. B. (1982). Repeated reading. *Journal of learning disabilities*, 15(10), 619-623.
- Nagy, W. E., Herman, P. A., & Anderson, R. C. (1985). Learning words from context. *Reading research quarterly*, 233-253.
- 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 Literacy Research*, 17(2), 129-142.
- Paribakht, T. S., & Wesche, M. (1997). Vocabulary enhancement activities and reading for meaning in second language vocabulary development. In J. Coady & T. Huckin (Eds.), *Second language vocabulary acquisition: A rationale for pedagogy* (pp. 174-200). New York, NY: Cambridge University Press.
- Paribakht, T. S., & Wesche, M. B. (1993). Reading comprehension and second

- language development in a comprehension-based ESL program. *TESL Canada journal*, 11(1), 09-29.
- Paribakht, T. S., & Wesche, M. (1999). Reading and “incidental” L2 vocabulary acquisition. *Studies in second language acquisition*, 21(02), 195-224.
- Wesche, M., & Paribakht, T. S. (1994). Enhancing Vocabulary Acquisition through Reading: A Hierarchy of Text-Related Exercise Types.
- Perfetti, C. A., & Hogaboam, T. (1975). Relationship between single word decoding and reading comprehension skill. *Journal of Educational Psychology*, 67(4), 461.
- Perfetti, C. A., & Hart, L. (2001). The lexical basis of comprehension skill.
- Perfetti, C. (2007). Reading ability: Lexical quality to comprehension. *Scientific studies of reading*, 11(4), 357-383.
- Pikulski, J. J., & Chard, D. J. (2005). Fluency: Bridge between decoding and reading comprehension. *The Reading Teacher*, 510-519.
- Ponniah, R. J. (2011). Incidental acquisition of vocabulary by reading. *The Reading Matrix*, 11(2), 135-139.
- Pulido, D. (2007). The relationship between text comprehension and second language incidental vocabulary acquisition: A matter of topic familiarity? *Language Learning*, 57(1), 155-199
- Samuels, S. J. (1979). The method of repeated readings. *The reading teacher*, 403-408.
- Samuels, S., & Farstrup, A. E. (2006). *What research has to say about fluency instruction*. International Reading Association.

- Schmitt, N., & Carter, R. (2000). The lexical advantages of narrow reading for second language learners. *Tesol Journal*, 9(1), 4-7
- Schmitt, N., Jiang, X., & Grabe, W. (2011). The percentage of words known in a text and reading comprehension. *Modern Language Journal*, 95(1), 26-43.
- Scott, C. M. (2009). A case for the sentence in reading comprehension. *Language, Speech, and Hearing Services in Schools*, 40(2), 184-191.
- Shaffer, J. (2005). Choosing narrow reading texts for incidental vocabulary acquisition, *The Language Teacher*, 29(7), 21-27.
- Smith, F. (2012). *Understanding reading: A psycholinguistic analysis of reading and learning to read*. Routledge.
- Stahl, S. A., & Jacobson, M. G. (1986). Vocabulary difficulty, prior knowledge, and text comprehension. *Journal of Literacy Research*, 18(4), 309-323.
- 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.
- Taguchi, E., & Gorsuch, G., (2002). Transfer effects of repeated EFL reading on reading new passages: Silent reading rate and comprehension. *Reading in a Foreign Language*, 14(1), 1-18.
- Taguchi, E., Takayasu-maass, M., & Gorsuch, G., (2004). Developing reading fluency in EFL: How assisted repeated reading and extensive reading affect fluency development. *Reading in a Foreign Language*, 16(2), 1-19.
- Taguchi, E., & Gorsuch, G., (2008). Repeated reading for developing reading fluency and reading comprehension: The case of EFL learners in Vietnam.

System, 36, 253-278.

Taguchi, E., Gorsuch, G., Takayasu-Maass, M., & Snipp, K. (2012). Assisted Repeated Reading with an Advanced-Level Japanese EFL Reader: A Longitudinal Diary Study. *Reading in a Foreign Language*, 24(1), 30-55.

Therrien, W. J. (2004). Fluency and comprehension gains as a result of repeated reading a meta-analysis. *Remedial and special education*, 25(4), 252-261.

Webb, S. & Chang, A. C. (2012). Vocabulary learning through assisted and unassisted repeated reading. *The Canadian Modern Language Review*, 68(3), 267-290.

Xu, J. (2009). An experimental study on the effects of different reading tasks on L2 vocabulary acquisition. *English Language Teaching*, 2(3), 69-79.

Yin, K. M. (1985). The role of prior knowledge in reading comprehension. *Reading in a foreign language*, 11, 375-380.

Young, A., & Greig Bowers, P. (1995). Individual difference and text difficulty determinants of reading fluency and expressiveness. *Journal of Experimental Child Psychology*, 60(3), 428-454.

APPENDICES

APPENDIX 1. Low-Level Text Set Example.....	101
APPENDIX 2. Mid-Level Text Set Example	107
APPENDIX 3. High-Level Text Set Example.....	113
APPENDIX 4. Reading Comprehension Test.....	119
APPENDIX 5. Vocabulary Test (VKS)	120
APPENDIX 6. Paired Samples T-Test for the RR Group and the TBNR Group Performance on Vocabulary and Reading Comprehension Tests	121
APPENDIX 7. Descriptive Statistics for the RR and the TBNR Group Performance on Vocabulary and Reading Comprehension Pre-tests and Post- tests	125
APPENDIX 8. Independent Samples T-Test for the RR Group and the TBNR Group Performance on Vocabulary and Reading Comprehension Pre-tests	129
APPENDIX 9. Questionnaire Sheet	131

APPENDIX 1.

Low-Level Text Set Example

[Main Text]

Dolphins Recognize the Whistles of Old Friends (and Anemies) after Decades

NBC News (Aug. 6, 2013)

Allie and Bailey, both bottlenose dolphins, shared tank time together in Florida when the two dolphins were calves.

The dolphins had lived apart for more than 20 years when Bailey heard Allie's signature whistle played over a pair of speakers at her tank in Bermuda. And she remembered.

"She came swimming up to the speaker and hung around there for a little while she listened in," Jason Bruck, a biologist who played the tape for Bailey, said.

Bailey is one of the stars of a new study. She provided the first statistically backed evidence that dolphins can remember their friends and foes for decades.

Bruck reports that bottlenoses might have the longest social memory in the animal kingdom — even longer than humans.

For more than five years, Bruck traveled to aquariums and zoos across the country, giving memory tests to 43 dolphins. He installed speakers in the dolphins' tanks and played back the whistles of their former pals, after up to 20 years of separation.

Just as humans recognize each other by faces and voices, dolphins identify themselves and each other by signature whistles, adopted when they are calves. "They're using these signatures as people use their names," Bruck said.

Human faces and voices change as we grow older, but dolphin whistles are built to last for life — they stay stable over decades. And that's why dolphins can have good memories.

Dolphins of all ages responded to familiar whistles from long ago by swimming towards Bruck's speakers. Males adopted a more aggressive pose than female when they heard the call of a dominant male. When unfamiliar whistles were played back, they tended to ignore them. Dolphins responded to the whistles of family members, tank mates and one-time flames that they'd mated with.

In the wild, bottlenoses are social, and can be separated for years at a time. So a long-term memory could be useful to recognize friendly groups. But dolphins are also nasty and violent toward rival groups. Bruck said dolphins avoid an area if a warning whistle is heard. For dolphins, sound trumps sight because they can hear each other before they can see each other.

Bruck says he can't yet say if the dolphins were matching lingering memories to dolphin faces — that is, if they were picturing the individuals in their heads as they heard the whistles. Bruck says he is working on that for his next study.

[TBNR TEXT 1]

Dolphin Memory May Be Even Better Than Elephants

Huffingtonpost (Aug. 6, 2013)

Forget elephants. Dolphins can swim circles around them when it comes to long-term memory.

Scientists in a new study repeatedly found that dolphins can remember the distinctive whistle – which acts as a name to the marine mammal – of another dolphin they haven't seen in two decades.

Bailey the dolphin hadn't seen another dolphin named Allie since the two juveniles lived together at the Dolphin Connection in the Florida Keys. Allie ended up in a Chicago area zoo, while Bailey got moved to Bermuda. Yet 20 1/2 years later, Bailey recognized and reacted to Allie's distinctive signal when University of Chicago researcher Jason Bruck played it on a speaker.

Other dolphins had similar memories. And it's not just for relatives. It's non-kin too.

"It's surprising; I know I can't do it," Bruck says. "Dolphins in fact have the longest social memory in all of the animal kingdom because their signature whistle doesn't change."

Studies have shown that monkeys can remember things for about four years and elephants can remember things for about 10, Bruck says in a paper published Wednesday by Proceedings of the Royal Society. But remembering just a sound – no visuals were included – boggles even human minds, he says.

For Bruck, 33, it's as if a long-lost classmate from middle school called him up and Bruck would be able to figure out who it was just from the voice.

Faces, yes, yearbook pictures, definitely, but voices that change with time, no way, Bruck says.

Bruck thinks dolphins have the incredible memory because it could help them when they approach new dolphins on a potential group hunt. And even more likely it probably allows dolphins to avoid others that had mistreated them in the past or dominated them, he says.

Male dolphins had a slightly better memory than females and that's likely a case of worrying about dominance.

Outside dolphin researchers praised the work. They said the next effort is to see whether somehow the dolphins visualize their old buddies when they hear the whistle. Bruck says he is working on that.

"The study raises some very interesting questions and hints at the wider importance of long-term social memory in nonhuman mammals. The study suggests there are strong parallels between dolphin and human social recognition," said dolphin researcher Stephanie King at the University of St. Andrews in Scotland.

[TBNR TEXT 2]

Elephants? It's DOLPHINS that never forget: Mammal found to recognize long-lost friends after 20 years apart

UK dailymail (6 August, 2013)

Dolphins can recognize old friends after more than 20 years of separation and may even be better at recognizing them than humans.

They identify their old companions by their signature, name-like whistle.

And because we rely on sight for recognition – and faces change over time, while dolphins' signature whistle remains the same – their ability to recognize old friends may last even longer than humans.

Scientists say it is the longest social memory recorded for a non-human species.

“This research shows that dolphins have lifelong memories for each other regardless of relatedness, sex or duration of association. This study is meaningful because it is the first study to show that humans are not the only mammals that have memories of others for long periods,” Dr Jason Bruck said.

Previous studies have shown that each dolphin develops its own unique signature whistle that seems to function as a name.

Dr Bruck stored dolphins' signature whistles on his iPod. And he played recordings of the whistles to dolphins that once lived with those that made the call.

He found that when the whistles were unknown, they showed little interest but when they recognized it they would respond.

'When they hear a dolphin they know, they often quickly approach the speaker playing the recording. At times they will hover around, whistle at it, try to get it to whistle back,' Dr Bruck added.

Dr Bruck said that dolphins appear to remember the whistles for life - around 20 years.

Although an elephant can remember its mother after 20 years, it is unclear how the memory functions outside a family context. In this research paper, the dolphins were able to remember family members as well as strangers.

Dr Bruck suggested the dolphins' ability may be linked to their tight social groups.

"It is important for them to recall the calls of dolphins they have previously met. They need to decide whether or not that's someone they want to approach when they hear that whistle about a mile out, or whether they want to avoid that individual," said Dr Bruck.

Dr Bruck's next aim is to show whether the call brings a representational mental image of that individual.

"We know they use these whistles like names, but we don't know if the name stands for something in their minds the way a person's name does for us. We don't know yet if the name makes a dolphin picture another dolphin in its head," Dr Bruck said.

APPENDIX 2.

Mid-Level Text Set Example

[Main Text]

Giant welcome to Canada! Chinese Panda bears arrive for five year stay

The Canadian Press (March 24, 2013)

TORONTO – A pair of giant pandas born and raised in China are about to receive a Canadian welcome worthy of their name.

Their arrival marks the realization of a deal reached when the prime minister visited China just over a year ago, and is seen as a symbol of a significant thaw in diplomatic relations between the two countries.

Five-year-old Er Shun and her prospective mating partner, four-year-old Da Mao, will call Toronto home for five years before being relocated to the Calgary Zoo for the same length of time. Canadian and Chinese officials have voiced hopes the pair will add to the species' sparse population during their stay.

The animals are arriving in Canada in the sort of style not often experienced by even two-legged diplomats.

Prime Minister Stephen Harper, who personally announced the loan deal during a trip to China last year, will be on hand to greet the new arrivals as they land from a highly customized plane trip.

FedEx Canada president said the process of preparing the bears for travel began days before the flight.

“We created very special customized enclosures for the two pandas and we actually sent them over there,” Lisson said. “They’re in the panda’s environment so they can go up to them and look at them and touch them . . . so when they go inside the enclosures they’ll be familiar with them.”

The airplane is stocked with bamboo, apples and water as well as some of the pandas’ favorite toys, she said. The bamboo that forms the backbone of the pandas’ diet will continue to be in high demand once the animals are settled in their new home, she said. FedEx has agreed to bring in up to 900 kilograms of the plant three times a week from the Memphis Zoo for the duration of their stay, she added.

Lisson said such vast quantities are critical for creatures known for their demanding eating habits.

“They actually eat quite a lot. Up to 16 hours a day they can spend eating. They can consume anywhere from 14 to 20 kilograms of bamboo a day to make sure they get enough nutrition,” she said. “They’re very picky, too. They might go through 10 bamboos just to find one that they like.”

Er Shun and Da Mao will be the first pandas to visit Canada in 24 years.

[TBNR Text 1]

All Aboard the Panda Express

Time for Kids (March 27, 2013)

Two giant pandas are shipped to a new home in Canada

FedEx delivered some very precious cargo this week. On March 25, two giant pandas were shipped from China to Canada. The bears received a warm welcome to North America from Canada's Prime Minister Stephen Harper and Chinese ambassador Zhang Junsai.

The pandas will spend 10 years in Canada—five at the Toronto Zoo, then five at the Calgary Zoo. This is the first time in 20 years that giant pandas have been loaned to a Canadian zoo, according to a FedEx press release. "I want to offer my sincere thanks to the government of China for sharing these two pandas, symbols of peace and friendship, with all Canadians," Prime Minister Harper told the Canadian Press.

The giant pandas are named Er Shun and Da Mao. Er Shun, a five-year-old female, came from Chongqing Zoo, in southwest China. Da Mao, a four-year-old male, traveled from Chengdu, which is home to China's top panda research and breeding center.

The two bears traveled in style. FedEx designed a special airplane called the Panda Express, which features a large image of a panda on its exterior. Onboard, Er Shun and Da Mao traveled comfortably in white enclosures with holes for breathing. In the weeks leading up to their departure, the cages were placed in the pandas' habitats in China so they could get used to them before the long journey.

The panda passengers were given plenty of snacks throughout the flight. Each panda received more than 200 pounds of bamboo and 100 pounds of apples.

Specialists chose these pandas for breeding purposes, as part of an effort to help boost the bears' population numbers. The World Wildlife Federation estimates that there are only 1,600 giant pandas left in the wild.

The panda's decline is due in part to the loss of their primary food source, bamboo. The plant makes up 99% of the bears' diet, with some pandas eating about 40 pounds of it a day. According to a recent study, warming temperatures are causing a shortage of bamboo in at least one region of China where pandas live.

The climate in Er Shun and Da Mao 's new home in Canada is not ideal for growing bamboo. Twice a week, the Memphis Zoo, in Tennessee, will ship about 700 pounds of the green plant up north to the Toronto Zoo. While the pandas will be far from China, zookeepers plan to make Canada feel like home.

[TBNR Text 2]

Giant Pandas: Canada Welcomes Pair from China, Stephen Harper among First To Greet Them

Huffingtonpost (March. 25, 2013)

TORONTO - They arrived to much fan fare — a hands-on greeting from the prime minister and a roar of applause.

But beneath the spectacle surrounding the welcome for two giant pandas on loan to Canada from China ran an important diplomatic message — ties between the two countries are stable and continue to grow stronger.

"I want to offer my sincere thanks to the government of China for sharing these two pandas, symbols of peace and friendship, with all Canadians," Prime Minister Stephen Harper said Monday, moments after welcoming the black and white bears.

"These pandas will help us learn more about one another while serving as a reminder of our deepening relationship, a relationship based on mutual respect and growing collaboration."

Five-year-old Er Shun and her prospective mate, four-year-old Da Mao, arrived aboard the "Panda Express," a specially outfitted FedEx Express Canada plane branded with an image of a panda on its exterior.

The pair will be living in Canada for the next 10 years, splitting their time equally between the Toronto Zoo and the Calgary zoo.

Their arrival marks the realization of a deal reached when Harper visited China just over a year ago.

In addition to charming Canadians, the zoo hopes to introduce the two pandas to each other in a year to take advantage of a crucial mating window.

"They're very difficult to breed in captivity or in the wild as well, so we'll be putting a lot of effort into that. That's our hope and that's our plan," said Gabriela Mastromonaco, curator of reproductive programs with the Toronto Zoo.

"We're going to be using all the science that's available to us, hormone analysis, and if they need more help than that then we'll be doing assistive reproduction."

Any pandas born in Canada would belong to China.

There was no doubt Monday that the pandas were well cared for throughout their nearly 12,900 kilometre journey. The plane was well stocked with bamboo, water and "panda toys", and two attendants accompanied the animals to see to their every need.

"They seemed to enjoy the flight, they were eating and playing, took a little nap. It was a good trip all around," said First Officer Ben Miller.

The pandas will be well supplied with their food throughout their stay in Canada. FedEx has agreed to bring in up to 900 kilograms of bamboo three times a week from the Memphis Zoo for the duration of the pandas' stay.

APPENDIX 3.

High-Level Text Set Example

[Main Text]

Curiosity Rover Lands Safely on Mars

NY TIMES (AUG. 6, 2012)

PASADENA, Calif. — A plutonium-powered rover the size of a small car was descended at the end of 25-foot-long cables from a hovering rocket stage onto Mars early on Monday morning.

The rover, called Curiosity, ushers in a new era of exploration that could turn up evidence that the Red Planet once had the necessary ingredients for life. NASA and administration officials were also quick to point to the success to counter criticism that the space agency had turned into a creaky bureaucracy incapable of matching its past glory.

“If anybody has been harboring doubts about the status of U.S. leadership in space, there’s a one-ton, automobile-size piece of American ingenuity, and it’s sitting on the surface of Mars right now.” John P. Holdren, the president’s science adviser, said at a news conference.

Curiosity is far larger than earlier rovers and is packed with the most sophisticated movable laboratory that has ever been sent to another planet. It is to spend at least two years examining rocks within the 96-mile crater it landed in, looking for carbon-based molecules and other evidence that early Mars had conditions friendly for life.

The Curiosity landing which was dubbed "Seven Minutes of Terror" seemed particularly risky. Engineers chose not to use the tried-and-true landing systems, neither the landing legs of the Viking missions in 1976 nor the cocoons of air bags that cushioned the two rovers that NASA placed on Mars in 2004. Those approaches, they said, would not work for a one-ton vehicle.

Instead, for the final landing step, they came up with something novel that they called the sky crane maneuver. The rover would be gently winched to the surface from a hovering rocket stage.

Two minutes later its landing, the first image popped onto video screens — a grainy, 64-pixel-by-64-pixel black-and-white image that showed one of the rover's wheels and the Martian horizon.

Because Curiosity is powered by electricity generated from the heat of a chunk of plutonium, it could continue operating for years, perhaps decades, until it finally wears out.

[TBNR Text 1]

Nasa's Curiosity rover successfully lands on Mars

BBC News (August, 6, 2012)

The one-tonne vehicle, known as Curiosity, was reported to have landed in a deep crater near the planet's equator,

It will now embark on a mission of at least two years to look for evidence that Mars may once have supported life.

Within minutes, the robot was returning its first low-resolution images, showing us its wheels and views to the horizon.

The descent through the atmosphere after a 570-million-km journey from Earth had been known as the "seven minutes of terror" - the time it would take to complete a series of high-risk, automated maneuvers that would slow the rover from an entry speed of 20,000km/h to allow its wheels to set down softly.

Curiosity weighed 5,293 pounds on Earth. It was the size of a small car and much, much bigger than the rovers Spirit and Opportunity, which were cushioned by airbags when they landed in 2004. Engineers quickly figured out that airbags would burst if they were tried on Curiosity. So they designed it to be lowered to the Martian surface by a heat shield, then a parachute, then retro-rockets, and finally a sky crane -- something that had never tried before -- and that's what made this so scary for them.

The sense of national pride was picked up by US President Barack Obama's chief science adviser, John Holdren.

"Landing the Mars Science Laboratory rover Curiosity on the Red Planet was by any measure the most challenging mission ever attempted in the history of planetary exploration," he said.

"And if anyone has been harboring doubts about the status of US leadership in space, well there's a one ton automobile-sized piece of American ingenuity sitting on the surface of the Red Planet right now."

Curiosity has been sent to investigate the central mountain inside Gale Crater that is more than 5km high.

The vehicle will be scouring Mount Sharp in the crater's centre looking for evidence that past environments could have favored microbial life.

Scientists warn, however, that this will be a slow mission. Curiosity is in no hurry. The rover has a plutonium battery that should give it far greater longevity than the solar-paneled power systems fitted to previous vehicles.

Initially, the rover is funded for two Earth years of operations. But many expect this mission to roll and roll for perhaps a decade or more.

[TBNR Text 2]

NASA's Curiosity Rover Scores Touchdown on Mars

NBC News (Aug. 6, 2012)

After eight years of planning and eight months of interplanetary travel, NASA's Mars Science Laboratory pulled off a touchdown of Super Bowl proportions, all by itself. It even sent pictures from the goal line.

After eight years of planning and eight months of interplanetary travel, NASA's Mars Science Laboratory pulled off a touchdown of Super Bowl proportions, all by itself. It even sent pictures from the goal line.

The spacecraft fell into Mars' atmosphere, fired up a rocket-powered platform and lowered the car-sized, 1-ton Curiosity rover to its landing spot in 154-kilometer-wide Gale Crater. Then the platform flew off to its own crash landing, while Curiosity sent out a text message basically saying, "I made it!"

Curiosity's primary mission is scheduled to last one full Martian year, or almost two Earth years — but scientists hope the nuclear-powered rover will keep going for years longer than that.

President Barack Obama's science adviser, John Holdren, said that if anyone had any doubts about American technological leadership, "there's a one-ton, car-sized piece of American ingenuity, and it's sitting on the surface of Mars right now, and it certainly should put any such doubts to rest."

Curiosity is the biggest and most capable robotic laboratory ever sent to another planet: Its 10 scientific instruments are designed to study the chemistry of Mars' rocks, soil and atmosphere and determine whether the Red Planet had the right stuff to be habitable in ancient times.

The rover's prime target is a 3-mile-high (5-kilometer-high) mountain inside the crater. The mountain's layers of rock could preserve billions of years' worth of geological history, shedding light on the planet's transition from its warmer, wetter past to its current cold, dry climate.

The final step Curiosity's journey from Earth to Mars relied on technologies that had never been tried before in outer space — which is why it was called the "seven minutes of terror."

The sky crane handled the final phase of the slowdown by firing eight retro rockets. It descended to a height of about 65 feet (20 meters) and lowered the rover to the surface on the end of three cables. When the rover hit the ground, the cables were cut loose, and the sky crane boomed ed itself away from the landing site.

NASA went with the seemingly crazy system because the 1-ton Curiosity is the heaviest payload ever delivered to the Martian surface. That weight is too heavy for the airbag-cushioned system that was used for previous Mars rovers, and too unstable to put on a lander with legs, Steltzner said.

John Grunsfeld, NASA's associate administrator for science, said "the 'seven minutes of terror' has turned into the seven minutes of triumph."

APPENDIX 4.

Reading Comprehension Test

_____ 반, _____ 번, 이름 _____

- 질문에 대한 답을 우리나라 말 또는 영어로 최대한 자세히 답하시오.
 - 답이 기억나지 않거나 모를 경우 '모름'이라고 적으시오.
 - 반드시 지문을 보지 않는 상태에서 답하시오.
- 1) How do dolphins recognize their friends?
 - 2) According to Bruck's study, how long can dolphins remember another dolphin's whistle?
 - 3) In Bruck's study how did the dolphin react to her friend's whistle?
 - 4) Whose whistles can dolphins remember?
 - 5) Who might have the longest memory among animals?
 - 6) Why can dolphins remember their friends better than human?
 - 7) How does dolphins' good memory help them in the wild?
 - 8) How did Bruck test dolphin's memory for his study?
 - 9) How do dolphins react when they hear whistle they don't know?
 - 10) What does Bruck want to find out for his next study?

APPENDIX 5.

Vocabulary Test (VKS)

4번에 체크하는 경우 반드시 3번에 의미도 써야 하며, 해당 단어를 사용한 예문을 쓰시오.

1. calve

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

2. signature

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

3. evidence

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

4. foe

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

5. install

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

6. identify

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

7. stable

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

8. dominant

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

9. adopt

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

10. lingering

- 1) 이 단어를 본 적이 없다. ()
- 2) 이 단어를 본 적이 있으나 의미를 모른다. ()
- 3) 이 단어를 본 적이 있고, 내가 생각하기에 단어의 의미는 _____ 이다.
- 4) 이 단어를 사용하여 문장을 만들 수 있다. ()
예문) _____

APPENDIX 6.

6.1. Paired Samples T-Test for the RR Group Performance on Vocabulary Tests

	Pair	Mean	SD	t	df	Sig. (2-tailed)
Pair 1	Pre 1 - Post 1	-2.72000	1.69982	-11.315	49	.000
Pair 2	Pre 2 - Post 2	-2.28000	1.50564	-10.708	49	.000
Pair 3	Pre 3 - Post 3	-2.07000	1.76707	-8.283	49	.000
Pair 4	Pre 4 - Post 4	-1.98000	1.75243	-7.989	49	.000
Pair 5	Pre 5 - Post 5	-2.92000	1.70940	-12.079	49	.000
Pair 6	Pre 6 - Post 6	-2.29000	1.82972	-8.850	49	.000
Pair 7	Pre 7 - Post 7	-2.77000	2.48918	-7.869	49	.000
Pair 8	Pre 8 - Post 8	-1.75000	1.64208	-7.536	49	.000
Pair 9	Pre 9 - Post 9	-2.27000	2.05588	-7.808	49	.000
Pair 10	Pre 10 - Post 10	-1.55000	1.58195	-6.928	49	.000
Pair 11	Pre 11 - Post 11	-3.19000	2.73841	-8.237	49	.000
Pair 12	Pre 12 - Post 12	-1.58000	1.49952	-7.451	49	.000
Pair 13	Pre 13 - Post 13	-1.86000	1.60687	-8.185	49	.000
Pair 14	Pre 14 - Post 14	-2.13000	1.82893	-8.235	49	.000
Pair 15	Pre 15 - Post 15	-1.98000	2.09703	-6.676	49	.000

6.2. Paired Samples T-Test for the TBNR Group Performance on Vocabulary Tests

	Pair	Mean	SD	t	df	Sig. (2-tailed)
Pair 1	Pre 1 - Post 1	-4.18367	2.40159	-12.194	48	.000
Pair 2	Pre 2 - Post 2	-3.02041	2.59599	-8.144	48	.000
Pair 3	Pre 3 - Post 3	-4.08163	2.80874	-10.172	48	.000
Pair 4	Pre 4 - Post 4	-3.47959	2.14077	-11.378	48	.000
Pair 5	Pre 5 - Post 5	-3.55102	2.81041	-8.845	48	.000
Pair 6	Pre 6 - Post 6	-2.15306	1.64951	-9.137	48	.000
Pair 7	Pre 7 - Post 7	-3.39796	2.47904	-9.595	48	.000
Pair 8	Pre 8 - Post 8	-3.68367	2.61744	-9.852	48	.000
Pair 9	Pre 9 - Post 9	-3.00000	1.82859	-11.484	48	.000
Pair 10	Pre 10 - Post 10	-3.18367	2.18588	-10.195	48	.000
Pair 11	Pre 11 - Post 11	-3.60204	2.73857	-9.207	48	.000
Pair 12	Pre 12 - Post 12	-2.47959	1.94978	-8.902	48	.000
Pair 13	Pre 13 - Post 13	-4.19388	3.22396	-9.106	48	.000
Pair 14	Pre 14 - Post 14	-4.85714	3.17379	-10.713	48	.000
Pair 15	Pre 15 - Post 15	-4.08163	2.73166	-10.459	48	.000

6.3. Paired Samples T-Test for the RR Group Performance on Reading Comprehension Tests

	Pair	Mean	SD	t	df	Sig. (2-tailed)
Pair 1	Pre 1 - Post 1	-2.28000	1.55235	-10.386	49	.000
Pair 2	Pre 2 - Post 2	-1.76000	1.00122	-12.430	49	.000
Pair 3	Pre 3 - Post 3	-2.13000	1.61564	-9.322	49	.000
Pair 4	Pre 4 - Post 4	-2.37000	1.76071	-9.518	49	.000
Pair 5	Pre 5 - Post 5	-2.50000	1.92195	-9.198	49	.000
Pair 6	Pre 6 - Post 6	-2.58000	1.66403	-10.963	49	.000
Pair 7	Pre 7 - Post 7	-2.00000	1.62882	-8.682	49	.000
Pair 8	Pre 8 - Post 8	-2.09000	1.56717	-9.430	49	.000
Pair 9	Pre 9 - Post 9	-2.53000	1.72736	-10.357	49	.000
Pair 10	Pre 10 - Post 10	-2.16000	1.40857	-10.843	49	.000
Pair 11	Pre 11 - Post 11	-2.15200	1.38287	-11.004	49	.000
Pair 12	Pre 12 - Post 12	-1.77000	1.26656	-9.882	49	.000
Pair 13	Pre 13 - Post 13	-2.24000	1.65443	-9.574	49	.000
Pair 14	Pre 14 - Post 14	-1.71000	1.16097	-10.415	49	.000
Pair 15	Pre 15 - Post 15	-1.32000	1.43484	-6.505	49	.000

6.4. Paired Samples T-Test for the TBNR Group Performance on Reading Comprehension Tests

	Pair	Mean	SD	t	df	Sig. (2-tailed)
Pair 1	Pre 1 - Post 1	-3.52041	1.42872	-17.248	48	.000
Pair 2	Pre 2 - Post 2	-2.40816	1.42768	-11.807	48	.000
Pair 3	Pre 3 - Post 3	-3.33673	1.55921	-14.980	48	.000
Pair 4	Pre 4 - Post 4	-4.25510	1.35448	-21.991	48	.000
Pair 5	Pre 5 - Post 5	-2.83673	2.03200	-9.772	48	.000
Pair 6	Pre 6 - Post 6	-3.13265	1.68565	-13.009	48	.000
Pair 7	Pre 7 - Post 7	-3.73469	1.68047	-15.557	48	.000
Pair 8	Pre 8 - Post 8	-4.17347	1.66004	-17.599	48	.000
Pair 9	Pre 9 - Post 9	-3.15306	1.86023	-11.865	48	.000
Pair 10	Pre 10 - Post 10	-4.07143	1.57784	-18.063	48	.000
Pair 11	Pre 11 - Post 11	-2.67347	1.64111	-11.403	48	.000
Pair 12	Pre 12 - Post 12	-2.92857	1.36168	-15.055	48	.000
Pair 13	Pre 13 - Post 13	-3.80612	1.85634	-14.352	48	.000
Pair 14	Pre 14 - Post 14	-4.68367	1.76981	-18.525	48	.000
Pair 15	Pre 15 - Post 15	-3.96939	1.61183	-17.239	48	.000

APPENDIX 7.

7.1. Descriptive Statistics for the RR Group Performance on Vocabulary Pre-tests and Post-tests

Session		Mean	SD	N	Session		Mean	SD	N
1	Pre 1	10.6882	3.90919	50	9	Pre 9	4.6100	3.38256	50
	Post 1	13.4082	4.23919	50		Post 9	6.8800	4.08152	50
2	Pre 2	3.9200	2.63098	50	10	Pre 10	6.2700	4.24169	50
	Post 2	6.2000	3.43006	50		Post 10	7.8200	4.89665	50
3	Pre 3	4.8700	3.93676	50	11	Pre 11	4.8500	4.10481	50
	Post 3	6.9400	4.52729	50		Post 11	8.0400	5.31924	50
4	Pre 4	7.0400	3.94844	50	12	Pre 12	6.7700	4.40803	50
	Post 4	9.0200	4.58030	50		Post 12	8.3500	5.02570	50
5	Pre 5	5.7400	3.91392	50	13	Pre 13	7.5500	4.29790	50
	Post 5	8.6600	4.50560	50		Post 13	9.4100	4.52283	50
6	Pre 6	5.7700	3.79206	50	14	Pre 14	5.8100	3.86228	50
	Post 6	8.0600	4.31258	50		Post 14	7.9400	4.40853	50
7	Pre 7	4.4900	3.62459	50	15	Pre 15	4.3500	3.68706	50
	Post 7	7.2600	4.82155	50		Post 15	6.3300	4.85673	50
8	Pre 8	10.1800	4.40635	50					
	Post 8	11.9300	4.50058	50					

7.2. Descriptive Statistics for the RR Group Performance on Reading Comprehension Pre-tests and Post-tests

Session		Mean	SD	N	Session		Mean	SD	N
1	Pre 1	4.0200	2.14989	50	9	Pre 9	1.9300	1.80987	50
	Post 1	6.3000	2.29463	50		Post 9	4.4600	2.25389	50
2	Pre 2	2.1400	1.50523	50	10	Pre 10	3.7400	2.13628	50
	Post 2	3.9000	1.90059	50		Post 10	5.9000	2.25198	50
3	Pre 3	3.9700	2.40834	50	11	Pre 11	3.1600	1.75092	50
	Post 3	6.1000	2.55551	50		Post 11	5.3120	1.99076	50
4	Pre 4	3.7700	1.84946	50	12	Pre 12	3.3700	1.83172	50
	Post 4	6.1400	2.44123	50		Post 12	5.1400	2.22930	50
5	Pre 5	2.7500	2.42068	50	13	Pre 13	3.8700	2.69696	50
	Post 5	5.2500	3.03760	50		Post 13	6.1100	2.55808	50
6	Pre 6	2.3500	2.18821	50	14	Pre 14	3.5600	2.15861	50
	Post 6	4.9300	2.69923	50		Post 14	5.2700	2.42060	50
7	Pre 7	2.9300	2.01274	50	15	Pre 15	3.5100	2.20965	50
	Post 7	4.9300	2.34740	50		Post 15	4.8300	2.50430	50
8	Pre 8	3.6100	1.99819	50					
	Post 8	5.7000	2.25651	50					

7.3. Descriptive Statistics for the TBRR Group Performance on Vocabulary Pre-tests and Post-tests

Session		Mean	SD	N	Session		Mean	SD	N
1	Pre 1	11.3776	3.41951	49	9	Pre 9	4.6837	3.42888	49
	Post 1	15.5612	3.63380	49		Post 9	7.6837	3.88600	49
2	Pre 2	3.3776	2.21860	49	10	Pre 10	6.3469	3.54172	49
	Post 2	6.3980	3.98039	49		Post 10	9.5306	4.37251	49
3	Pre 3	5.0714	3.75694	49	11	Pre 11	4.9490	3.54031	49
	Post 3	9.1531	5.15207	49		Post 11	8.5510	5.23136	49
4	Pre 4	7.6837	3.89537	49	12	Pre 12	7.0306	3.84113	49
	Post 4	11.1633	4.00441	49		Post 12	9.5102	4.34752	49
5	Pre 5	4.5612	3.76474	49	13	Pre 13	7.3673	4.24850	49
	Post 5	8.1122	5.07369	49		Post 13	11.5612	4.67666	49
6	Pre 6	5.9898	3.99803	49	14	Pre 14	5.6837	3.85099	49
	Post 6	8.1429	4.57234	49		Post 14	10.5408	5.25975	49
7	Pre 7	4.9286	3.55463	49	15	Pre 15	5.0816	3.41770	49
	Post 7	8.3265	5.13520	49		Post 15	9.1633	4.97953	49
8	Pre 8	10.3061	4.52288	49					
	Post 8	13.9898	3.72700	49					

7.4. Descriptive statistics for the TBNR group performance on comprehension pre-tests and post-tests

Session		Mean	SD	N	Session		Mean	SD	N
1	Pre 1	4.3571	1.97642	49	9	Pre 9	2.3061	1.40615	49
	Post 1	7.8776	1.37512	49		Post 9	5.4592	2.04082	49
2	Pre 2	2.0204	1.48590	49	10	Pre 10	3.8980	1.69859	49
	Post 2	4.4286	1.94989	49		Post 10	7.9694	2.12722	49
3	Pre 3	3.8878	1.98501	49	11	Pre 11	3.3163	1.57021	49
	Post 3	7.2245	1.91502	49		Post 11	5.9898	1.98297	49
4	Pre 4	3.8571	1.61051	49	12	Pre 12	3.2857	1.80566	49
	Post 4	8.1122	1.60489	49		Post 12	6.2143	1.94454	49
5	Pre 5	2.5612	2.34217	49	13	Pre 13	3.8061	2.42345	49
	Post 5	5.3980	2.94742	49		Post 13	7.6122	2.21798	49
6	Pre 6	2.0612	2.00165	49	14	Pre 14	3.3469	1.52822	49
	Post 6	5.1939	2.76665	49		Post 14	8.0306	2.23702	49
7	Pre 7	2.4796	1.38052	49	15	Pre 15	3.5306	1.53910	49
	Post 7	6.2143	2.13356	49		Post 15	7.5000	1.92841	49
8	Pre 8	3.6020	1.89841	49					
	Post 8	7.7755	1.93127	49					

APPENDIX 8.

8.1. Independent Samples T-Test for the RR Group and the TBNR Group Performance on Vocabulary Pre-tests

Session	F	Sig.	t	df	Sig.(2-tailed)
Pre 1	.260	.611	-.933	97	.353
Pre 2	.523	.471	1.108	97	.271
Pre 3	.048	.827	-.260	97	.795
Pre 4	.004	.952	-.816	97	.416
Pre 5	.144	.705	1.527	97	.130
Pre 6	.279	.599	-.281	97	.780
Pre 7	.645	.424	-.608	97	.545
Pre 8	.907	.343	-.141	97	.889
Pre 9	.516	.474	-.108	97	.915
Pre 10	1.460	.230	-.098	97	.922
Pre 11	.048	.826	-.128	97	.898
Pre 12	.471	.494	-.313	97	.755
Pre 13	.451	.504	.213	97	.832
Pre 14	.042	.839	.163	97	.871
Pre 15	.065	.799	-1.023	97	.309

8.2. Independent Samples T-Test for the RR Group and the TBNR Group Performance on Reading Comprehension Pre-tests

Session	F	Sig.	t	df	Sig.(2-tailed)
Pre 1	.113	.737	-.812	97	.419
Pre 2	.028	.866	.398	97	.692
Pre 3	.999	.320	.185	97	.853
Pre 4	1.716	.193	-.250	97	.803
Pre 5	.029	.866	.394	97	.694
Pre 6	.062	.804	.685	97	.495
Pre 7	2.798	.098	1.296	97	.198
Pre 8	.064	.801	.020	97	.984
Pre 9	5.005	.028	-1.153	97	.252
Pre 10	1.534	.219	-.407	97	.685
Pre 11	3.438	.067	-.467	97	.641
Pre 12	.000	.997	.231	97	.818
Pre 13	1.612	.207	.124	97	.902
Pre 14	7.021	.009	.566	97	.573
Pre 15	2.309	.132	-.054	97	.957

APPENDIX 9.

Questionnaire Sheet

번호	질문	응답				
		매우 그렇다	그렇다	보통이다	그렇지 않다	매우 그렇지 않다
1	'반복읽기' 수업에 흥미를 가지고 참여했나?	매우 그렇다	그렇다	보통이다	그렇지 않다	매우 그렇지 않다
2	'반복읽기'가 영어 읽기 이해에 도움이 되었는가?	매우 그렇다	그렇다	보통이다	그렇지 않다	매우 그렇지 않다
3	'반복읽기'가 영어 어휘 학습에 도움이 되었는가?	매우 그렇다	그렇다	보통이다	그렇지 않다	매우 그렇지 않다
4	'반복읽기' 과정이 어떠했나?	매우 흥미로웠다	흥미로웠다	흥미롭지도 지루하지도 않았다	지루했다	매우 지루했다
5	앞으로 '반복읽기'를 통한 읽기학습을 또 하고 싶은가?	매우 그렇다	그렇다	보통이다	그렇지 않다	매우 그렇지 않다
6	앞으로 이 방법을 사용하여 영자신문을 계속 읽고 싶은가?	매우 그렇다	그렇다	보통이다	그렇지 않다	매우 그렇지 않다
7	'반복읽기' 학습법을 다른 사람에게 추천하겠는가?	매우 그렇다	그렇다	보통이다	그렇지 않다	매우 그렇지 않다
8	나는 '반복읽기' 수업시간이....	매우 좋았다	좋았다	변화없다	낮아졌다	매우 낮아졌다
9	'반복읽기' 수업 이후 '영어읽기'에 대한 나의 흥미가...	매우 높아졌다	높아졌다	변화없다	낮아졌다	매우 낮아졌다
10	'반복읽기' 수업 이후 '영어읽기'에 대한 나의 자신감이...	매우 높아졌다	높아졌다	변화없다	낮아졌다	매우 낮아졌다

국 문 초 록

제 2언어 읽기는 EFL 상황에서 학습자들에게 충분한 언어 입력을 제공해 주기 위한 방안으로 중요히 여겨져 왔다. 성공적인 제 2언어 읽기 입력을 위해서는 잘 발달 된 어휘지식을 수반한 충분한 읽기이해가 필수적이다. 따라서 학습자들이 제 2언어 읽기를 더 잘 할 수 있도록 도움을 주기 위해 연구자들은 학습자들의 어휘학습과 읽기이해를 촉진시키기 위한 많은 읽기방법들을 고안해 왔다. 제 2언어 읽기의 중요성에 대해 인식하면서, 본 연구는 두 가지 읽기방법인 반복읽기 (repeated reading)와 주제관련 좁혀읽기 (theme-based narrow reading)가 한국 EFL 학습자들의 어휘학습과 읽기이해에 미치는 영향을 다양한 수준의 지문을 사용하여 연구하였다. 또한, 본 연구는 EFL 학습자들이 반복읽기와 주제관련 좁혀읽기에 대해 어떤 인식을 가지는지 조사하였다.

본 연구를 위해 99명의 한국 중학교 학생들을 두 집단으로 나누어, 한 집단에게는 반복읽기의 처치를 하였으며 다른 집단에게는 주제관련 좁혀읽기의 처치를 하였다. 반복읽기 집단은 같은 지문을 반복해서 읽었으며, 주제관련 좁혀읽기 집단은 한 주제에 밀접하게 관련된 서로 다른 지문을 읽었다. 15회의 수업이 15주에 걸쳐 실행되었으며, 각각의 수업에는 그 수업만의 개별적인 읽기 지문과 독해 및 단어 사전·사후 시험이 포함되었다. 읽기 지문으로는 학습자의 읽기 능력 안에 있는 수준의 지문 (하-수준), 학습자의 읽기 능력에서 약간 벗어나는 수준의 지문 (중-수준), 학습자의 읽기 능력에서 많이 벗어나는 수준의 지문 (상-수준)이 사용되었다. 자료분석을 위하여 세가지 지문 수준에 따른 학습자의 사후시험점수와 사전시험점수 차이의 평균 점수가

사용되었으며, 반복측정 다변량 분산분석을 비롯한 단변량 사후 분석이 자료 분석을 위해 사용되었다. 설문 조사 분석을 위해서는 T-검정이 사용되었다.

본 연구의 결과에 따르면, 주제관련 좁혀읽기가 반복읽기에 비해서 모든 수준의 지문에 대하여 어휘학습과 읽기이해 향상에 통계적으로 유의미하게 효과적이었다. 읽기방법과 지문난이도와의 상호작용 효과에 있어서는 둘 사이의 상호작용효과에 따라 어휘학습과 읽기이해 향상 정도가 다르게 나타났다. 따라서 본 연구는 각 읽기방법에 어떤 난이도의 지문이 효과가 있는지에 대한 제언을 한다. 또한 본 연구는 주제관련 좁혀읽기의 처치를 받은 학습자들이 반복읽기 처치를 받은 학습자들에 비해 자신들이 받은 읽기방법에 대해 더 긍정적인 태도를 가지고 있음을 보여주었다.

이상의 연구결과는 외국어 교육연구가들과 영어교사들에게 다음과 같은 시사점을 제공한다. 반복읽기와 주제관련 좁혀읽기는 제 2언어의 어휘학습과 읽기이해 향상을 위해 학습자의 읽기능력에 맞는 수준의 지문뿐만 아니라 학습자의 읽기능력을 벗어나는 수준의 지문에 있어서도 효과적으로 사용될 수 있지만, 주제관련 좁혀읽기가 반복읽기 보다 다양한 수준의 난이도 지문에 있어서 어휘학습과 읽기이해 향상에 더 효과적으로 사용될 수 있다. 특히, 지문의 난이도가 학습자의 읽기 능력 범위 안에 있을 때, 주제관련 좁혀읽기의 효과를 더 많이 볼 수 있다. 이에 따라서, 주제관련 좁혀읽기 방법을 적용한 읽기자료가 개발될 필요가 있다.

주요어: 반복읽기, 좁혀읽기, 주제관련 좁혀읽기, 읽기방법, 텍스트 난이도,

어휘학습, 독해, L2읽기 입력, L2 읽기

학 번: 2004-22039