

Copyright
by
Juhee Lee
2015

The Dissertation Committee for Juhee Lee Certifies that this is the approved version of the following dissertation:

Exploring the Interdependence of Second Language Skills for Middle School Students Studying English in Korea: Effects of Extensive Reading and Extensive Writing on Reading, Writing, Grammar, and Attitude Measures

Committee:

Diane L. Schallert, Supervisor

Elaine K. Horwitz

Mary J. Worthy

Corinne P. Crane

Veronica G. Sardegna

**Exploring the Interdependence of Second Language Skills for Middle School
Students Studying English in Korea: Effects of Extensive Reading and
Extensive Writing on Reading, Writing, Grammar, and Attitude Measures**

by

Juhee Lee, B.A.; M.A.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May 2015

Dedication

First and above all, to my Lord, Jesus Christ

“But He knows the way I take.

When He has tried me, I shall come forth as gold.”

Job 23:10

Acknowledgements

Four years ago, I started this journey in doctoral studies to pursue my dream. It has been challenging and sometimes even frustrating. However, because of the great people that I have met, the journey has been definitely worthwhile and enjoyable. Without their support, it would have been impossible to complete my study successfully.

First and foremost, I would like to give my sincerest thanks and appreciation to my supervisor, Dr. Diane L. Schallert. Someday, I would like to be an academic mentor and a role model for my students that she has been for me. From her classes and our countless research meetings, I learned the joy of learning, the value of doing research, and the importance of following my dream. *My Diane, without your support and encouragement, I would not have grown this far. It has been a great pleasure and an honor to have you as my advisor. You have made me want to be a better researcher and teacher with insight and warm-heartedness. My sincere thanks and gratitude to you for your warmth, generosity, and patience.*

I am also deeply thankful to Dr. Elaine K. Horwitz for her generous and academic advice, care, and understanding throughout my graduate studies. As a graduate advisor and my dissertation committee member, she guided me with her thoughtful suggestions and expertise toward successful completion of my study and toward professional development. Whenever I consulted with her regarding my concerns or studies, her insightful and penetrating comments helped me see things in different perspectives. Moreover, I am grateful to Dr. Jo Worthy for her willingness to support my dissertation study. Her genuine questions regarding my study and expertise in literacy studies helped me carefully plan and implement the yearlong experiment in this study. Furthermore, I had a great opportunity to take a second language writing course from Dr. Cori Crane.

My understanding and interest in writing developed further through her class, and her expertise and suggestions contributed to progression of my dissertation. I especially appreciate her enthusiasm and constructive comments for my study. I also owe thanks to Dr. Veronica G. Sardegna. I established my identity as a researcher through her passionate classes and our collaborative research meetings. Although she left the University of Texas at Austin, she offered me consistent support for this research and my professional development. Her encouragement and sincere care have motivated me to continue to conduct research and sharpen my research skills.

Moreover, I would like to acknowledge the financial support from the Korean Government (National Institute for International Education), the Graduate School of the University of Texas at Austin, and the American Association of University Women Organization. Their generous fellowships enabled me to concentrate on my academic work, publish papers in academic journals, and present at international conferences.

I am most fortunate to have many friends and loved ones who strengthen me with their unfailing love. I would like to express my gratitude to my friends in the Foreign Language Education at UT. I am also indebted to my parents, sisters, brother, and my parents-in-law for their warmhearted love, encouragement, and support to make me fly beyond my limit.

Finally, I am truly and deeply thankful to Youngjin Kim, my husband, soulmate, and lifelong friend. He is the one who inspired me to initiate my doctoral studies, encouraged me to pursue my dream, and supported me with his love. *Your love, patience, and trust have made me grow personally and professionally. Thank you, my love, Youngjin.*

Exploring the Interdependence of Second Language Skills for Middle School Students Studying English in Korea: Effects of Extensive Reading and Extensive Writing on Reading, Writing, Grammar, and Attitude Measures

Juhee Lee, Ph.D.

The University of Texas at Austin, 2015

Supervisor: Diane L. Schallert

Despite the growing recognition of the reading-writing connection both in first language and second/foreign language acquisition, few studies have empirically investigated whether reading improves writing, or vice versa. Taking a step further from the existing correlation studies, the current experimental study examined the effects of extensive reading, extensive writing, and regular instruction (serving as a control) on reading comprehension, writing performance, knowledge of grammar, and attitudes of Korean middle school students learning English as a foreign language. Randomly assigned to one of three instructional types, the participants ($N = 306$) received treatment instruction, once a week for two semesters, as part of their English curricula. At the beginning and end of the treatment, the study administered language measures of reading, writing, and grammar as well as attitude questionnaires toward their treatment and toward reading and writing in English.

Results indicated that both extensive reading and extensive writing had positive effects on the development of reading comprehension, writing performance, and grammar knowledge. The results reveal particular support for the reading-writing connections. For

example, the extensive-reading group, but not the control group, made significant gains in writing, though neither group engaged in writing practice in English. The extensive-writing group, moreover, improved significantly in reading comprehension despite only practicing writing. Also, the contributions of treatment instruction to knowledge of grammar did not significantly differ among the three groups. Nevertheless, exploratory post hoc analyses suggest that extensive reading may have a more positive impact on general grammar, articles, and prepositions.

In terms of students' attitudes, the extensive-writing group did not indicate their willingness to continue to write, despite the significantly higher levels of enjoyment and engagement in the activity. In contrast, the extensive-reading group revealed a significantly stronger willingness to sustain reading books as well as a significant decrease in reading apprehension, particularly among students at the lowest proficiency level. The predominant status of reading over writing in English curricula as well as exams seems to influence students' attitudes toward reading and writing. Findings are used to propose theoretical, practical, and pedagogical implications.

Table of Contents

List of Tables	xiii
List of Figures	xvi
Chapter 1 INTRODUCTION.....	1
Extensive Reading	4
Extensive Writing	6
Purpose of the Study	8
Significance of the Study	9
Chapter 2 LITERATURE REVIEW	11
Theoretical Perspectives	11
Reviews on the Theoretical Models of Reading and Writing	11
Incidental Learning	14
The Role of Pushed Output in Second Language Learning.....	14
Research on Extensive Reading.....	16
The Effects of Extensive Reading on Linguistic Skills	16
The effects of extensive reading on reading comprehension	16
The effects of extensive reading on writing proficiency	27
The effects of extensive reading on grammar knowledge	30
The Effects of Extensive Reading on Students' Attitudes	33
Research on Extensive Writing.....	36
The Effects of Extensive Writing on Linguistic Skills	36
The effects of extensive writing on reading comprehension	36
The effects of extensive writing on writing proficiency	38
The effects of extensive writing on grammar knowledge.....	43
The Effects of Extensive Writing on Students' Attitudes	44
Research on the Mutual Influence between Reading and Writing	45
Correlation Research on the Reading-Writing Connection	45
Experimental Research on the Reading-Writing Connection	48

Chapter 3 METHOD.....	52
Participants and Settings	52
Students.....	52
Teachers	55
Treatments.....	55
Extensive Reading	57
Extensive Writing	58
Extended Regular Instruction	59
Group and Whole Class Activities.....	59
Instruments.....	61
Background Questionnaire and Attitude Surveys.....	61
Background questionnaire	61
Post-attitude survey toward treatment instruction	61
Attitude survey toward L2 reading	61
Attitude survey toward L2 writing.....	62
Language Measures	63
Reading comprehension tests.....	64
Writing tests	64
Grammar tests	65
English language proficiency.....	68
Learning Materials	69
Extensive reading.....	69
Extensive writing	71
An extended version of regular instruction.....	71
Procedures.....	72
Administering Measures	72
Treatment Instruction.....	73
Data Analysis	73
Grading Reading Comprehension and Knowledge of Grammar	73
Rating Writings.....	74

Statistical Analyses	75
Chapter 4 RESULTS.....	77
Research Question 1	78
Research Question 2	81
Research Question 3	84
General Grammar.....	84
Articles.....	88
Prepositions.....	91
Summary	93
Research Question 4	94
Attitudes toward Treatment Instruction	95
Attitudes toward L2 Reading.....	98
Attitudes toward L2 Writing.....	106
Summary	112
Chapter 5 DISCUSSION AND CONCLUSION.....	114
The Effects of Reading and Writing on Reading Comprehension and Writing Performance	114
The Effects of Extensive Reading on Reading Comprehension	115
The Effects of Extensive Writing on Reading Comprehension.....	118
The Effects of Extensive Reading on Writing Performance.....	120
The Effects of Extensive Writing on Writing Performance.....	122
The Influence of Language Proficiency on Improvement in Reading and Writing	125
The Effects of Reading and Writing on Knowledge of Grammar	128
The Effects of Extensive Reading and Extensive Writing on General Grammar	128
The Effects of Extensive Reading and Extensive Writing on Articles and Prepositions.....	130
The Influence of Language Proficiency on Improvement in Grammar.....	132
The Effects of Reading and Writing on Students' Attitudes.....	134
Students' Attitudes toward Treatment Instruction	134

Students' Attitudes toward L2 Reading	136
Students' Attitudes toward L2 Writing	138
Implications.....	141
Theoretical Implications	141
Practical Implications.....	142
Pedagogical Implications	143
Limitations	145
Future Research	146
Conclusion	148
Appendix A Background Questionnaire.....	149
Appendix B Post-Attitude Survey	150
Appendix C English Reading Attitude Survey	151
Appendix D English Writing Attitude Survey.....	152
Appendix E Analytic Scoring Rubric: Descriptive Writing	153
References.....	156
Vita	169

List of Tables

Table 3.1:	Background Information	53
Table 3.2:	Descriptive Statistics of Reading Tests, Writing Tests, Grammar Tests, and English Proficiency	63
Table 3.3:	Range of English Proficiency Scores by Treatment Group and Proficiency Level	68
Table 3.4:	Overview of Procedures	72
Table 4.1:	Means (Standard Deviations) of Reading Test Scores by Treatment Group and by Proficiency Level	78
Table 4.2:	Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level	79
Table 4.3:	Means (Standard Errors) for Post hoc Analysis of Reading Scores for the Time x Proficiency Level Interaction	80
Table 4.4:	Means (Standard Deviations) of Writing Test Scores by Treatment Group and by Proficiency Level	81
Table 4.5:	Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level	82
Table 4.6:	Means (Standard Errors) for Post hoc Analysis of Writing Scores for the Time x Treatment Interaction	82
Table 4.7:	Means (Standard Errors) for Post hoc Analysis of Writing Scores for the Time x Proficiency Level Interaction	83
Table 4.8:	Means (Standard Deviations) of General Grammar Test Scores by Treatment Group and by Proficiency Level.....	84

Table 4.9: Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level	85
Table 4.10: Means (Standard Errors) for Post hoc Analysis of General Grammar Test Scores for the Time x Proficiency Level Interaction	86
Table 4.11: Exploratory Analysis on General Grammar Test Scores by Treatment Group and by Proficiency Level	87
Table 4.12: Means (Standard Deviations) of Article Test Scores by Treatment Group and by Proficiency Level	88
Table 4.13: Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level	89
Table 4.14: Means (Standard Errors) for Post hoc Analysis of Article Test Scores for the Time x Proficiency Level Interaction	89
Table 4.15: Exploratory Analysis on Article Test Scores by Treatment Group and by Proficiency Level	90
Table 4.16: Means (Standard Deviations) of Preposition Test Scores by Treatment Group and by Proficiency Level	91
Table 4.17: Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level	92
Table 4.18: Exploratory Analyses on Preposition Test Scores by Treatment Group and by Proficiency Level	92
Table 4.19: One-Factor Solution for Students' Attitudes toward Treatment Instruction	95
Table 4.20: Means and Standard Deviations of Students' Attitudes toward Each Instruction by Treatment Group and by Proficiency Level	96
Table 4.21: Results for Two-way (Treatment x Proficiency) ANOVA	97

Table 4.22: Post hoc Pairwise Comparisons between Treatment Groups	97
Table 4.23: Five-Factor Solution for Students' Attitudes toward Reading .	99-100
Table 4.24: Means (Standard Deviations) of Reading Attitudes by Treatment Group	101
Table 4.25: Means (Standard Deviations) of Apprehension about L2 Reading by Treatment Group and by Proficiency Level.....	104
Table 4.26: Five-Factor Solution for Students' Attitudes toward Writing	107-108
Table 4.27: Means (Standard Deviations) of Writing Attitudes by Treatment Group	109

List of Figures

Figure 3.1: Examples of Group Activities by Treatment	65
Figure 3.2: Workbooks for Extensive Reading, Extensive Writing, and Regular Instruction (Control)	69
Figure 3.3: Level-Differentiated English Books and Bookshelves in the School's Library.....	70
Figure 4.1: Attitude Change over Time by Proficiency Level	103
Figure 4.2: Attitude Change over Time by Treatment Group for Level 1 Students	104
Figure 4.3: Conative Attitude Differences about L2 Reading by Groups over Time	105
Figure 4.4: Attitude Change about L2 Writing over Time by Proficiency	112

Chapter 1

INTRODUCTION

To function well in today's society, a person must possess reading and writing ability. A considerable amount of information is delivered through written language, and written communications, such as text messages and emails, are commonplace. These reading and writing literacies form an interdependent relationship; understanding others' ideas through texts and expressing oneself to others in written language are intimately connected.

Despite their equal importance and the close association between reading and writing, these two literacies, in the 1970s, were regarded as separate skills and were taught separately (Fitzgerald & Shanahan, 2000; Nelson & Calfee, 1998). Reading was considered as a receptive skill connected to understanding an author's message and writing as a productive skill linked to delivering one's messages to others (Brandt, 2001; Fitzgerald & Shanahan, 2000; Nelson & Calfee, 1998; Tierney & Pearson, 1983). It was not until the 1980s that scholars began to focus on the interconnection between reading and writing, with the idea that the cognitive subprocesses involved in reading and writing are potentially equivalent, interdependent, or strongly correlated (Grabe & Kaplan, 1996; Stotsky, 1982; Tierney & Shanahan, 1991; Zamel, 1992).

Recognizing the reading-writing connection, researchers have recently advocated the integration of reading and writing in designing language curricula not only in the first language (L1) but also in second/foreign language (L2) instruction (Belcher & Hirvela, 2001; Ewert, 2011; Grabe & Zhang, 2013; Graham & Hebert, 2011; Hirvela, 2004; Mallozzi & Malloy, 2007). Despite the increased attention, however, there is scant empirical evidence for the mutual influence of reading and writing in the second/foreign

language. In addition, unbalanced teaching of reading and writing has been traditionally performed in practice. In fact, in many contexts of teaching a second/foreign language, varying degrees of attention are typically paid to reading and writing instruction. Whereas reading literacy is emphasized in second language research and taught as a crucial component of the curriculum, writing has rarely been given such a spotlight (Harklau, 2002; Reichelt, 2001).

One reason for this overriding emphasis on reading over writing comes from developmental readiness theories that discouraged schools from teaching writing before the attainment of reading ability. Premature teaching before a child is ready to learn is considered unsuccessful, inefficient, or even detrimental (Fitzgerald & Shanahan, 2000). Compared to teaching reading, moreover, teaching writing is relatively difficult and uncommon, particularly in foreign language (FL) contexts due to contextual obstacles and a lack of resources (Leki, 2001; Reichelt, 2001). Even when writing instruction is provided, it has been taught separately from reading with an assumption that reading and writing are mutually irrelevant (Grabe & Zhang, 2013; Hirvela, 2004; Yoshimura, 2009).

Thus far, several scholars have investigated the reading-writing association through correlations between specific skills of reading and writing, such as decoding skills as a measure of reading and syntactic complexity skills in writing, or between the overall skills of reading and writing (Fitzgerald & Shanahan, 2000). Typically, correlation studies draw data from one-time administered measures and students' self-reported data of how much they read or write (Janopoulos 1986; Lee, 2005; Lee & Krashen, 1996, 1997). A simple correlation coefficient, however, offers, at best, support for speculations about the connection between reading and writing (Fitzgerald & Shanahan, 2000). Moreover, the development of reading and writing can change over time as an individual's linguistic skills and knowledge evolve (Paris, 2005; Shanahan,

1984). Nonetheless, one-time reading and writing measures cannot provide information for the developmental processes of reading and writing. Additionally, self-reported amounts of reading and writing in the second/foreign language may be meager unless respondents are avid readers or writers, and thus the responses to such questionnaires may be inadequate as a measure of reading and writing.

In order to offer robust evidence of the mutual influence of reading and writing, an intervention experiment seems necessary, a study that creates a context in which students actually engage in reading and writing and that directly examines whether reading can enhance writing performance and whether writing can improve reading comprehension, with reading and writing separately measured over time. For this purpose, this study used two instructional approaches, *extensive reading* and *extensive writing*, neither of which involve much direct instruction from the teacher. Extensive reading is recommended as an innovative instructional approach for reading because it involves reading a large amount of text with a focus on meaning-making (Day & Bamford, 2002; Krashen, 2004; Yamashita, 2008). Also, extensive writing may be an option for writing instruction as equivalent as extensive reading because its essence involves writing as much as possible on a wide range of topics (National Commission on Writing, 2003; Sun, 2010). Along with the comparative effects of reading and writing on each other's skill, their contributions to knowledge of grammar and students' attitudes are also investigated. Thus, the findings of the present study should provide empirical evidence not only for the reciprocal relationships between reading and writing, but also the effectiveness of extensive reading and extensive writing on syntactic knowledge and learners' attitudes toward each approach.

EXTENSIVE READING

Extensive reading, also known as *pleasure reading* or *free voluntary reading*, refers to the reading, as much as possible, of the readers' own choice of books at their own level and for pleasure without the pressures of testing (Carrell & Carson, 1997; Davis, 1995; Day & Bamford, 1998). Day and Bamford (2002) described the nature of extensive reading as follows (pp. 137-140):

- The reading material is easy.
- A variety of reading material on a wide range of topics must be available.
- Learners choose what they want to read.
- Learners read as much as possible.
- The purpose of reading is usually related to pleasure, information, and general understanding.
- Reading is its own reward.
- Reading speed is usually faster rather than slower.
- Reading is individual and silent.
- Teachers orient and guide their students.
- The teacher is a role model for the reader.

The main features of extensive reading include promoting motivation as well as positive attitudes toward reading and reading with a focus on the meaning of a text, not on its language, in a tension-free learning environment.

Extensive reading differs from intensive reading in that the objective of intensive reading is to develop particular linguistic skills by analyzing passages thoroughly (Palmer, 1964; Renandya, 2007). Intensive reading is also different from extensive reading in terms of the amount of reading, the difficulty of texts, the opportunity for students to choose the texts they read, and the level of motivation to sustain reading

(Nakanishi, 2015). This intensive reading instruction is one of the most prevalent instructional approaches, especially in the FL contexts (Hsu, 2004; Nakanishi, 2015). Many teachers believe that intensive reading alone can develop skillful readers (Day & Bamford, 1998). The intensive reading approach, however, may limit L2 learners' reading amount to only a few dozens of pages per year, even though reading in the target language can be a significant, or even the only, input source particularly for learners in FL contexts. The insufficient amount of reading may preclude L2 readers from developing reading fluency (Carrell & Carson, 1997).

As an instructional alternative to complement intensive reading instruction, many scholars have suggested extensive reading. To date, a number of studies have supported the impact of extensive reading on reading comprehension being more positive than intensive reading approaches or traditional language instruction in the contexts of learning a second or foreign language. Despite the abundant research on extensive reading, relatively few scholars have examined whether extensive reading can be effective as well for young adolescents who are not accustomed to pleasure reading in a foreign language and whose L2 reading proficiency is not yet sufficiently developed to enjoy reading.

Investigating the effects of extensive reading on young adolescents is particularly significant because research has found that reading motivation deteriorates from the early grades to later school years (Wigfield & Guthrie, 2000), and shows a particularly sharp drop during middle school years (Unrau & Schlackman, 2006). Extensive reading is known to improve reading motivation as reading itself is its own reward (Day & Bamford, 2002). If extensive reading is introduced to middle school students who tend to have low reading motivation and if they successfully build habits in reading English

books, extensive reading can be an effective L2 learning approach that is sustained as a lifelong leisure activity in an L2 learner's life.

EXTENSIVE WRITING

Extensive experience with writing has rarely been emphasized in second/foreign language instruction, and thus previous studies have not explicitly defined the term *extensive writing*. Among the few extant studies, Sun (2010) described the nature of extensive writing as follows: (a) writing as much as possible inside and outside of the classroom; (b) writing on a wide range of topics; (c) writing for different reasons and in different ways; (d) allowing students to decide the topic of their writing; (e) writing at one's own pace; and (f) writing at a faster pace than is typical. For this study, consulting Sun's (2010) descriptions, I define *extensive writing* as writing as much as possible, on a wide range of topics, with a focus on meaning construction and expression rather than the form of language, and respecting students' freedom to write in different formats or ways.

Thus far, little consensus has been reached about the purpose of teaching writing in a second/foreign language (Harklau, 2002). In general, foreign language learners are rarely asked to write in the target language in their daily lives other than in their foreign language classes. Unless the language learners seek to develop writing skills for academic and career purposes, teachers may not feel the immediate need to teach writing. Furthermore, writing has typically been considered as auxiliary in the second language acquisition process (Harklau, 2002). In fact, the majority of L2 writing studies have focused on how writing can play a role in the development of other language skills (Reichelt, 2001).

Also, it seems unclear how to teach second language writing. Because of different features of L1 and L2 writers, teaching methods in first language instruction cannot be

explicitly applied to L2-writing contexts. For instance, first language learners are illiterate from the start, whereas second or foreign language learners are mostly school-aged or older and can already read and write in their native language (Harklau, 2002; Nippold, 1998). Without considerations of such fundamental differences of the learners, teaching methods cannot be borrowed from existing L1 instructional practices. Additionally, teaching writing is more difficult than teaching other language skills, especially in an FL context. Because most language teachers in FL contexts are not native speakers of the target language, they may feel not sufficiently competent to teach writing (Reichelt, 2001). There are also other obstacles involved in teaching FL writing: large class size, time constraints, various local needs, and a lack of students' L1 writing experience (Leki, 2001). Even if writing is taught in FL classes, the instruction has traditionally focused on micro-level grammatical accuracy and skill-building practices for syntax and lexicon. Teaching macro-level discourse, including the development of content, organization, and effective ways of expressing ideas, has been neglected or postponed until the learner has developed command of the target language (Kern & Schultz, 1992).

Some teachers and researchers have explored diverse approaches to L2 writing, from controlled writing to free writing, and endorsed the process approach to improving writing proficiency (Silva, 1990). The process-oriented approach involving multiple drafts, however, seems to ignore important types of academic writing, such as essay exams (Horowitz, 1986). Similarly, most domestic or international language proficiency tests, such as TOEFL or IELTS, require test-takers to write purposeful and formal essays under time constraints. Thus, process-oriented writing lessons that allow ample time, collaboration with peers, and teacher support may reflect poorly the reality awaiting these future test-takers. More importantly, in order for process-based writing instruction to

have a moderate effect on the quality of students' writing, teachers need to receive professional training on how to use the process-writing approach (Graham & Perin, 2007). In a meta-analysis of L1 and L2 writing instruction for adolescent students, Graham and Perin (2007) found that process writing instruction had little to nearly no positive effect on students' writing performance, unless teachers were professionally trained and maintained their professional development.

In order to teach second/foreign language writing, teachers may need a reasonable rationale as well as adequate instructional methods that can be applicable to FL classrooms despite the aforementioned difficulties. In this regard, the findings of the present study can provide valuable information on the role of writing on the development of foreign language skills. Additionally, this study examines whether extensive experience with writing, with a minimum level of teachers' guidance, can be a viable instructional approach for improving adolescent foreign language learners' writing performance.

PURPOSE OF THE STUDY

The purpose of this study is to explore, via an experimental study, the reading-writing connections in a foreign language. Examining the effects of extensive reading and extensive writing on grammar knowledge and students' attitudes is another goal of the study. Additionally, this study is designed to examine how extensive reading and extensive writing have differentiated effects by students' target language proficiency level. The research questions are as follows:

1. What are the effects of extensive reading, extensive writing, and regular instruction on reading comprehension, and how do these effects differ by English (L2) proficiency for middle school learners of English in Korea?

2. For the same sample, what are the effects of extensive reading, extensive writing, and regular instruction on writing performance, and how do these effects differ by L2 proficiency?
3. For the same sample, what are the effects of extensive reading, extensive writing, and regular instruction on knowledge of grammar, and how do these effects differ by L2 proficiency?
4. For the same sample, what are students' attitudes toward the particular instruction they received and toward L2 reading and writing, and how do their attitudes differ by L2 proficiency?

SIGNIFICANCE OF THE STUDY

The current study holds theoretical, practical, and pedagogical implications for the second language acquisition field. This study is designed to examine the theoretical assumption that reading and writing are correlated and facilitate the other's development. By measuring the effect of reading on writing performance and the effect of writing on reading comprehension through a one-year experimental study, the findings of the study stand to provide empirical evidence to corroborate or refute the claims that an individual learns to read by writing and learns to write by reading. Additionally, this current study is meant to inform researchers of incidental learning of grammar from reading and inform them of the role of output opportunities in one's knowledge of general grammar. An abundant amount of research has focused on the contribution of print exposure to learning vocabulary, leaving its effect on grammar less explored. Similarly, little research has been conducted on the impact of the noticing function of output tasks on learning general grammar as well as specific target structures (articles and prepositions). This

study contributes to the second language research by expanding the scope of the ongoing discussion regarding incidental learning and language output.

From a practical perspective, the current study could show an example of actual implementation of extensive reading and extensive writing instruction in a regular English curriculum in a middle school. Thus far, these two forms of instruction have rarely been implemented as part of regular school curricula, in particular at a secondary school level. Several difficulties have been reported in implementing such a program into the existing curriculum: the fixed curriculum of the school, pressure to prepare students for university entrance exams as well as standardized tests, and students' low target language proficiency that prevents them from free reading and writing (Renandya, 2007). This study informs school administrators and teachers of how extensive reading and extensive writing programs can be implemented into middle school and what can be gained from these two instructional approaches.

Pedagogically, the findings of this study may serve as an empirical reference to help L2 practitioners design their reading and writing curricula. As an additive or alternative approach to traditional second language instruction with its sharp focus on short reading, grammar, and vocabulary, extensive reading and extensive writing can be a feasible and effective instructional option for teachers. Thus far, despite the well-known benefits of extensive reading, L2 teachers are reluctant to integrate extensive reading into their classes. The role of the teacher in extensive reading may seem vague and even anti-pedagogical; indeed, the teacher's responsibility in the extensive reading class seems limited to only encouraging students to read more (Day & Bamford, 1998). Likewise, L2-writing instruction is normally delayed until a learner develops reading proficiency. This study may offer a needed rationale for introducing extensive reading and extensive writing instruction for middle school L2 learners.

Chapter 2

LITERATURE REVIEW

This chapter is divided into four main sections: theoretical perspectives, extensive reading, extensive writing, and research on the mutual influence between reading and writing. This review begins with theoretical perspectives regarding the reading-writing connection, incidental learning, and the role of pushed output in second language learning. The second and third sections include prior work related to the effects of extensive reading and extensive writing on linguistic skills (reading comprehension, writing proficiency, and grammar knowledge) and students' attitudes. The fourth section offers empirical studies on the reading-writing connections. This literature review will provide readers with an up-to-date report and discussion of relevant theories, research methods, and findings in relation to reading and writing.

THEORETICAL PERSPECTIVES

Several theoretical perspectives can help interpret this study's data and refine understanding of the findings. The first section begins with a review on reading-writing connections to provide theoretical explanations on the effects of reading on writing and vice versa. The second section offers a review of incidental learning to illustrate how grammatical learning can occur while reading books. The third section reviews the role of pushed output to account for how extensive writing contributes to improving grammar knowledge.

Reviews on the Theoretical Models of Reading and Writing

Three theoretical stances regarding reading-writing connections inform this study. The first perspective views reading and writing as involving similar mental processes of meaning construction (Pearson, 1985; Spivey, 1990; Stotsky, 1983; Tierney & Pearson,

1983). According to this perspective, readers and writers follow equivalent cognitive processes: setting a goal, activating related knowledge, planning, composing meaning, and revising. For example, a writer establishes a purpose for writing, such as whether to describe experience or whether to persuade readers; so too does a reader set a goal for reading, such as whether to search for information or whether to read carefully for thorough understanding. Likewise, as writers compose meaning, align their stance with an imagined audience, and revise the generated text during and after writing, active readers compose a text in their mind representing their constructed meaning while reading, assume a stance toward the author, and revise mental models of meaning through rereading and questioning the text (Tierney & Pearson, 1983). In this way, reading and writing involve the same cognitive processes, although their representation modes appear different from each other. Additionally, Berninger, Cartwright, Yates, Swanson, and Abbott (1994) have found that reading and writing systems share the same orthographic, phonological, and working memory processes. Nevertheless, the relationships between these subprocesses and reading and between the subprocesses and writing differ, indicating that reading and writing possess a unique cognitive system as well as some of the same cognitive processes.

The second perspective draws from theoretical work, claiming that reading and writing share the same four basic types of knowledge (Fitzgerald, 1990, 1992; Fitzgerald & Shanahan, 2000; Tierney & Shanahan, 1991). This shared knowledge includes: (a) metaknowledge, including the knowledge about functions and purposes of reading and writing and the ability to monitor the meaning-making process; (b) domain knowledge, also known as world knowledge or prior knowledge, which is relevant to both writing and reading; (c) knowledge about universal text attributes, including morphology, syntax, and text formats; and (d) procedural knowledge and skill to negotiate reading and writing,

which refers to knowing how to access and use stored knowledge and the ability to integrate various processes (Fitzgerald & Shanahan, 2000). This common knowledge between reading and writing may offer theoretical grounds for the contention that the development of one skill improves the other.

The third perspective comes from research that has tested the directionality of the influence of reading and writing on each other. Shanahan and Lomax (1986) tested three different models of reading and writing relations via linear structural relations. The models included: an interactive model, meaning that reading can influence writing development and vice versa; a reading-to-writing model, meaning that reading can influence writing but not in the opposite direction; and a writing-to-reading model, indicating that writing influences reading but reading has no influence on writing. Using elementary school children's reading and writing test scores, this study found that reading and writing may influence each other, supporting the interactive model.

Similarly, Eisterhold (1990) proposed three models regarding reading-writing connections: a directional model, a nondirectional model, and a bidirectional model. The first model refers to the notion that either skill can be transferred to the other, reading to writing or writing to reading, but such a transfer proceeds only in one direction. The second model refers to the concept that reading and writing can move in both directions, rather than just one direction. The third model indicates that reading and writing are interdependent and reciprocally influence each other, and the reading-writing relationship changes to varying degrees and in different ways depending on language development. The bidirectional model may inform this study regarding the developmental changes in reading and writing and the differential improvement depending on learners' language proficiency. Each of the three theoretical perspectives may lend important insights into the interdependence between reading and writing.

Incidental Learning

The current study draws from incidental learning research to explain how grammar learning is possible from reading. The terminology, *incidental learning*, is typically defined as learning something as a by-product of engagement in other activities, not as the result of an explicit intention to learn (Gass, 1999; Hulstijn, 2003). Scholars have argued that many aspects of L2 learning occur incidentally (e.g., Hulstijn, 2005; Krashen, 1989; Reber, 1996). Scholars have also claimed that incidentally- and implicitly-acquired knowledge tends to outperform knowledge that is consciously and explicitly learned with regard to its sustainability and eventually gained amount (Krashen, 1982, 1989; Reber, 1989, 1996; Reber & Allen, 2000).

A number of researchers have investigated whether incidental learning can take place through reading, in particular in terms of learning vocabulary (e.g., Chen & Truscott, 2010; Eckerth & Tavakoli, 2012; Laufer & Hulstijn, 2001; Schmitt, 2008). Research has found that reading is an adequate medium to promote incidental learning of vocabulary because reading offers contexts of how words are used in sentences as well as repeated encounters necessary to learn new words. In contrast to a growing consensus on learning vocabulary by reading, incidental grammar learning is still an uncharted territory, hence one of the foci in this study.

The Role of Pushed Output in Second Language Learning

The role of output has been emphasized as an effective means of acquiring a second or foreign language. One theoretical rationale for this claim comes from Swain's (1985) *Output Hypothesis*. Swain (1985) found that French immersion graduates still showed numerous grammatical errors despite their advanced level of comprehension and language fluency. She claimed one important reason for this behavior is that immersion learners are not required or pushed to produce language. Despite the necessary role of

comprehensible language input in second language acquisition, input alone may be insufficient. Forced or pushed opportunities to produce language output are essential to enhance the accuracy of language use. Since proposing the Output Hypothesis, Swain (1993, 1995, 2000) has substantiated her claim by describing the role of output in language acquisition. She argues that learners can test their hypotheses by producing language, engaging in meaning negotiation, and receiving feedback from their interlocutors. Also, comprehensible output may force learners to move from semantic processing to syntactic processing because they are called to reflect upon their language use and modify their output while producing language. Output's metalinguistic function may lead learners to deepen their awareness of language forms. Moreover, output provides opportunities for learners to recognize the gap between what they can comprehend and what they can produce. This may bring their attention to linguistic forms and make them become conscious about their language errors.

Since Swain's (1985) Output Hypothesis, quite a few scholars have empirically examined the role of output in second language acquisition (e.g., Donato, 1994; Izumi, 2002; Izumi, Bigelow, Fujiwara, & Fearnow, 1999; Nobuyoshi & Ellis, 1993; Pica, 1992; Song & Suh, 2008). In particular, studies on the noticing function of output (Izumi, 2002; Izumi & Bigelow, 2000; Izumi et al., 1999; Song & Suh, 2008) indicate that output opportunities, overall, seem to improve learners' knowledge of grammar despite some variations of the effectiveness. Because producing output provides opportunities for learners to use language that is otherwise not necessarily needed for comprehension, output tasks serve as a function of drawing learners' attention to linguistic forms and thus help them improve awareness of grammar usage (Izumi, 2002). Whereas the aforementioned studies have tested the noticing function of output tasks on specific target structures, the current study aims to investigate the role of producing comprehensive

output on the knowledge of general grammar as well as particular structures including articles and prepositions.

RESEARCH ON EXTENSIVE READING

This section begins with extant work examining the effects of extensive reading on reading comprehension, followed by the effects on writing performance, grammar knowledge, and students' attitudes toward extensive reading.

The Effects of Extensive Reading on Linguistic Skills

The effects of extensive reading on reading comprehension

A widely accepted assumption holds that daily reading not only fills our head with useful information, but also advances our linguistic knowledge and cognitive skills. Quite a few researchers have examined the widespread benefits of reading on readers' language development and academic achievement in the first language. For example, Krashen (2004) provided a research review of the effects of extensive reading on reading comprehension by comparing 54 studies conducted in the L1 acquisition field. Twenty-five studies reported that students in extensive reading programs outperformed those who received traditional reading instruction in reading achievements, whereas 26 studies showed no difference, and three studies reported a negative effect of extensive reading on reading comprehension. From these results, Krashen concluded that extensive reading effectively increases the level of reading comprehension as well as or better than a traditional reading approach. Because the impact of L1 reading is not the main purpose of the research in this study, see the following work (Krashen, 2011; Mol & Bus, 2011; Pfof, Hattie, Dörfler, & Artelt, 2014) for relevant reviews and syntheses of this literature.

Equivalently enthusiastic attention has been paid to the second/foreign language acquisition field. Over the past two decades, much research has investigated the effectiveness of extensive reading on reading comprehension among second or foreign language learners, from elementary school, junior high school, high school, university, to older adult levels. These studies were conducted in diverse educational contexts, with different lengths of instruction, age of participants, native language, tests used to measure reading proficiency, and presence of a control group. One way of examining the impact of extensive reading on reading comprehension is to conduct comparison studies by age groups (Nakanishi, 2015). Reviews of extensive reading research by age groups may lead us to examine whether extensive reading—which requires text-level reading proficiency and learner autonomy—has a positive influence or is at least equivalent to teacher-directed traditional instruction for both younger and older L2 learners. Thus, previous extensive reading research is divided into four age groups: elementary school, junior high or high school, university, and adult learners.

Elementary school students

A majority of the studies examining elementary students have consistently demonstrated that extensive reading significantly improves reading comprehension compared to traditional language instruction or the intensive reading approach that involves short periods of reading and answering comprehension-check questions. Elley and his colleagues initiated large-scale studies in primary schools, named the Book Flood program, with the support of the ministries of education and governments of several countries, such as Fiji (Elley & Mangubhai, 1983), Singapore (Elley, 1991), Sri Lanka (Elley & Foster, 1996), and South Africa (Elley, Le Rous, & Schollar, 1998). One representative study is reviewed here because most of the above-mentioned studies are similar in terms of design and results.

Due to its wide-ranging investigation and longitudinal design, Elley and Mangubhai's Fiji study (1983) is considered one of the most representative studies substantiating the effects of reading on different aspects of L2 skills. They compared the effects of shared book reading, silent reading, and traditional audio-lingual instruction on the English skills of 380 children learning English as a second language (ESL). After 20-30 minutes of daily reading activities for approximately seven months, the shared book reading and silent reading groups exhibited superior performance over that of the traditional audio-lingual instruction group in terms of reading, listening, sentence structures, word recognition, and composition in both immediate and one-year follow-up tests. Between the two reading groups, although the shared book reading group achieved higher scores in the overall language measures in the immediate post-test, this difference did not appear in the delayed follow-up post-test. This implies that reading books continuously helps students develop linguistic skills regardless of whether they read independently or together with the teacher or classmates. Another striking finding was the "spread effect" of free reading on other subjects, including science, social studies, mathematics, and dialect language evaluated in the national examination in the following year.

Junior high school or high school students

Scanty research has been conducted at the junior high school level, a level particularly relevant to this study, hinting that it may be more difficult to carry out an extensive reading program at this level than at upper educational levels due to students' limited L2 reading proficiency to read books independently. Only one study demonstrates the effects of extensive reading on junior high school students' reading comprehension.

Sheu (2003) conducted a two-semester long study that involved Taiwanese students (ages: 13-14) learning English as a foreign language (EFL) to examine the

effects of extensive reading on reading comprehension. An extensive reading group ($n = 65$) was divided into two sub-groups, one reading only graded readers and the other reading books for native English-speaking children, whereas a control group ($n = 33$) took review classes of previous English lessons, memorized vocabulary, practiced grammar rules, and performed textbook exercises. Regardless of reading graded readers or authentic English books, the extensive reading groups significantly improved from pretest to posttest in terms of reading comprehension, but such significant gains did not appear for the control group. However, we must cautiously interpret these findings because the reading test in this study was composed of seven true-false reading comprehension questions. The small number of questions and the type of assessment may weaken the rigor of the study.

With regard to high school students, a handful of studies, mostly conducted in EFL contexts, explore the impact of extensive reading on reading proficiency.

Tanaka and Stapleton (2007) spent five months examining the effects of extensive reading on reading proficiency among 190 Japanese high school freshmen aged 15 to 16. An extensive reading group ($n = 96$) engaged in reading either graded readers or teacher-selected reading materials for the first five to ten minutes of class; their remaining class time was devoted to regular English instruction with a textbook. The control group ($n = 94$) had regular English instruction for the whole class period using the same textbook. Reading comprehension was measured using the Society for Testing English Proficiency tests as pre- and post-tests. A significant group difference appeared on the post-reading comprehension test favoring extensive reading. The researchers also compared the students ($n = 78$) who read teacher-made reading materials, excluding the students ($n = 18$) who read graded readers, with the control group. The extensive reading group that read teacher-selected materials and the control group did not significantly differ from

each other, indicating that the extensive reading group's improvement was mainly the result of those who read graded readers.

In another study examining 33 Japanese high school students aged 16 to 17, Iwahori (2008) explored the effectiveness of a seven-week extensive reading program on reading proficiency without a control group. Four books were read during the period. To measure reading proficiency, a 100-item C-test was used for the pre- and post-test. The C-test included four different texts composed of 75 to 100 words each. In each text, the second half of every other word was deleted except for the first sentence to gauge test takers' comprehension. Results revealed that the C-test scores showed statistically significant growth from pretest to posttest. The researcher, however, indicated that the changes in score, on average and over time, were less than four points out of 100 items, suggesting that the gains were small despite the statistically significant result.

In another study conducted in a high school in Taiwan, Smith (2006) investigated whether adding supplementary writing activities to extensive reading is more effective than doing extensive reading only. The students ($N = 51$), each 15 to 16 years old, were assigned into three groups and received the following instruction for one academic year: (a) an intensive reading (IR) approach that required reading short passages and completing comprehension questions, (b) extensive reading plus writing reaction reports in their native language (ER+), and (c) extensive reading only (ER Only) that did not involve any post-reading activities. Two types of language tests were used. First, a set of cloze tests (a modified version of the Edinburgh project on Extensive Reading Placement/Progress Tests, hereafter EPER) were administered as the pre-, mid-, and immediate post-test; and second, College Students English Proficiency Tests (hereafter, CSEPT), which were annually administered to Taiwanese college students and measured listening, reading, and language usage, were administered as the pre- and delayed follow-

up post-test five months after the study was completed. After one semester of instruction, the ER Only group had achieved significantly higher gains on the EPER test (cloze test) than the ER+ and IR groups. However, in the second semester, all three groups scored similarly on the EPER test, implying that there was little significant difference among the three groups in the long term. Five months later, in a delayed follow-up post-test (CSEPT), the results indicated that the ER Only group had achieved outcomes superior to both the ER+ and IR groups and that there was no significant difference between ER+ and IR groups, implying that reading books alone, without extra writing activities, may be more beneficial.

University students

Many studies have investigated the effects of extensive reading on university learners' reading proficiency in EFL contexts, such as in Japan (Mason & Krashen, 1997; Nakanishi & Ueda, 2011; Robb & Susser, 1989; Yamashita, 2008), Taiwan (Lee, 2007), and Saudi Arabia (Al-Homoud & Schmitt, 2009). Despite the slightly different measurements and research designs, most of the studies have yielded a common finding: extensive reading effectively improves reading comprehension.

Extensive reading has been frequently studied in Japan, and the four studies performed in Japanese universities are presented in chronological order. Robb and Susser's (1989) comparative study examines one group that underwent extensive reading and the other that received reading skills-building instruction for 125 students majoring in English. This study does not specifically mention the exact period of the experiment and the number of participants in each group. The extensive reading group achieved higher scores than the skill-building group with regard to understanding important facts, guessing vocabulary from the context, and reading speed but not in identifying the main ideas and making inferences. Although the results partially indicate that the extensive

reading method has advantages over the skills-classes, the reading skills examined in the study (e.g., identifying main ideas and understanding important facts) are similar and closely related, which may not show clearly the differentiated effects of extensive reading versus skills-building instruction.

Mason and Krashen (1997) conducted three different studies associated with extensive reading. The first study examined whether “retakers” ($n = 20$) who had failed English the previous year were able to improve their reading comprehension within one semester compared to a control group ($n = 20$), who received traditional intensive reading instruction. The results of a 100-item cloze test favored the extensive reading group over the control group, indicating that extensive reading was effective even for unenthusiastic L2 learners. Another experimental study was conducted in a four-year university and a community college for one academic year. The identical cloze test given in the first experiment was used for an extensive reading group (40 university and 31 college students) and a control group (39 university and 18 college students) in each school. The authors found that the extensive reading group in each school scored higher in reading comprehension than did the control group, who engaged in intensive reading of short passages and vocabulary exercises. The third study examined the effects of writing short summaries of the books after extensive reading. Two groups engaged in extensive reading, one ($n = 36$) writing summaries in English and the other ($n = 36$) writing in Japanese, whereas a control group ($n = 37$) did cloze exercises. The results of the cloze test indicated that both extensive reading groups demonstrated significant improvement over the control group after one academic year. The overall results of the three studies led the authors to the conclusion that extensive reading is more beneficial than traditional reading instruction with regard to reading comprehension.

Yamashita (2008) conducted a 15-week extensive reading program for 31 first-year university students to explore the impact of extensive reading on reading comprehension. Without a control group, all students read graded readers, from 8 to 19 books, with a mean of 11 books. To examine the genuine effect of extensive reading, the researcher attempted to control other possible effects from exposure to other kinds of English instruction or voluntary English study outside of class by excluding those who reported being exposed to any English input other than the extensive reading program. Two types of tests—general reading tests composed of various kinds of comprehension questions and cloze tests—were administered at the beginning and end of the study. The results document significant gains over time in the general reading tests but not in the cloze tests, providing less robust evidence which can demonstrate the effect of extensive reading on reading comprehension.

Nakanishi and Ueda (2011) investigated the effect of extensive reading on reading comprehension among 89 university students aged 18-20 years old. These students were divided into three groups: the first group ($n = 20$) read books extensively; the second ($n = 22$) engaged in shadowing practice, an act of listening to the target speech and repeating it immediately without referring to a text, for the first 20 to 30 minutes of each class and did extensive reading; and the third ($n = 45$), serving as a control group, translated short passages into Japanese and completed comprehension questions for one academic year. The average number of books read during the period was 147 for the first group (extensive reading only) and 185 for the second group (combination of extensive reading and shadowing). The Secondary Level English Proficiency Test was used to assess students' reading achievement at the beginning, middle, and end of the year. The results showed that although all three groups significantly improved by each time point, no group differences were found among the three groups across time.

With regard to Taiwanese university students, Lee (2007) conducted three different studies to investigate the impact of extensive reading on reading development; and each study was adjusted to compensate for the limitations of the previous study. In the first study, extensive reading was carried out in restricted conditions—that is, a relatively short period for extensive reading (12 weeks), limited access to reading materials (215 graded readers), and students' low proficiency and low motivation for learning English. The extensive reading group ($n = 65$) read graded readers, whereas comparison group 1 ($n = 38$) studied with a reading textbook by answering questions and completing writing exercises, and comparison group 2 ($n = 38$) was encouraged to read outside of class without keeping a record and received regular English instruction with a heavy focus on vocabulary along with assigned readings. To measure reading comprehension, cloze tests were administered as pre-and post-tests. Although the extensive reading group had the lowest score in the pre-test, they made greater gains than the two comparison groups but did not outperform the other two groups on the post-cloze test. In the second study, the researcher made modifications to the first study by lengthening the instruction period to one academic year, increasing the number of books available to the students, and forming groups with equivalent language proficiency at the onset of the study. The extensive reading group ($n = 67$) read self-selected graded readers for the first semester and were required to read five teacher-assigned books, whereas the three comparison groups (40, 45, 54, respectively) received regular instruction focusing on textbook readings, language skills, and direct explanations of texts along with quizzes. Both the extensive reading and comparison groups improved over one year on the cloze tests, but their gains were not significantly different between the groups. The researcher recognized the students' unwillingness to read books in the second semester because the texts were assigned and not chosen by the students. Thus, in the third study, the

researcher compared three groups: extensive reading group 1 ($n = 67$) that read both self-selected and teacher-assigned books, extensive reading group 2 ($n = 41$) that read self-selected books only, and a comparison group ($n = 139$). The extensive reading group 1 and the comparison group were the same groups who participated in the previous year, and they were used for comparisons in the third study. The results indicated that extensive reading group 2 (that read freely selected books) outperformed the other groups on the post-cloze test, suggesting the importance of students' freedom to choose what they want to read in extensive reading.

Finally, Al-Homoud and Schmitt (2009) conducted a 10-week study that compared reading gains resulting from extensive reading and intensive reading among EFL college students in Saudi Arabia. Within the extensive reading group ($n = 47$), weaker readers read approximately over 100,000 running words and better readers read about 500,000 running words. In contrast, the intensive reading group ($n = 23$) read short texts, answered comprehension questions, and practiced reading skills with short texts. The results indicated that the extensive reading group achieved better scores in one of the two reading tests (in the Pre-TOEFL reading test but not in the Cambridge Preliminary English Test). The authors concluded that extensive reading is at least as effective as the intensive reading approach.

Adult learners

Some scholars have been interested in whether extensive reading can improve reading comprehension for older adult learners. Renandya, Rajan, and Jacobs (1999) examined the effect of extensive reading on language skills for 49 Vietnamese government officials, on average 36 to 45 years old. They were enrolled in a two-month English language learning program in Singapore. As a part of the English course, all students, without a control group, participated in extensive reading that required reading

at least 800 pages and writing short summaries. Despite the short duration of the study and considerable variability in the amount of reading that participants did, most participants significantly improved on the post-tests of listening, reading, grammar, vocabulary, and writing compared to their own scores on pre-tests.

Furthermore, Bell (2001) examined whether adult learners in Yemen at a low English proficiency level benefited from extensive reading in terms of development of reading proficiency. Divided into two groups, an extensive reading group ($n = 14$) read graded readers for two semesters, whereas an intensive reading group ($n = 12$) had regular reading instruction that involved reading short texts and answering questions related to the texts. The results indicated that the extensive reading group achieved higher scores in reading comprehension tests than did the students receiving the intensive reading approach. As the researcher points out, however, several limitations question the reliability and validity of the findings, such as the small number of participants (only 26 across the two groups) and questionable reliability detected in the reading comprehension measures.

Gaps in the extensive reading research

Reviews of extensive reading studies by educational levels lead to two issues for our consideration. First, surprisingly little research exists on junior high school students compared to a sufficient amount of research for elementary, university, and adult learners. There seem to be fewer opportunities for junior high school students to take advantage of extensive reading than for university or adult readers because of insufficient L2 reading proficiency to understand texts, fixed school curricula, and strong pressure to study for university entrance exams. Specifically, because of fixed curricula in junior high and high school contexts, relatively short studies have been conducted for these secondary students, whereas university and adult learners had more flexibility in terms of

periods of extensive reading instruction and engagement with content taught in regular classes because of a lack of pressure of university entrance exams. Further investigation is needed as to whether the benefits reported among university students can also be achieved among junior high school students who have less flexibility to enjoy reading due to linguistic and environmental constraints.

Furthermore, none of the extensive reading studies examine how extensive reading has a differential impact, depending on students' L2 proficiency. Referring to the biblical verse that resembles the notion that the rich get richer and the poor get poorer, Stanovich (1986) describes reading achievement patterns in which good readers who made good progress in reading become better readers in later years, whereas struggling readers may read less and develop reading literacy less; consequently, the gap between good and struggling readers increases. Although some studies demonstrate that beginner-level L2 university-level readers benefit from extensive reading, it has yet to be explored whether this claim can be applied to junior high school students. The current study addresses these issues by investigating the effects of extensive reading on middle school students' linguistic development over a relatively long period of time.

The effects of extensive reading on writing proficiency

Compared to the wealth of research on the effects of extensive reading on reading comprehension, relatively scanty attention has been paid to the impact of reading on writing performance. Elley and Mangubhai (1983) were among the first to examine the comparative effects of a seven-month study involving shared book reading, silent reading, and traditional audio-lingual instruction on the writing skills of 380 ESL children in Fiji. Both shared and silent reading groups exhibited performances superior to the audio-lingual approach group in immediate post-tests and delayed follow-up post-

tests (after one year) of story composition. Despite the fact that the investigation involved many participants in a longitudinal design, this study hardly emphasizes writing achievement and does not offer a thorough analysis focusing on the impact of reading on writing proficiency. Furthermore, the format of the writing task (i.e., story completion) and the writing evaluation criteria (i.e., content, sentence sense, and mechanics) seem limited in terms of measuring various aspects of writing ability.

In a study of 86 Taiwanese EFL college students, Lee and Hsu (2009) examined whether sustained silent reading can have a beneficial effect on writing. An extensive reading group read books for two academic semesters, whereas a control group received traditional language instruction. Their pre and post descriptive essays were graded based on five subscales including content, organization, vocabulary, language use, and mechanics. The results indicated that the extensive reading group showed significant improvement on all subscales, whereas the control group did not.

Some studies note that, even if reading helps improve writing proficiency, a large amount of reading is effective for improving some, but not all, writing skills. These studies measure specific aspects of writing by counting the number of words written and the number of error free T-units, defined as “one main clause with all subordinate clauses attached to it” (Hunt, 1965, p. 20), both of which have been used to indicate writing fluency/readiness and accuracy of written discourse. For example, Hafiz and Tudor (1989) reported that 16 elementary school ESL students who participated in a three-month extensive reading program significantly improved in the post-writing test in terms of the number of words written and accuracy of expression but not in terms of vocabulary and syntactic maturity. One year later, Hafiz and Tudor (1990) obtained similar results after examining high school EFL pupils in Pakistan for 23 weeks. The experimental group ($n = 25$) came from a low-socioeconomic rural area and engaged in reading books

for 90 hours for 23 weeks, whereas the control group ($n = 25$) was recruited from city schools surrounded by high-socioeconomic profile families but received no corresponding treatment during the period. Before the experiment began, the control group outperformed the experimental group at the pre-writing test in terms of total number of words written, vocabulary, and semantically and syntactically acceptable T-units. At the posttest, the experimental group achieved substantive gains with regard to accuracy of expression (acceptable T-units) and vocabulary range compared to their own pre-tests, and they even exceeded the control group significantly in these two areas. Yet, neither group exhibited improvement in the syntactic maturity of sentences.

Moreover, Lai (1993) studied 226 EFL secondary school students (aged 11-15 years) in Hong Kong who participated in an extensive reading program. These students read one book a day for four weeks, without a control group. Results revealed that these students significantly improved in reading comprehension and reading speed compared to their own pre-test scores. In terms of writing, only one sub-group ($n = 52$) was evaluated. Although these students had a lower level of motivation and English proficiency than their peers, the low-achieving students showed significant gains in the total number of written words, the number of error-free T-units, and overall style of the compositions. Yet, the researcher used the same essay topic for both pretest and posttest administered at a four-week interval, making it unclear whether the writing improvement resulted from a practice effect of taking the same exam twice or an actual effect of reading, especially because there was no control group.

In sum, several issues must be addressed to substantiate the positive effects of extensive reading on writing proficiency. First, appropriate instruments need to be employed to measure various aspects of writing skills in terms of the format of writing tests and evaluation criteria. Even if analysis of the numbers of words written and error

free T-units offers information regarding writing fluency/readiness and accuracy, it is likely that these measures are limited as overall assessments of writing performance. Also, different topics for the pre- and post-tests should be used to assess writing improvement resulting from extensive reading so as not to be confounded by a practice effect. Furthermore, including a control group involving different types of language instruction seems necessary to clearly see the effects of extensive reading on writing.

The effects of extensive reading on grammar knowledge

A number of studies that demonstrated incidental learning from extensive reading have mainly focused on the development of vocabulary (e.g., Bruton, Lopez, & Mesa, 2011; Coady, 1997; Cho & Krashen, 1994; Kweon & Kim, 2008; Pigada & Schmitt, 2006). It is argued that extensive reading may offer an optimal vocabulary learning environment where repeated encounters with new vocabulary are available in terms of the meaning and usage of words. In contrast, few studies have examined whether incidental grammar learning occurs from extensive reading, even though extensive reading provides an optimal learning context where readers can encounter syntactic patterns or regularities naturally and repeatedly.

To date, a few studies have provided empirical evidence of incidental learning of grammar from reading. In a large-scale study that examined the effects of extensive reading on linguistic skills including grammar knowledge, Elley and Mangubhai (1983) found mixed results among ESL children in Fiji who read books for approximately seven months. Whereas fourth graders significantly improved in a test of English sentence structures (composed of 32 multiple-choice questions), students in the fifth grade did not make such gains in a test of English grammar (consisting of 20 open-ended items). In a follow-up test after one year, however, students in both grades showed significant growth

in an open-ended grammar test, compared to a control group taught by an audio-lingual approach.

In a similar vein, Yang (2001) examined whether adult learners of English in Hong Kong can benefit from extensive reading in the development of syntactic knowledge. An extensive reading group ($n = 60$) read mystery novels, approximately 40 pages per week, for 15 weeks, whereas a control group ($n = 60$) read only a textbook during the same period. Both groups were assessed in a 100-item multiple-choice test of grammar, sentence structure, and usage at the beginning and end of the study. The results indicated that the extensive reading group significantly outperformed the control group.

In Sheu's (2003) study that examined the effects of extensive reading on grammar knowledge among junior high school EFL students in Taiwan for two semesters, those who read either graded readers or books designed for native-speaking children ($n = 65$) showed significant improvement from pretest to posttest of grammar. In contrast, such improvement was not detected for a control group ($n = 33$) who had review classes of previous English lessons. However, the grammar test included only seven multiple-choice questions, which may not be the best measure to assess overall grammar knowledge.

Rodrigo, Krashen, and Gribbons (2004) studied 17 native speakers of English who were learning Spanish as a foreign language at a U.S. university for three consecutive semesters. They assigned the participants into three groups: extensive reading, extensive reading plus oral discussion, and traditional language instruction (serving as a control). A multiple-choice grammar test and a cloze test were administered at the beginning and end of the study. Results displayed mixed results; both reading groups significantly improved on the grammar test more so than the control group, whereas no significant group difference appeared in the cloze test.

Song and Sardegna (2014) investigated the effect of enhanced extensive reading instruction (i.e., extensive reading with post-reading activities such as discussion, pair book sharing, or book poster presentations) on learning English prepositions among EFL Korean middle school students (aged 15-16 years). Twice a week for one semester, an enhanced extensive reading group ($n = 12$) received 90 minutes of after school instruction in addition to regular instruction, whereas a control group ($n = 12$) received only regular instruction without additional lessons outside of regular classes. The tests measured different levels of preposition knowledge, including whether students were able to notice incorrect usage of prepositions, aware of correct usage, and able to produce correct usage in a sentence. Although both groups had similar scores on the pretest, the extensive reading group outperformed the control group in the posttest. This study provides empirical evidence of the beneficial impact of extensive reading on the acquisition of knowledge of English prepositions.

Most recently, Lee, Schallert, and Kim (in press) compared the effects of two types of reading instruction, extensive reading and translation, on knowledge of general grammar and particular syntactic features (articles and prepositions). Adolescent EFL Korean students (each 13-14 years old) were randomly assigned to either an extensive reading group ($n = 73$) or a translation group ($n = 47$) and participated in each treatment for two semesters as part of their regular English curriculum. Results indicated that students in both groups showed significant gains without a group difference over time in terms of general grammar. Regarding the knowledge of articles, the extensive reading group outperformed the translation group. Yet, neither groups revealed significant improvement in the knowledge of prepositions.

The current study is an extended version of Lee et al. (in press) by adding additional treatment group (extensive writing) and engaging more participants in the

yearlong intervention study. Research on whether incidental learning of grammar occurs from extensive reading is particularly important because the findings indicate that repeated exposure to language input can improve linguistic accuracy without output practices. The results of the current investigation can add valuable information regarding incidental learning of grammar among adolescent foreign language learners.

The Effects of Extensive Reading on Students' Attitudes

A wealth of research has documented the benefits of extensive reading not only with regard to the development of language skills but also as a means of facilitating positive attitudes toward reading. Day and Bamford (1998, 2002) claim that extensive reading fosters positive attitudes toward reading because students select books according to their interest and proficiency levels and because reading interesting stories engenders pleasure.

Thus far, a handful of empirical studies examine students' attitudes toward extensive reading. Yang (2001) studied 120 full-time working adults who were attending an English institute in Hong Kong. An extensive reading group ($n = 60$) read two authentic mystery novels in English for 15 weeks, whereas a control group ($n = 60$) received regular English classes focusing on grammar using a textbook. At the end of the study, Yang administered a 20-item questionnaire using a four-point Likert scale asking about students' interest in extensive reading and their disposition toward the reading activity. Yang also conducted interviews with 24 students who were in the extensive reading class. Results of the questionnaire and interviews indicated that these adult learners of English had positive feelings about the extensive reading experience and gained a sense of improvement in terms of the target language and motivation.

Similarly, Al-Homoud and Schmitt (2009) investigated whether a 10-week extensive reading program can have affective advantages among university EFL students in Saudi Arabia. In addition to several language tests used to compare linguistic growth between a control group ($n = 23$) taught using an intensive reading approach and an extensive reading group ($n = 47$), a 50-item questionnaire on a six-point Likert scale was administered to measure students' attitudes toward the reading course, self-confidence, and self-perceived linguistic improvement. The results revealed that the extensive reading group held more positive views about their reading development and the reading experience than did the intensive reading students, providing evidence of the positive role of extensive reading on students' attitudes.

However, extensive reading does not always produce gains in terms of positive attitudes. For example, Robb and Susser (1989) examined university EFL students' improvement in attitude by comparing extensive reading students to a group taught specific reading skills. Results showed that the extensive reading group did not hold significantly better attitudes than the skills-based group in terms of a sense of improvement and interest in L2 reading. In a similar manner, Hitosugi and Day (2004) implemented a ten-week Japanese-language extensive reading program for U.S. university students. In addition to reading measures administered to an extensive reading group ($n = 14$) and a control group ($n = 10$) taught by a regular instruction method, the researchers also examined students' attitudinal change with a 22-item questionnaire on a four-point Likert scale as pre- and post-measures. In terms of the attitude questionnaires, they assigned points, from one to four, to quantify the degree of their favorable disposition toward the Japanese language and reading in Japanese. The results displayed some contrasting patterns in students' attitudes. The extensive reading group's gains were higher than the control group on some items, and the control group had higher ratings on

other items. Moreover, the extensive reading group's ratings were lower on items asking about reading confidence in Japanese over time. Hitosugi and Day speculate that reading authentic materials in Japanese may have been too challenging for novice learners of Japanese.

Thus far, mixed findings have been produced regarding the affective advantages of extensive reading. In this regard, Nishino's (2007) study suggests that other factors should be considered when examining students' motivational change toward extensive reading. She conducted a longitudinal case study on two Japanese middle school students' (aged 14 years) extensive reading experiences in English. The participants read approximately 15 minutes a day four times per week for two and a half years in the researcher's presence, except for school exams or school event periods. The researcher performed four interviews, administered regular language tests, and observed the two participants' reading behavior. Findings indicated that the two students' L2 reading motivation changed as their reading fluency developed. For about one year, they seemed to enjoy reading graded readers and have a sense of achievement and satisfaction from the thought that they were actually reading books in English. After they had gained confidence in reading graded readers, and especially after reading *Harry Potter*, the researcher reported that they seemed to exhibit decreased motivation to read graded readers and instead wanted to read authentic books. Also, once they entered high school, they had to face the reality of upcoming university entrance examinations. They stopped reading books because they thought that extensive reading was not directly helpful for achieving high scores on school exams. The researcher asserts that other factors influence L2 readers' motivational change, including English exams, previous reading experience, and the socio-cultural environment surrounding the reader, and that these factors play a determining role in terms of whether readers continue reading books. The role of

extensive reading on students' attitudes needs further investigation, particularly for adolescent students who are in less flexible or restricted conditions because of fixed school curricula and a high level of pressure to study other subjects for university admissions.

RESEARCH ON EXTENSIVE WRITING

This section reviews research regarding the effects of extensive writing on reading comprehension, writing ability, grammar knowledge, and students' attitudes toward writing.

The Effects of Extensive Writing on Linguistic Skills

The effects of extensive writing on reading comprehension

Many scholars speculate that the development of writing improves reading skills, based on assumptions that students must develop higher-level reading and thinking skills while engaging in writing tasks involving paraphrasing, reorganizing, integrating, and elaborating their ideas (Emig, 1977; Graham & Hebert, 2011; Stotsky, 1982). There is a lack of research in this area, however. The existing studies were mostly conducted in the first language acquisition field, and among the few extant studies, several methodological flaws have been detected, such as an absence of adequate control groups, low numbers of participants, and infrequent writing, which weakened the rigor of these studies.

Dana, Scheffler, Richmond, Smith, and Draper (1991) showed that students may learn reading by being involved in writing something that is relevant or meaningful to their lives. Across one semester, sixth graders ($n = 18$) and college students ($n = 9$) exchanged letters five times. Results showed that only the sixth graders, not the college students, achieved higher scores in reading than the comparison groups (that came from intact classes) not involved in a letter exchange experience.

Jones, Reutzel, and Fargo (2010) examined the effects of two prevailing forms of classroom writing instruction—interactive writing and writing workshops—on 151 kindergarten students' reading skills for 16 weeks in an American context. Interactive writing involved a group writing experience with the teacher and peers by co-constructing texts and understanding their meanings, whereas writing workshops spent time on teacher-directed mini-lessons, independent writing, conferencing, and sharing. Results indicated that both groups significantly improved in emergent reading skills, including phonological awareness, alphabet knowledge, and word reading, but no group differences were found between the two writing groups. The researchers concluded that writing instruction, whether interactive writing or writing workshops, is effective in developing early reading skills.

In the second language literacy, Hayes and Bahruth (1985) studied 22 fifth-grade English language learners whose native language was Spanish. These students were enrolled in a daily journal writing program for one year and their English level was lower than that of their peers. After participation in the writing program, the children's reading comprehension significantly improved on the posttest, with an improvement of three years on average.

Some scholars have attempted to offer a comprehensive review of the previous research. In a comprehensive synthesis of correlational and experimental studies, Stotsky (1982) argues that writing requires more demanding and active comprehension practice because students must paraphrase, reorganize, integrate, and elaborate their ideas, and these writing exercises provide opportunities for students to develop higher-level reading and thinking skills. Despite his convincing claim, most of the studies he cited were published before the late 1970s and were based on the effects of various types of writing

instructions on reading achievement, rather than on the impact of frequent writing on reading achievement.

Recently, Graham and Hebert (2011) provided a thorough meta-analysis of the impact of writing and writing instruction on reading. They concluded that writing instruction, including process writing, text structure and paragraph/sentence instruction, as well as extra writing produces positive effects on reading. Yet, the authors claim that the studies related to extra writing are not free from methodological problems, such as teacher effects, pretest ceiling/floor effects, and absence of randomization. Moreover, most of the reviewed studies of extra writing were conducted in the 1980s and 1990s in the form of dissertations. A systematic study is needed that addresses the methodological problems recognized in previous work to determine whether frequent or extensive writing, with little intervention by the teacher, improves reading.

Although many scholars have recognized the benefits of second language writing in L2 learning (Harklau, 2002, 2007; Reichelt, 2005), current literature has not satisfied the demand. Thus, this research area calls for more studies on the role of writing practice in L2 learning including reading comprehension.

The effects of extensive writing on writing proficiency

An intuitive notion holds that an individual learns to write by writing and that frequent writing improves writing proficiency. In an analysis of interviews with 40 people, Brandt (1994) found that many people recollected their experience of learning to write by being forced to write in school, imitating surrounding people's writing, or writing on their own. Put differently, people learn to write by writing. The National Commission on Writing (2003) also touts the importance of increasing the amount of writing in order to enhance the quality of writing. In contrast, some researchers have

claimed that increasing the amount of writing may not improve writing proficiency (Krashen, 2004; Mason , 2004). So far, research on the effects of extensive writing on writing skills has showed conflicting results.

In L1 research, Johnstone, Ashbaugh, and Warfield (2002) examined the effect of repeated writing practice and contextual-writing experiences on college students' writing proficiency. A treatment group ($n = 279$) practiced writing within the specific task domain of business school courses, which were contextually relevant to the students' major, for about three years, whereas other business school students in a control group ($n = 385$) were involved in writing assignments in a more general domain. At the beginning of the study, both groups' writing abilities did not significantly differ. At the end of their senior year, however, the treatment group's writing scores significantly increased, whereas the control groups' writing ability remained approximately equal. The researchers noted that repeated writing practice is correlated with advanced writing skills and that writing experiences within a specific domain are a significant predictor of writing skills after controlling for repeated practice. The results imply that writing practice within a specific domain along with regular writing practice is important to improve writing proficiency in an academic setting. In contrast, Graham and Perin (2007) failed to draw consistent conclusions regarding the effect of extra writing on the quality of students' writing among adolescent students. They conducted a meta-analysis with six studies but could not reach an agreement because of the small number of effect sizes and the diverse research designs.

In the L2 acquisition field, studies provide mixed findings regarding whether an individual learns to write by writing. On the one hand, scholars have argued that writing practice does not contribute to writing proficiency improvement. In a one-year sheltered language program at a Canadian university that offered English lessons as well as other

subject classes, Burger (1989) compared two groups of university students learning English as a second language. An experimental group ($n = 16$) had regular English classes and took a psychology course as a content class. Among the students in the experimental group, 10 students whose English proficiency was at an advanced level participated in a Reading-to-Writing course that required extra reading and writing practice. A control group ($n = 17$) received only regular English instruction during the same period. Both experimental and control groups were tested at the beginning and end of the study with regard to general English proficiency and writing ability. The results indicated no statistically significant difference between the experimental and control groups in terms of general proficiency (listening, reading, dictation, and translation) and writing proficiency. Students in the experimental group who practiced more reading and writing did not make significantly greater gains between the pretest and posttest of writing other than in language use. The researcher speculated that considerable gains are more difficult to attain for students at advanced proficiency levels and concluded that extra writing practice did not make a distinctive impact on writing proficiency and may not be necessary to warrant linguistic gains in the L2.

In a similar vein, Mason (2003, 2004) claimed that adding supplementary English writing tasks to extensive reading does not improve accuracy in writing among Japanese college students. In this study, all students engaged in extensive reading, but their supplementary tasks differed. The first group wrote book summaries in Japanese; the second group wrote their summaries in English; and the third group completed English summaries, received corrective feedback, and rewrote the summaries. All three groups substantially improved in accuracy in their writing as measured by the number of error free clauses made per 100 words, and there were no statistical differences among the groups in gains.

Sasaki and Hirose (1996) investigated the role of regular writing practice on writing skills for 70 Japanese university students based on self-reported questionnaires and sample writings. Using a mixed method of both quantitative and qualitative analysis, they discovered that both good and poor writers had similar amounts of writing experience, and the difference between them lay in the quality of writing practice rather than the quantity of writing. In other words, good and poor writers differed in the quality of writing experience in high school but not in the amount of self-initiated L2 writing.

On the other hand, some scholars have endorsed the positive effect of writing practice on writing skills. Baudrand-Aertker (1992) examined the effect of writing practice on the writing proficiency of 21 American high school students learning French as a foreign language, without a control group. The participants wrote at least two journal entries per week on various topics for nine months, and the teacher commented on the students' writing focusing on the meaning rather than on the form. Students' writing abilities were pre- and post-tested and evaluated holistically based on the ACTFL Proficiency Guidelines. Their writing scores improved from novice to intermediate levels. However, the researcher used the same topic for the pre- and post-tests, which raises the question of whether the improvement of students' writing quality was due to frequent writing practice or due to a practice effect of taking the same exam twice.

Most recently, Sun (2010) investigated the effects of extensive writing on overall writing quality and on the syntactic complexity of written sentences. Without a control group, 23 Taiwanese university students uploaded blog entries as well as responded to other classmates in English for 18 weeks. On average, each student posted 29.96 blog entries and 19.91 comments on the class blog over the course's duration. The researcher evaluated the students' writing improvement by scoring the first three and the last three blog entries based on an analytic scale with six categories (overall quality, grammar,

vocabulary, fluency, mechanics, and organization). Syntactic complexity using T-units was also examined. The results demonstrated that students' later writings exhibit significant improvement over their initial writings in terms of mechanics and organization but not in the other sub-writing skills, whereas syntactic complexity becomes simplified. The researcher explained that students tend to write simpler sentences in informal environments of communication, such as blogs. Although this study demonstrates some gains in writing performance as a result of writing practice, several questions remain unanswered, such as whether writing practice develops only some aspects of writing skills such as mechanics and organization and whether students' enhanced writing ability is a result of either writing practice or of the novelty effect of blogging. Students have a tendency to demonstrate higher performance when new technology is integrated—not because of actual gains in learning, but in response to increased attention to the new medium (Clark, 1994).

Researchers have acknowledged that several types of writing instruction such as process writing, skills instruction, strategy instruction, and teacher feedback may help improve students' writing performance in the first language (Cutler & Graham, 2008; Graham & Perin, 2007) and the second/foreign language (Reichelt, 2001). The purpose of the current study, however, is to examine the effect of students' frequent voluntary writing, not the impact of teacher-initiated writing instruction. Some empirical studies have been conducted, but their results have been mixed. Thus, the findings of this study may provide valuable data-driven evidence for the extant research on the effect of frequent writing.

The effects of extensive writing on grammar knowledge

Many studies have examined the impact of grammar teaching on writing (e.g., Andrews, Torgerson, Beverton, Freeman, Locke, Low, Robinson, & Zhu, 2006; Feng & Powers, 2005) or the effects of feedback on accuracy in writing (e.g., Fazio, 2001; Ferris & Roberts, 2001). In light of Swain's (1985) Output Hypothesis and research on the noticing function of output (Izumi, 2002; Izumi & Bigelow, 2000; Izumi et al., 1999; Song & Suh, 2008), one of the objectives of the current study is to investigate the effect of extensive writing (output tasks) on grammatical knowledge. To date, few scholars have empirically explored this issue.

Sheen, Wright, and Moldawa (2009) investigated whether direct focused corrective feedback, direct unfocused corrective feedback, and writing practice alone have differential effects on learning grammatical features among adult ESL learners. The participants ($N = 80$) were studying in an ESL program in the U.S. and were drawn from intermediate classes. They were assigned into four groups: Focused Written Corrective Feedback Group (FG, $n = 22$), Unfocused Written Corrective Feedback Group (UG, $n = 23$), Writing Practice Group (WPG, $n = 16$), and Control Group (CG, $n = 19$). Over two weeks, the two feedback groups (FG and UG) wrote two pieces of writing and received feedback; the writing practice group only completed the two writing tasks, receiving no feedback; and the control group did not engage in any writing tasks. The four groups were required to describe sequential pictures, and the correct usage of the target grammar was evaluated. The target grammatical features included articles, the copula 'be', regular past tense, irregular past tense, and prepositions. Results indicated that all three experimental groups (FG, UG, and WPG), except for the control group, made gains in grammatical accuracy over time in the immediate test and delayed posttest. This suggests that writing practice alone has value in terms of improving grammatical accuracy.

Recently, Castaneda and Cho (2013) examined the role of wiki writing in learning grammar among 53 students learning Spanish as a foreign language at a U.S. university. After participating in writing stories collaboratively in groups for three consecutive semesters, these students significantly improved from pretest to posttest in the knowledge of the preterite and imperfect in Spanish. Due to the lack of a control group, however, the researchers acknowledge that the improvement might also have come from other sources such as classroom instruction.

Learning grammar by writing may not be a popular concept in the second language acquisition (SLA) research. Considering the role of output tasks on language accuracy, however, it seems theoretically important to examine the effect of output via writing on grammar knowledge. The findings of the current study may offer empirical evidence using writing as a way of improving grammar.

The Effects of Extensive Writing on Students' Attitudes

Because a scarcity of research has been conducted on extensive writing, naturally research on students' attitudes related to writing practice is scarce. In fact, scholars have paid little attention to motivation and attitudes towards writing, in contrast to abundant research on motivation and attitudes toward reading in general (e.g., Becker, McElvany, & Kortenbruck, 2010; Kim, 2011; Mori, 2002; Wigfield & Guthrie, 1995, 1997) as well as students' attitudes in relation to extensive reading (Al-Homoud & Schmitt, 2009; Hitosugi & Day, 2004; Nishino, 2007; Yang, 2001). In contrast with research on reading motivation, studies on writing have centered on writing anxiety or writing apprehension (Cheng, Horwitz, & Schallert, 1999; Cheng, 2002, 2004; Daly & Miller, 1975; Lee & Krashen, 1997). Whereas free reading is considered to be a leisure activity and easily done in daily lives for enjoyment, writing may be viewed as an advanced literacy skill

that requires formal lessons and academic knowledge. Such a cognitive burden in relation to writing may generate uneasiness and worries among writers. Thus, a majority of studies on writing attitudes have focused on developing validated and reliable instruments for measuring writing anxiety or apprehension, rather than students' attitudinal changes as a result of writing instruction. Because the purpose of the current study is to investigate whether extensive writing plays a positive role in improving students' attitudes toward L2 writing, these studies on writing anxiety and apprehension are not reviewed here. Yet, the present study adapted some items from the previous studies to measure writing apprehension as one construct of attitudes towards writing. The construction of a writing attitude questionnaire is later described in the method section of this study.

RESEARCH ON THE MUTUAL INFLUENCE BETWEEN READING AND WRITING

Correlation Research on the Reading-Writing Connection

To date, researchers have taken different approaches to studying reading and writing connections. One approach is to examine correlations between reading and writing skills. According to Tierney and Shanahan (1991), these correlation studies in the first language literacy typically found small to moderately sized correlations, ranging from .20 to .50. This indicates that reading and writing account for less than 25% of the variance in the opposite set. By contrast, for second/foreign language reading and writing, Janopoulos (1986) found a relatively strong correlation. Janopoulos examined writing samples (English) and responses to a questionnaire asking about the time spent reading in English, both of which were completed by 79 foreign graduate students admitted to an American university. The results indicated that a strong correlation exists

between the amount of reading and writing proficiency ($r = .76$), confirming that heavy pleasure readers in English are more proficient English writers.

Bivariate correlations, however, do not indicate a causal relationship. In order to make a stronger claim on the effect of reading on writing achievement, several studies use structural equation modeling (SEM). SEM is considered an advanced statistical analysis tool to correct measurement errors and to provide a more comprehensive understanding of associations among various factors. Nonetheless, it should be noted that SEM is also a statistical method employing correlation-based analyses.

In the first language, Lee and Krashen (1996, 1997) found that the reported amount of free reading positively associated with 318 Taiwanese high school students' writing scores. In addition, the path analysis indicated that a high amount of free reading was related to a low level of writing apprehension. They also found a positive correlation between writing frequency and writing scores, but this relationship became almost negligible in the path analysis. This implies that the amount of free reading, rather than writing frequency, may contribute to writing performance.

In the second language, Lee (2005) examined the relative contributions of free reading, free writing, and attitudes associated with writing to Taiwanese EFL college students' writing performance via structural equation modeling. Lee concluded that the amount of free reading was the only significant predictor of both writing performance and writing quantity. More specifically, a sufficient amount of free reading seemed to lower one's anxiety about writing, to cause the writer to have a more comfortable composition process, and ultimately to perform better in writing. This study challenges the widely-accepted assumption that the more one writes, the less he or she feels apprehensive about writing, and the better his or her writing performance.

Another line of correlation studies compare the reading-writing correlations between the first and second languages, revealing that the development of the first and second language may follow different trajectories in literacy development. For example, Hedgcock and Atkinson (1993) examined both 157 native-English-speaking university students' and 115 adult ESL students' reading habits in the past and present, as well as their expository writing performance in English. Results revealed that the amount of pleasure reading in the L1 was significantly associated with L1 writing scores of native-English-speakers, whereas adult ESL learners' L2 reading experience did not appear to be a significant predictor for L2 writing scores.

Carson, Carrell, Silberstein, Kroll, and Kuehn (1990) examined reading and writing relationships in the L1 and L2 among adult ESL learners. The participants were 105 high school graduates (48 Chinese and 57 Japanese), on average 24-25 years old, enrolled in pre-academic intensive English courses in several American universities. Their reading and writing abilities were measured in both their native languages (Chinese and Japanese) and in their second language (English) through cloze tests and essay writing tests. The native language and English writings were evaluated by two native speakers of each language. The results indicated that the relationships between reading and writing were different between the Chinese and Japanese language groups. Chinese students had stronger correlations in the L2 ($r = .49$) than in the L1 ($r = .27$), whereas Japanese students' reading and writing correlations were stronger in the L1 ($r = .49$) than in the L2 ($r = .27$).

Similarly, El-Koumy (1997) examined the reading-writing relationships through correlation analyses among 150 native speakers of English and 150 EFL students in Egypt, both of whom were university students. The participants completed both reading measures and essay writing tests in the L1 for the English speakers and in the L2 for the

EFL students. Results revealed a positive correlation ($r = .61$) between L1 reading and writing, and a non-significant correlation between L2 reading and writing. This study suggests that EFL students' low L2 proficiency may hinder intralinguistic transfer, either from reading to writing or writing to reading.

The results of these correlation and SEM studies are meaningful in suggesting different perspectives on the reading-writing connections. However, as Fitzgerald and Shanahan (2000) note, these correlations offer at best only support for speculations about the nature of the connection between reading and writing. Thus, different approaches are necessary to corroborate the reading-writing interdependence.

Experimental Research on the Reading-Writing Connection

Taking a step further regarding bivariate correlation analyses, several scholars have conducted an interventional experiment to demonstrate whether teaching either reading or writing develops the other.

In the first language literacy, Santa and Høien (1999) performed an interventional study for two academic semesters with 49 U.S. children with very low levels of reading proficiency. An experimental group ($n = 23$) and a control group ($n = 26$) had similar levels of reading skills at the beginning of the study, and both groups received instruction with a heavy focus on reading activities. In addition to reading, the experimental group focused on studying words and completed daily writing tasks about their own experiences, whereas the control group had regular instruction and engaged in more reading. The results indicated that the experimental group significantly improved in terms of spelling, sight word knowledge, and passage reading compared to the control group. The researchers suggest that the writing activities helped the children understand the

correspondence between sounds and spelling and enhance decoding skills, sight vocabulary, and reading skills.

Crowhurst (1991) examined the effects of reading and writing on reading achievement and writing performance. The researcher assigned 110 native-English-speaking sixth graders into four groups. Each group was involved in: instruction on persuasive writing and writing practice (writing group); instruction on persuasive writing and reading practice (reading group 1); a single lesson on persuasive writing, reading novels, and writing book reports (reading group 2); and reading novels and writing book reports (control group). Students received 45 minutes of instruction twice a week for five weeks. Pre- and post-tests included two persuasive compositions and a reading test on a persuasive text (recall tasks). The results were conflicting in terms of the reading and writing tests. Findings indicated that the writing group and reading group 1, who received continuous persuasive writing instruction, showed significant improvement in writing compared to those who did not (reading group 2 and control group). This suggests that systematic instruction of writing is effective for improving the quality of writing. In addition, exposure to many persuasive texts may have a more positive impact on persuasive writing than simple writing practice because reading group 1, who read persuasive texts in addition to receiving instruction focusing on persuasive writing, achieved higher scores on the writing test than the control group, who read novels and practiced writing as book reports. However, regarding reading measures, no significant difference appeared among the four groups, implying that writing instruction had an equivalent impact as reading practice on reading skills. Yet, a recall task on a persuasive text may not constitute generalized measures of reading that assess overall reading comprehension because it requires both knowledge of rhetoric and reading proficiency.

In terms of L2 learning, Nummikoski (1991) investigated the effects of both reading and writing among 127 students (aged 18-25 years) learning Russian as a foreign language in an American university. The participants were randomly assigned to one of the three groups and received nine-week sessions of: reading only ($n = 40$), writing only ($n = 43$), and interactive writing with the teacher ($n = 44$). The results revealed no significant differences among the three groups in terms of reading measures (cloze exercises) and writing fluency or quality (free writing). One thing that requires caution in this study is that the students were instructed to write in Russian for a relatively short period of time (for 5 or 10 minutes only) in pre- and post-writing tests to evaluate writing fluency and quality. Also, the students were allowed to write unconnected sentences in their writing tests. Yet, coherence at the sentence-level and text-level is one of the most important criteria of writing evaluations. Without requiring global coherence and organization, assessments of one's writing proficiency may be far from what is required in reality or even in language classrooms.

Tsang (1996) compared the effects of extensive reading, frequent writing, and mathematics practice on the writing proficiency of 144 Taiwanese EFL students in grades 7-10 for 24 weeks. The results indicated that the reading group significantly improved in content, language use, and overall quality of writing but not in organization, vocabulary, and mechanics compared to either the writing group or the math group. The writing group's writing scores did not significantly differ from those of the math group, which suggests that writing practice in the target language does not lead to improved writing skills. However, despite the long period of the study, the amounts of reading and writing were only eight books and eight occasions of writing practice. Writing one essay or reading one graded reader for three weeks may not be considered extensive writing or extensive reading.

Although a handful of researchers have claimed that the development of one aspect of language skills can be positively related to or facilitate the other (Bereiter & Scardamalia, 1984; Stotsky, 1984), few studies have attempted to examine both the effects of reading on reading and writing and the effects of writing on reading and writing through an experimental study. The current study, thus, investigates reading-writing connections in the L2 through an experimental study.

Chapter 3

METHOD

This study aimed to examine the effects of extensive reading and extensive writing on Korean middle school students' linguistic development in English, including their reading comprehension, writing performance, and knowledge of grammar, as well as their attitude toward the instruction they received and toward L2 reading and writing. This chapter provides a description of participants, instruments, treatment, procedure for data gathering, and data analysis.

PARTICIPANTS AND SETTINGS

Students

The student participants were 306 students (169 boys, 137 girls; age range 13-14) in the second year of a middle school in South Korea (equivalent to U.S. 8th grade). They were all native speakers of Korean and were learning English as a foreign language. The middle school drew its students from low socioeconomic neighborhoods in a large urban city. The students had received approximately five years of formal English instruction (3rd to 6th grades in elementary school and 7th grade in middle school). Elementary school English instruction typically focuses on basic oral communication skills, mainly through short dialogues and games, for two hours per week. Starting in the first year of middle school (equivalent to U.S. 7th grade), students receive English instruction for three or four hours per week (45 minutes for each session), focusing on listening, speaking, grammar, reading short passages, and sentence-level writing.

Based on a background questionnaire administered at the beginning of the study, Table 3.1 presents participants' information regarding their experience in English speaking cultures, private English instruction, and pleasure reading and writing.

Regarding visits or stay-abroad experiences, 97% of the students had never (92%) or for less than one month (5%) stayed in an English-speaking country. More than half of them (56%) had attended private or extra-curricular English institutes after school for more than three years. It should be noted that despite the pervasive and lengthy period of private English instruction, these private institutes, so-called cram schools, tend to focus on improving English scores on school tests by reviewing textbooks, interpreting short English passages, and drilling grammatical rules and vocabulary. Some institutes in low socioeconomic areas, as in the area where the school was located, play a role as after-school care centers where helping students with homework, self-study, and school assignment is the main focus.

Table 3.1 *Background Information (N = 300)*

Items	1 <i>n</i> (%)	2 <i>n</i> (%)	3 <i>n</i> (%)	4 <i>n</i> (%)	5 <i>n</i> (%)
Length of private English study	never 23 (7.7)	less than 1 year 31 (10.3)	1-2 years 79 (26.3)	3-4 years 84 (28)	more than 5 years 83 (27.7)
Length of stay-abroad	never 277 (92.3)	less than 1 month 14 (4.7)	less than 6 months 6 (2)	less than 1 year 1 (.3)	more than 1 year 2 (.7)
Korean reading frequency for pleasure	almost never 49 (16.3)	once a month 87 (29)	once a week 78 (26)	3-4 times a week 50 (16.7)	almost everyday 36 (12)
English reading frequency for pleasure	almost never 232 (77.3)	once a month 36 (12)	once a week 17 (5.7)	3-4 times a week 14 (4.7)	almost everyday 1 (.3)
Korean writing frequency for pleasure	almost never 120 (40)	once a month 78 (26)	once a week 40 (13.3)	3-4 times a week 32 (10.7)	almost everyday 30 (10)
English writing frequency for pleasure	almost never 237 (79)	once a month 33 (11)	once a week 17 (5.7)	3-4 times a week 5 (1.7)	almost everyday 8 (2.7)

In terms of pleasure reading and writing, these students enjoyed neither activity in their native language nor in English. Nearly half of the students (45%) evaluated

themselves as infrequent readers, and more than half of the students (66%) considered themselves infrequent writers in Korean. Also, a majority of the students (89%) reported that they almost never (77%) or no more than once per month (12%) read something in English for pleasure. Similarly, 90% of the students addressed that they almost never (79%) or no more than once per month (11%) wrote something in English for enjoyment. This indicated that reading and writing in English was not a frequent activity for enjoyment among these students. Indeed, English instruction in middle school tends to center on exam-oriented reading and grammar practices in a teacher-centered manner, rather than promoting autonomous free reading and writing. Furthermore, although English textbooks include writing sections at the end of each chapter, writing in a paragraph format is rarely emphasized in classes. There are some obstacles to teaching writing in foreign language contexts, such as limited class time, students' beginner level of writing ability, large class size (on average, 30-35 students per class), and nonnative English teachers' feelings of a lack of their own competence in the target language.

Originally, student participants numbered 319, the entire group of 8th graders in the middle school. Although all students in the 8th grade participated in the year-long treatments, different numbers of students completed pre- and post-language tests and surveys: 306 for reading comprehension tests, 301 for writing essays, 303 for grammar measures, 300 for the background questionnaire, 288 for the post-attitude survey, 287 for the reading attitude survey, and 279 for the writing attitude survey. Thus, different numbers of participants were used for different data analyses: 306 for the analysis of treatment effects on reading comprehension, 301 for the analysis of treatment on writing ability, 303 for the analysis of treatment on grammar knowledge, 288 for the analysis of students' attitudes toward their instructional treatment, 287 for the analysis of students'

attitudes toward L2 reading, and 279 for the analysis of students' attitudes toward L2 writing.

Teachers

Three Korean-English teachers (one man, two women) took all English instruction responsibility for the entire 8th grade, providing regular English instruction, as well as the treatment, for two semesters. They had one to seven years of teaching experience, holding either a bachelor's or master's degree in English language education. Their age ranged from 27 to 32. The teachers agreed to participate in the study and to follow the instructions, lesson plans, and materials that I provided. Before the study began, I had several in-person meetings with them to explain how to provide each treatment, although they were blind to the purpose of the study. During the yearlong instruction, I regularly communicated with them via emails regarding the progress of treatment and any concerns they had related to the study.

TREATMENTS

English was taught four times per week for 45 minutes each time. One day per week for two semesters, students received the special treatment I had designed as a portion of the regular English instruction. For the other three days per week, regardless of treatment assignment, students received the same regular instruction with the same textbook centering on listening, speaking, reading, vocabulary, grammar, and sentence-level writing. For regular English instruction, teachers were required to use the English textbook that was already determined in the school curriculum. The textbook was composed of twelve chapters, and it is conventional that the first six chapters are covered in the first semester and the rest is taught during the second semester. Teachers were expected to follow the sequence of each chapter: listening and speaking conversational

dialogues, interpreting short reading passages (two to four pages), explaining vocabulary and grammar points appearing in the reading texts, and doing extra activities such as sentence-level writing.

For the treatment lessons, ten intact homeroom classes were randomly assigned to treatment, four classes to the extensive reading group ($n = 124$), four classes to the extensive writing group ($n = 121$), and two classes to the extended version of regular instruction ($n = 61$) serving as a control group. I tested whether there were any differences in the mean English grades among the three groups: extensive reading, extensive writing, and control. A one-way ANOVA indicated that there was no statistical difference in English scores among the three groups, $F(2, 303) = .07, p = .94$, implying equivalent English proficiency at the beginning of treatment across the groups.

According to district policy, the middle school divided all 8th graders into three levels based on English scores from the previous semester to provide level-differentiated English instruction. The upper half of the students was classified as High, whereas the lower half was again divided into Middle and Low levels with smaller class sizes. Each teacher took on a different proficiency level and provided all instruction, including regular instruction and three different treatments (extensive reading, extensive writing, and extended regular instruction). As was the regular practice of the school, to reduce teacher effect, the three teachers taught a different proficiency level during the second semester. For example, Teacher A, who taught High level students during the first semester, provided all instruction including regular and treatment classes to the Low level students during the second semester.

In sum, the ten intact homeroom classes were divided into 15 smaller classes differentiated by English proficiency levels: five at the High level, five at the Middle level, and five at the Low level. Each teacher taught only one level during the first

semester, and they rotated in the second semester. In terms of treatment group assignment, two small classes from each proficiency level, High, Middle, and Low, that is, a total of six small classes, were assigned to extensive reading. Similarly, a total of six small classes from High, Middle, and Low levels were assigned to extensive writing. For the control group, a total of three small classes, one class from each proficiency level, were assigned.

Extensive Reading

This treatment required students ($n = 124$) to choose an English book, based on their interest and proficiency level, read it in class, and write short summaries or responses in Korean as a check of whether the reading was actually being done. Although there are no strict criteria to define the amount of extensive reading, one book per week is recommended to see the benefits of extensive reading and to establish a reading habit (Day & Bamford, 2002; Yamashita, 2008).

At the beginning of the extensive reading class, students submitted their workbooks (book diaries), done as homework, to the teacher and read a new book that they borrowed from the library. While students were reading their books, the teacher provided comments that mostly encouraged more reading and focused on the book's content or students' feelings about the book. The teacher typically returned students' workbooks either at the end of the class or the following day. Students were encouraged to continue to read the book throughout the week. Following suggestions by Bamford and Day (2004) for promoting extensive reading, students participated in group and whole class activities every fourth week in relation to the books they had read. Thus, excluding classes spent in group activities, the number of English books read independently across the year ranged from 16 to 19.

Extensive Writing

The extensive writing treatment ($n = 121$) involved writing one essay in English every week. Because these students had no or little experience in writing beyond the sentence-level, it was necessary to offer at least partial guidance at the beginning of the class. The teacher's guidance, however, depended on writing topics and genres. Regarding topics that the teacher's explanation was not necessarily needed, such as "If I were President of South Korea, I would..." or "My Mr. Right/ Miss. Right," the whole class time was devoted to actual writing. By contrast, the teacher's guidance was provided for topics or genres with which students were unfamiliar, such as "Introduce a special thing about Korea to a foreigner," or "Compare or contrast pets (cats vs. dogs)." For these topics, for the first 10 minutes of the class, teachers led students in brainstorming topics appearing in the workbook. For the remaining 35 minutes of the class, students worked on writing an essay in English and submitted it to the teacher at the end of each class. The following week, teachers returned the workbooks with short comments focused on the meaning, not the form of the language, to show that students had an audience for their work.

It should be noted that corrective feedback on the form of the language was not provided. The purpose of the study was to investigate the effects of extensive writing on L2 learning, rather than the effect of feedback. Thus, a combination of writing practice and feedback would have confounded interpretations of the results. In addition, the role of feedback is still controversial in the development of writing proficiency. Truscott (1996, 2004, 2007) argued that teachers' corrective feedback may have little or even a negative effect on students' writing, whereas some scholars have endorsed the beneficial role of feedback (Bitchener, 2008; Bitchener, Young, & Cameron, 2005; Sheen et al., 2009). Because of the mixed findings on the effect of corrective feedback, this study was

purposefully designed not to provide teachers' corrective feedback. Instead, teachers provided short comments focusing on content. The number of English essays written across the year ranged from 16 to 19.

Extended Regular Instruction

The control group ($n = 61$) received extended regular instruction, focusing on reading, grammar, and vocabulary. For the Middle and Low levels, teacher-centered instruction was provided to explain difficult structures and new vocabulary appearing in the reading passage before students translated a reading passage into Korean. For students at the High level, for the first 30 minutes of the class, students were required to translate a reading passage into Korean individually, consulting dictionaries or asking their peers. Teacher explanations followed for the remaining 15 minutes of class. At the end of each class, students at all proficiency levels submitted their workbook (translations) to the teacher, and the teacher checked whether students had actually attempted a translation of the assigned passage.

Group and Whole Class Activities

The three treatments, extensive reading, extensive writing, and extended regular instruction, involved group and whole class activities every fourth week to promote students' motivation and participation in each treatment. Within each treatment, students were assigned to groups of four, worked collaboratively, and made an oral presentation about their group work to the whole class. All groups were also provided with a sketchbook (size: 14 x 17 inch) and drawing materials for visual presentations and to increase enjoyment of group activities. The number of group activities across the year ranged from five to six.

Specifically, students in the extensive reading group shared their book reports in teams, chose one book from the shared reports, and made a presentation about the book using drawings and illustrations. For the extensive writing group, students wrote individual essays for the first three weeks and shared their essays in teams, rewrote one essay with group members in a sketch book, and made a presentation about their group work. Similarly, the control group translated reading passages for three weeks and then participated in the group activities related to the reading passage in the fourth week. For instance, if they had translated a passage about going on a first date in the previous units, the group activity presented in the workbook was to imagine students' own perfect first date and present it to the class. Figure 3.1 illustrates actual team products produced in group activities by treatment.

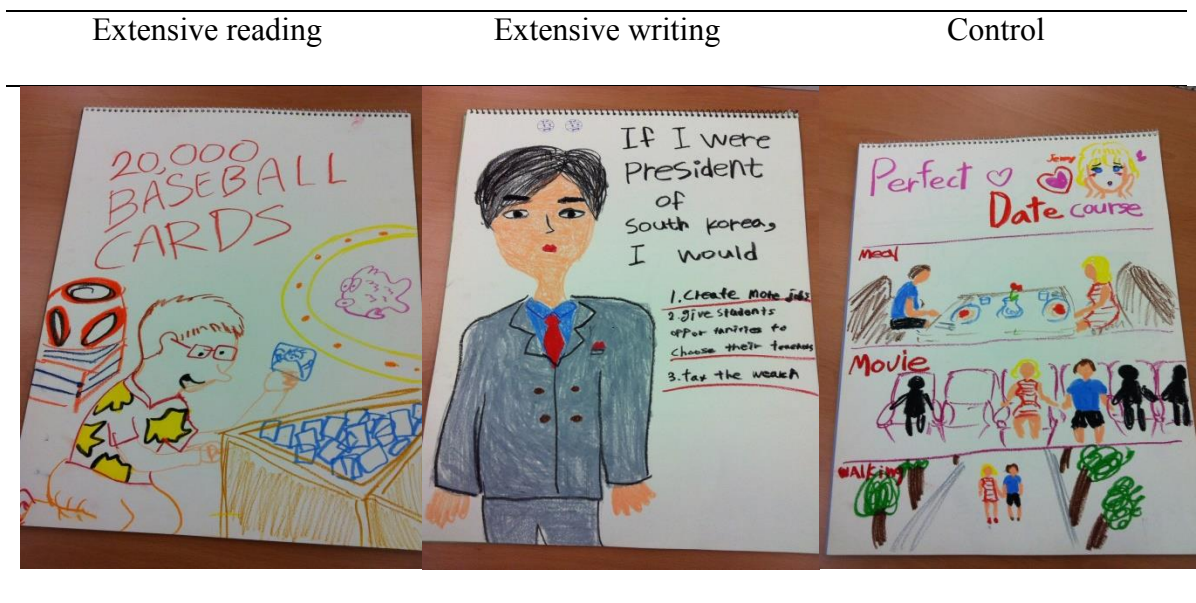


Figure 3.1 Examples of Group Activities by Treatment

INSTRUMENTS

Background Questionnaire and Attitude Surveys

Background questionnaire

At the outset of the study, a background questionnaire gathered students' demographic information, including gender, length of English private instruction, experience of visiting English-speaking countries, and frequency of pleasure reading and writing in Korean and English (see Appendix A).

Post-attitude survey toward treatment instruction

After the yearlong treatment was complete, a post-survey was distributed to measure students' attitudes toward each instruction. This survey included 10 statements that students rated on a 5-point Likert scale (1 = "I strongly disagree"; 5 = "I strongly agree"). I used the same items for all three groups. Adapted from previous studies (Takase, 2007; Yang, 2001), these items addressed students' self-assessment of their achievement and overall feelings and attitudes toward the program (extensive reading, extensive writing, or extended regular instruction; see Appendix B).

Attitude survey toward L2 reading

Using Fishbein and Ajzen's (1975) Reasoned Action Theory as a theoretical framework, I adopted 26 reading attitude items from Lee and Schallert (2014), a study examining Korean middle school students' L2 reading attitudes. According to Fishbein and Ajzen, an individual's attitude toward a particular object or activity comprises *cognitive attitudes* (evaluative beliefs), *affective attitudes* (feelings and emotions about a particular object), and *conative attitudes* (intentions reflecting actual reading behavior). Based on Fishbein and Ajzen's (1975) three attitude components, Lee and Schallert (2014) constructed an L2 reading attitude questionnaire with 35 items. After exploratory

analysis of these items, 30 remained, of which I selected 26. Four items referred to the same aspect of reading attitude, so I excluded them because I did not want to exhaust students with too many survey items. All items were written in Korean and rated on a 5-point Likert scale, with 1 indicating “Not at all true of me” and 5 indicating “Completely true of me” (see Appendix C). This reading attitude questionnaire was administered at the beginning and end of the treatment.

Attitude survey toward L2 writing

I constructed a 27-item writing attitude questionnaire based on Fishbein and Ajzen’s (1975) Reasoned Action Theory and Lee and Schallert’s (2014) reading attitude questionnaire. One reason for this construction of a writing attitude questionnaire based on a reading attitude study is the lack of research on L2 writing attitude using Fishbein and Ajzen’s (1975) Reasoned Action Theory. Another reason is an allowance of possible comparisons between L2 reading and writing attitude change over time, as a result of treatment instruction. Moreover, previous studies have typically focused on writing apprehension or writing anxiety (Cheng, Horwitz, & Schallert, 1999; Cheng, 2002, 2004; Daly & Miller, 1975; Lee & Krashen, 1997). In order to reflect the previous research on L2 writing attitude, some items addressing writing apprehension or writing anxiety were adopted from Cheng (2004) and Daly and Miller (1975). All items were written in Korean and rated on a 5-point Likert scale (1 = Not at all true of me, 5 = Completely true of me). This writing attitude questionnaire (see Appendix D) was distributed as a pre- and post-treatment measure.

Language Measures

The language tests measured reading comprehension, writing performance, and knowledge of grammar at the beginning and end of the treatment. All tests were

distributed in paper form, and 45 minutes were allowed for each test during regular English classes. I also obtained students' English grades in four consecutive formal tests and used the mean of the school English tests as a proxy for their English language proficiency. Table 3.2 displays descriptive statistics of the language measures and the mean school English grades.

Table 3.2 *Descriptive Statistics of Reading Tests (N = 306), Writing Tests (N = 301), Grammar Tests (N = 303), and English Proficiency (N = 306)*

Tests	Items	Min-Max	Mean	SD	Skewness (SE)	Kurtosis (SE)
Pre-reading	30	13 - 100	62.6	19.4	-.31 (.14)	-.30 (.28)
Post-reading	30	12 - 100	69.0	19.8	-.90 (.14)	.27 (.28)
Pre-writing	1	0 - 94	37.2	20.2	.31 (.14)	.01 (.28)
Post-writing	1	0 - 100	41.6	25.1	.21 (.14)	-.70 (.28)
Grammar						
Pre-general	20	5 - 95	37.2	19.3	.74 (.14)	-.01 (.28)
Post-general	20	5 - 100	49.7	21.7	.31 (.14)	-.81 (.28)
Pre-article	20	5 - 80	44.6	14.3	.04 (.14)	-.17 (.28)
Post-article	20	5 - 95	53.6	17.7	-.17 (.14)	-.41 (.28)
Pre-preposition	20	0 - 90	40.0	16.7	.33 (.14)	-.14 (.28)
Post-preposition	20	0 - 95	42.3	18.2	.28 (.14)	-.54 (.28)
English Proficiency (mean of school grades)	--	14.5 - 99.1	65.4	25.0	-.50 (.14)	-1.1 (.28)

Note. Min: Minimum score; Max: Maximum score; *SD*: Standard deviation. *SE*: Standard error.

Skewness and kurtosis indices indicated that the data were normally distributed. Test scores of reading, writing, and all grammar measures as well as school English grades were converted to percentage equivalents. Detailed information about all measures is described in the following.

Reading comprehension tests

Each pre-and post-reading comprehension test consisted of 30 multiple-choice items, a testing method frequently used in previous studies to measure reading

comprehension (e.g., Al-Homoud & Schmitt, 2009; Elley & Mangubhai, 1983; Nakanishi & Ueda, 2011; Yamashita, 2008). The items were taken from two types of national-level standardized English tests administered for the past six to seven years in Korea—high school entrance certificate tests for self-study learners and high school entrance exams. These standardized tests have been developed, administered, and validated by assessment experts at the Korea Institute for Curriculum and Evaluation, the organization that supervises national-level educational assessment and curriculum. I selected only reading comprehension items from the English tests and had two English teachers review them, checking for appropriateness and level. The questions required the ability to understand and identify main ideas, details, purposes, inferences, tones and styles, and logical flow. After review, 60 items (two sets of 30 items for pretest and posttest) were chosen and then pilot tested with 137 middle school students who were at the same grade as the participants in the previous year. I made the difficulty levels (vocabulary and passage length) of the pretest and posttest equivalent, with the number of passage total words at 1419 and 1445, and the mean number of words of each question 47 and 48, respectively.

Writing tests

Writing proficiency was measured through a descriptive essay format at the pretest and posttest because this genre allows students to have flexibility with regard to their form of writing. For each test, I provided students with two possible topics that were closely related to their daily and school life, requiring less content knowledge on particular issues. The topics included: *Describe your best (or worst) vacation* and *Describe your best (or worst) friend* for the pretest, and *Describe your perfect day (in the past or in the future)* and *Describe your favorite hero* for the posttest.

Grammar tests

The grammar tests measured three domains of grammar knowledge—general grammar (20 items), articles (20 items), and prepositions (20 items)—in a multiple-choice format, with 60 items each in the pretest and posttest. The multiple-choice testing method is appropriate not only because it has been frequently used in previous studies to measure knowledge of grammar (Elley & Mangubhai, 1983; Sheu, 2003; Yang, 2001) but also because it is easy and practical to administer and evaluate at low cost for more than 300 students. All 120 items were selected from ESL/EFL testing websites and English teaching materials, reviewed by two English teachers, and pilot tested with 120 students who were in the same grade in the previous year to check for level and appropriateness.

This study used measures of two particularly difficult grammatical features (prepositions and articles) as well as a general grammar knowledge measure, whereas previous studies tended to use undifferentiated measures of assessing overall grammar knowledge. For this purpose, I referred to Bitchener, Young, and Cameron's (2005) grammar categories that they identify as particularly difficult for learners of English, such as tenses, verbs, modals, nouns, subject-verb agreement, infinitives, gerunds, pronouns, relative pronouns, quantifiers, conditional clauses, and comparatives. In particular, Bitchener et al. (2005) ranked prepositions and articles (the combination of indefinite and definite articles) as the first- and second-most frequently-occurring errors in ESL students' writing. Thus, I set aside the two most frequent error categories and tested separately students' knowledge of their correct usage. After excluding prepositions and articles, I collapsed the other grammar categories based on a list of frequently occurring errors among English language learners (Bitchener et al., 2005) and defined general

grammatical knowledge as the ability to identify and apply the usage of grammar rules correctly.

Another reason for the selection of prepositions and articles as target structures is that these grammatical features remain challenging to master even when they are explicitly taught in class. Scholars have argued that teaching English prepositions as well as learning to use them correctly is a demanding task due to the changing meanings which depend on context and metaphorical usage with directions and relationships. Even Ferris and Roberts (2001) classified errors of prepositions into untreatable errors, arguing that the untreatable error group—which includes prepositions, word order, and sentence structure—is idiosyncratic and requires more acquired linguistic knowledge for correct usage. Furthermore, Hendricks (2010) notes that “prepositions are often conceptually different from one language to the next, and direct translation cannot be relied on” (p. 24). She offers, as an example, that the phrase *walk in the rain* in English is *walk under the rain* in French (*marcher sous la pluie*). There are even some languages that do not have prepositions but postpositions, such as Korean. That is, the phrase *arrive in town* in English becomes *town in arrive* in Korean because a postposition should follow a noun. Indeed, preposition errors consist of a considerable proportion of all grammar errors made by ESL students (Chodorow, Tetreault, & Han, 2007), indicating that learning English prepositions is challenging.

In a similar vein, the English article system is one of the most difficult structures for learners of English, and this difficulty tends to continue even at later stages of language learning (Robinson, 2010). According to Master (2002), the difficulty originates from several sources. Because articles are one of the most frequently used function words in English, nonnative English speakers continuously need to apply rules of the article system to their discourse. Differentiating multiple functions of the article system is

another considerable burden for the learner. Master (1995) also pointed out that articles are likely to be ignored when teaching English to speakers of other languages because errors of article usage rarely hinder global understanding. Furthermore, when a learner's first language does not include articles, such as Korean and Japanese, errors are more likely than when the first language does make use of articles, such as Spanish and German (Braine, 2002).

Thus, I focused on general grammar knowledge and the two linguistic features identified as being very difficult to acquire or correct even when explicitly taught. In terms of ensuring the equivalency of the pretest and posttest, I simultaneously assigned test items to the two tests by considering vocabulary, item length, and equivalent grammar point. Furthermore, careful attention was paid to make each test a valid measure of its particular domain. For example, the preposition tests included prepositions indicating place, time, direction, cause, manner, and amount, but excluded idiomatic and vocabulary-dependent prepositions, such as *capable of* and *result in*, which simply need to be memorized:

It was too hot to sit ____ the sun. / Don't go out ____ the rain. Wait until it stops.

A. on - on B. in - in C. on - in D. in - on

Similarly, the article tests assessed correct usage of definite, indefinite, missing, and unnecessary articles in sentences, rather than requiring advanced vocabulary ability:

I watched the news on ____ television. / We heard the news on ____ radio.

A. the - the B. (nothing) - (nothing) C. the - (nothing) D. (nothing) - the

It should be noted that although regular English instruction taught general grammar, grammar sections of the English textbook included only 15% of the linguistic forms in the general grammar tests. Given that the English instruction was heavily guided by the textbook, 85% of the grammar points that were tested in this study were not

explicitly taught in regular classes. Furthermore, scanty focus was paid to prepositions and no attention to articles in regular instruction.

English language proficiency

Because L2 proficiency was relevant to all research questions, I operationalized English language proficiency as the students' English grades that included tests of reading, vocabulary, grammar, sentence-level writing, listening, and speaking. Students' English proficiency was represented by an average score of the school's formal tests administered at four different time points—the previous semester, mid-term and final tests of the first semester, and the mid-term of the second semester. The internal consistency of the four consecutive tests was .97, indicating that the school's English tests reliably measured students' English proficiency. School English grades were reported as percentages, with average scores of the four consecutive tests ranging from 14.46 to 99.07% (see Table 3.2).

Table 3.3 *Range of English Proficiency Scores by Treatment Group and Proficiency Level (N = 306)*

Level	Range	Extensive reading		Extensive writing		Control	
		Mean	<i>n</i>	Mean	<i>n</i>	Mean	<i>n</i>
1	Lowest - 39.33	27.2	28	27.2	23	26.2	12
2	39.34 - 63.86	51.7	23	49.5	26	49.7	12
3	63.87 - 79.36	72.7	27	72.9	21	72.6	13
4	79.37 - 89.68	84.4	21	85.3	30	83.8	10
5	89.69 - highest	94.0	25	93.9	21	94.5	14
	average	64.8	124	65.9	121	65.8	61

Based on the English language proficiency scores, I classified the students into five levels, from Level 1 (lowest) to Level 5 (highest). Table 3.3 shows the number of students at each proficiency level for each treatment. The cut points were identically

applied to the three treatment groups as well as all the measures in the subsequent analyses.

Learning Materials

This study involved a yearlong instructional intervention focusing on extensive reading, extensive writing, or an extended version of regular instruction (serving as a control group). For each instruction, I developed different types of learning materials and had them bound as workbooks: one for extensive reading, one for extensive writing, and two for control group instruction (see Figure 3.2). The details of these learning materials are described below.



Figure 3.2 Workbooks for Extensive Reading, Extensive Writing, and Regular Instruction

Extensive reading

A workbook for extensive reading was designed as a book diary for all proficiency levels. This workbook required students in the extensive reading group to keep a record of the books that they had read by briefly filling in information about each book, including title, level, number of pages, and time spent reading the book, as well as writing a three to four sentence summary and their feelings about the book.

In addition to the workbook, approximately 1,300 English books from beginner to advanced levels were available from the school's library. Following Bamford and Day's (2004) suggestions for initiating extensive reading programs, all English books were categorized into six proficiency levels in terms of vocabulary and text structures, Level 1 indicating the easiest level and Level 6 indicating the most difficult level. To indicate its level, all book covers were labelled with a colored sticker: Level 1 = white, Level 2 = yellow, Level 3 = green, Level 4 = blue, Level 5 = red, and Level 6 = silver, as shown in Figure 3.3. These books were also rearranged on the bookshelves according to proficiency levels, and a poster was attached to describe the connection between color and levels (see Figure 3.3).



Figure 3.3 Level-Differentiated English Books and Bookshelves in the School's Library

One reason for categorizing books into six levels was to help students select a book based on their proficiency level. Another reason was to prevent students at the high proficiency level from reading much easier books than their English proficiency warranted. In a pilot study that was conducted at the same school in the previous year, some students chose easy books, regardless of their English proficiency, simply because they wanted to finish reading quickly and do something else during the remaining time. For this reason, students in the High level classes were advised to select a book between

Level 3 and Level 6. Moreover, if the level of a book was equivalent to Level 4 or higher, students were encouraged to read the book for two or three weeks.

Extensive writing

A workbook was created that included 34 writing chapters for all proficiency levels of the extensive writing group. The writing tasks varied in terms of topic and genre, requiring a variety of modes of discourse, including describing people and pictures, writing to the imagination, narrating from experience, explaining about objects and places, and arguing a point of view with supporting ideas. The tasks were arranged according to level of difficulty. Each workbook chapter was designed for a 45-minute-class and included three sections: brainstorming, relevant vocabulary, and actual writing. Because this workbook was developed for all proficiency levels and most students had little experience in English writing, the books provided relevant vocabulary with meanings to let students at even the lowest proficiency level write something in English. Also, enough space was left for the actual writing section to allow for students' artistic freedom, such as drawing, in their writing.

An extended version of regular instruction

For the control group, who received extended regular instruction, two level-differentiated workbooks were developed: one for the High level students and the other for the students in the Middle and Low level classes. Each workbook chapter included a short reading passage (on average, 100-200 words for the high level and 30-50 words for the middle and low levels), a list of new vocabulary, and a section for grammar points. The reading passages were selected from English study book materials, considering each proficiency level's vocabulary and grammar knowledge.

PROCEDURES

The procedures for the study proceeded in three stages: a) preparing measures and providing workshops for students and teachers, b) administering language tests and surveys, and c) engaging students in the year-long treatment. An overview of the whole procedure is presented in Table 3.4.

Table 3.4 *Overview of Procedures*

3 weeks	Administered pre-tests (reading, writing, and grammar) Administered attitude surveys (reading and writing) and a background survey Had meetings and workshops with teachers Offered workshops to students to introduce workbooks and the current study
↓	
4 months	Provided treatment (extensive reading, extensive writing, regular instruction) for 3 weeks as well as group/whole class activities for 4th week Repeated a combination of treatment and group activities for four months
1 month	Summer vacation
3 months	Repeated a combination of treatment and group activities for three months
↓	
3 weeks	Administered post-tests (reading, writing, and grammar) Administered attitude surveys (reading, writing, and treatment instruction) Collected students' workbooks and classroom artifacts

Administering Measures

The pre-tests and a background survey were administered in four 45-minute regular classes across three weeks:

- ✓ First session: reading comprehension (30 items)
- ✓ Second session: writing test (1 essay)
- ✓ Third session: tests of general grammar (20 items), articles (20 items), and prepositions (20 items)
- ✓ Fourth session: a background survey

During and after the pre-measure administration, I had several meetings with the English teachers to discuss the study and how to teach each group using the prepared workbooks. During the same week, I offered workshops to the students to explain the study and how to use the workbooks. From the following week, the treatments began along with other formal regular English classes. At the end of the year, post-tests and the post-survey were administered in the same manner as the pre-measures.

Treatment Instruction

Along with regular instruction for three days per week, students received extensive reading, extensive writing, or extended regular instruction for 45 minutes for once every week for seven months, except for the one-month interval of summer vacation and the period of mid-terms and final-school tests. After all treatments and post-measures were completed, students' workbooks as well as group activity sketchbooks were collected. Photos of these class artifacts were taken, and some workbooks were selected for further review.

DATA ANALYSIS

Analysis took the form of, first, grading the students' reading comprehension, grammar knowledge, and writing and, second, statistically testing the hypotheses.

Grading Reading Comprehension and Knowledge of Grammar

For both reading and grammar measures, students were required to answer on Optical Mark Reading (OMR) sheets, which typically have been used for their regular school tests. OMR allows the researcher to grade hundreds of answer sheets per hour and provide summative scores for each test by counting all correct choices. The possible total on each test was 100 points.

Rating Writings

All pre-and post-test essays were collected and prepared for evaluation. Before rating, a unique number (e.g., 201007) was assigned to each student writing, and scores were recorded to this number. All essays were graded by two raters (including myself) who had three and six years of teaching experience, respectively; further, both of us taught in middle schools in Korea and held master's degrees in foreign language education.

Grading proceeded in two steps. First, following the scoring guidelines of the Test of Written English for the Test of English as a Foreign Language (Bailey, 1998), the two raters classified the 602 essays (301 from the pre-test and 301 from the post-test) into six levels based on holistic judgments, ranging from F (nothing is written) to A (well-written). Because a large portion of the writings was classified into Levels B, C, and D, these three levels were again divided into two sub-levels within each level, for example, Level B-high and Level B-low. In the second step, the raters read two to three essays from each level and practiced scoring the essays using an analytic rubric with six sub-scales: organization (20 points), content (20 points), vocabulary (20 points), grammar (20 points), mechanics (10 points), and overall impression (10 points). This analytic rubric was adapted from Williams (2004) and a TOEFL iBT independent writing rubric (ETS, 2014; see Appendix E). I chose analytic assessment, rather than holistic evaluation, because analytic evaluation involves assessing different dimensions of writing skills based on several categories with fixed criteria, resulting in higher reliability and providing specific information about students' writing performance (Williams, 2004).

After practicing and discussing the scores in different categories, the other rater and I evaluated the same writings independently and entered the data in an Excel spreadsheet. Essays that had considerable discrepancies in scores (four scores or more)

between the raters (15.3% for the pretest and 16.7% for the posttest) were re-considered in discussion and subjected to another round of scoring. This process, i.e., practicing, scoring, and checking, continued every day for one week. We each evaluated 602 essays, and our average score was used as each student's writing score. The intraclass correlation coefficient (ICC) between the two raters was calculated on the summative score after discrepancies had been resolved (Shrout & Fleiss, 1979). A high degree of reliability was found for both pretest and posttest; the two-way random single measure ICC was .98 with a 95% confidence interval from .976 to .984 ($F(300, 300) = 101.5, p < .001$) for the pretest, and a 95% confidence interval from .983 to .989 ($F(300, 300) = 145.4, p < .001$) for the posttest. It should be noted that the two raters were unaware of which students had received which treatment while grading because scores were assigned to a unique number and because all writings were categorized into six levels and rated by levels, not by treatment groups.

Statistical Analyses

This study was designed to compare the effects of extensive reading, extensive writing, and extended regular instruction on students' linguistic knowledge and attitudes toward each instruction and L2 reading and writing. Also, the design allowed for an impact test of the treatment depending on students' English proficiency. Thus, a design was appropriate with three factors included, one within-subject factor (time), and two between-subject factors (treatment and proficiency level), with a pretest-treatment-posttest design.

For each language test (reading, writing, and grammar), I conducted a repeated measures 2 (Time) X 3 (Treatment) X 5 (Proficiency) analysis of variance (ANOVA). For all significant interaction effects, post hoc analyses followed using a Bonferroni

correction to control for Type I error. For the post-attitude survey, I first used exploratory factor analysis (EFA) with a Varimax rotation. Factor analysis is a data reduction technique that condenses a list of attributes into core factors, lowering redundancy (Stevens, 2009). I used the following criteria to extract factors: Items with a minimum eigenvalue of 1.0 and that loaded on a factor at a level of .40 and above remained; items that loaded on multiple factors at .40 or higher or with little theoretical connections to the factor were deleted (Stevens, 2009). As reported in the results section, all items loaded on one factor. I calculated the mean of the 10 items and used it as a dependent measure in a two-way ANOVA to examine the students' attitudinal differences among the three treatment groups and among L2 proficiency levels. Finally, for the L2 reading and writing attitude surveys, exploratory factor analysis with a Varimax rotation was conducted on each post-reading and post-writing questionnaire. As addressed in the result section, five factors were extracted from each questionnaire. Based on these EFA results, the pre-reading and pre-writing questionnaire items were grouped as factors. Using the means of these factors as dependent variables, I conducted repeated measures ANOVAs with a 2 (Time) X 3 (Treatment) X 5 (Proficiency) design. For significant interaction effects, I performed post hoc analyses using a Bonferroni correction.

Chapter 4

RESULTS

This chapter presents the results of quantitative analyses by research question. The first research question addresses the effects of yearlong treatments (extensive reading, extensive writing, and extended regular instruction) on EFL adolescents' reading comprehension with proficiency level as a factor of analysis. The second and third research questions concern the effects of the treatments on writing and grammar knowledge and their differential impact by proficiency levels. Finally, the fourth research question explores students' attitudes toward the particular treatment they experienced, and toward reading and writing in English, with proficiency level taken into account.

The variable of L2 proficiency, which was associated with all four research questions, was operationalized as the average score of the students' English grades from their four consecutive formal school tests that assessed listening, speaking, reading, writing, and grammar skills. The high internal consistency of the four tests ($\alpha = .97$) indicated that the mean score of the school grades was sufficiently reliable to be used as proxy for English proficiency. Thus, I classified the students into five levels of relatively similar *ns* based on the means of school English scores: Level 1 (range: Lowest to 39.33; $M = 27.0$), Level 2 (range: 39.34 to 63.86; $M = 50.4$), Level 3 (range: 63.87 to 79.36; $M = 72.8$), Level 4 (range: 79.37 to 89.68; $M = 84.7$), and Level 5 (range: 89.69 to highest; $M = 94.1$). The cut points were identically applied to the three treatment groups and used in the tests of all language and attitude measures. Because the numbers of the students who had taken both pre- and post-measures differed for each test and questionnaire, the analyses for each research question involve slightly different numbers of the students.

RESEARCH QUESTION 1. READING ACHIEVEMENT BY TREATMENT GROUP AND PROFICIENCY LEVEL

The first research question involved examining the students' performance on a reading comprehension measure. Descriptive statistics of the reading test scores as well as the number of students by group and proficiency level are displayed in Table 4.1. Overall, students achieved significant gains in reading comprehension between the pretest and the posttest. In order to find whether the improvement was different depending on groups and L2 proficiency, a repeated-measures ANOVA was carried out.

Table 4.1 *Means (Standard Deviations) of Reading Test Scores by Treatment Group and by Proficiency Level (N = 306)*

Levels	Extensive reading			Extensive writing			Control		
	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>
1 (Low)	37.9 (15.0)	40.5 (14.2)	28	41.2 (15.8)	40.3 (17.8)	23	35.3 (13.6)	37.8 (16.7)	12
2	54.2 (6.7)	64.6 (10.0)	23	52.0 (10.8)	62.5 (8.6)	26	56.9 (4.9)	65.3 (8.6)	12
3 (Mid)	66.0 (9.8)	73.3 (8.5)	27	62.2 (11.4)	75.9 (6.2)	21	61.5 (11.3)	72.1 (8.5)	13
4	72.7 (11.8)	77.6 (13.7)	21	74.2 (8.5)	81.4 (5.6)	30	72.4 (14.5)	83.9 (9.7)	10
5 (High)	84.8 (9.3)	87.6 (7.7)	25	84.3 (9.9)	89.0 (9.0)	21	83.9 (13.0)	87.9 (5.4)	14
Total	63.1 (19.8)	68.7 (19.8)	124	62.8 (18.8)	69.8 (19.6)	121	62.0 (20.2)	69.4 (20.5)	61

Note. Maximum obtainable score: 100.

The results of a repeated-measures ANOVA (see Table 4.2.) indicate that the main effect for time was statistically significant, $F(1, 291) = 89.7, p < .05$, with a large effect size (partial $\eta^2 = .24$), whereas there was no significant time-by-treatment interaction, $F(2, 291) = .66, p > .05$, suggesting that students in the three groups significantly improved in reading comprehension over time at similar rates. I also examined whether the treatments' impact was different depending on English proficiency

level. There was a significant two-way interaction between time and proficiency, $F(4, 291) = 6.2, p < .05$ with a medium effect size (partial $\eta^2 = .08$), whereas a three-way interaction effect among time, treatment, and proficiency was not significant, $F(8, 291) = .81, p > .05$. This indicates that students at different proficiency levels showed different patterns of reading achievement across time, although the degrees of improvement were not statistically different among the extensive reading, extensive writing, and control groups.

Table 4.2 *Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level*

Source	df	Sums of squares	Mean squares	F	p	Partial eta ²
Within-subjects						
Time	1	6061.4	6061.4	89.7	.00*	.24
Time x Treatment	2	89.6	44.8	.66	.52	.01
Time x Proficiency	4	1683.9	421.0	6.2	.00*	.08
Time x Treatment x Proficiency	8	436.3	54.5	.81	.60	.02
Error	291	19671.77	67.60			
Between-subjects						
Treatment	2	33.1	16.6	.10	.91	.00
Proficiency	4	145968.8	36492.2	209.9	.00*	.74
Treatment x Proficiency	8	876.2	109.5	.63	.75	.02
Error	291	50587.4	173.8			

Note. * $p < .05$

Post hoc analysis was conducted on the significant time-by-proficiency interaction. Table 4.3 displays different degrees of improvement across proficiency levels. Level 1 students did not show significant gains from any instruction, whereas students at Levels 2, 3, 4, and 5 exhibited substantial growth from pretest to posttest.

Table 4.3 Means (Standard Errors) for Post hoc Analysis of Reading Scores for the Time \times Proficiency Level Interaction ($N = 306$)

	Pre-test	Post-test	Mean difference	$F(1, 291)$	partial η^2
Level 1	38.1 (1.5)	39.5 (1.4)	1.4 (1.6)	.86	.00
Level 2	54.4 (1.5)	64.1 (1.4)	9.7 (1.6)	38.3*	.12
Level 3	63.2 (1.5)	73.8 (1.4)	10.6 (1.6)	45.5*	.14
Level 4	73.1 (1.6)	81.0 (1.5)	7.9 (1.7)	22.7*	.07
Level 5	84.3 (1.5)	88.2 (1.4)	3.9 (1.5)	6.2*	.02

Note. Maximum obtainable score: 100; * The mean difference is significant at the .05 level (Bonferroni adjustments for multiple comparisons).

RESEARCH QUESTION 2. WRITING ACHIEVEMENT BY TREATMENT GROUP AND PROFICIENCY LEVEL

The second research question examines the effects of treatment on students' writing performance by groups and proficiency level. Table 4.4 shows descriptive data for the scores on the pre-and post-test measures of writing. In order to investigate the statistical differences between groups and proficiency levels, these writing scores were submitted to a repeated-measures ANOVA.

Table 4.4 *Means (Standard Deviations) of Writing Test Scores by Treatment Group and by Proficiency Level (N = 301)*

Levels	Extensive reading			Extensive writing			Control		
	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>
1 (Low)	18.1 (9.0)	15.7 (11.2)	28	11.4 (8.5)	10.4 (11.1)	20	9.3 (12.7)	10.0 (12.3)	12
2	24.9 (8.6)	29.4 (12.6)	23	25.3 (12.1)	30.5 (15.4)	25	33.8 (14.2)	31.3 (19.3)	12
3 (Mid)	35.8 (11.5)	38.4 (13.7)	27	39.1 (12.4)	40.4 (15.6)	21	40.6 (9.5)	41.6 (18.0)	13
4	46.0 (13.0)	51.9 (15.6)	20	49.6 (11.8)	60.5 (14.0)	30	56.9 (17.0)	54.5 (18.3)	10
5 (High)	50.9 (16.3)	61.7 (19.2)	25	60.6 (15.3)	76.1 (16.7)	21	63.6 (19.7)	70.6 (22.7)	14
Total	34.5 (17.2)	38.5 (22.0)	123	38.0 (20.7)	44.7 (26.5)	117	41.1 (24.2)	42.1 (27.7)	61

Note. Maximum obtainable score: 100.

As displayed in Table 4.5, the results revealed a significant time effect, $F(1, 286) = 19.6, p < .05$ with a medium effect size (partial $\eta^2 = .06$), as well as a significant Time x Treatment interaction effect, $F(2, 286) = 3.2, p < .05$ with a small effect size (partial $\eta^2 = .02$). This indicates that students' writing performance significantly improved across time, and the degree of the improvement was different depending on the treatment. Moreover, there was a significant Time x Proficiency interaction effect, $F(4, 286) = 5.8, p < .05$ with a moderate effect size (partial $\eta^2 = .08$), meaning that the degree of writing

achievement depended on the students' L2 proficiency levels. However, a three-way (Time x Treatment x Proficiency) interaction effect was not statistically significant.

Table 4.5 *Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level*

Source	<i>df</i>	Sums of squares	Mean squares	<i>F</i>	<i>p</i>	Partial η^2
Within-subjects						
Time	1	1934.1	1934.1	19.6	.00*	.06
Time x Treatment	2	626.4	313.2	3.2	.04*	.02
Time x Proficiency	4	2306.8	576.7	5.8	.00*	.08
Time x Treatment x Proficiency	8	673.5	84.2	.85	.56	.02
Error	286	28229.8	98.7			
Between-subjects						
Treatment	2	1690.2	845.1	2.8	.06	.02
Proficiency	4	175184.3	43796.1	144.3	.00*	.67
Treatment x Proficiency	8	5465.7	683.2	2.3	.02*	.06
Error	286	86819.4	303.6			

Note. * $p < .05$

Using post hoc analyses of the significant two-way interactions (Time x Treatment and Time x Proficiency), I investigated which group and proficiency level benefitted more with regard to writing performance.

Table 4.6 *Means (Standard Errors) for Post hoc Analysis of Writing Scores for the Time X Treatment Interaction (N = 301)*

	Pre-test	Post-test	Mean difference	<i>F</i> (1, 286)	partial η^2
Extensive reading	35.2 (1.2)	39.4 (1.4)	4.2 (1.3)	11.2*	.04
Extensive writing	37.2 (1.2)	43.6 (1.5)	6.4 (1.3)	23.6*	.08
Control	40.8 (1.6)	41.6 (2.0)	.8 (1.8)	.2	.00

Note. Maximum obtainable score: 100; *The mean difference is significant at the .05 level (Bonferroni adjustments for multiple comparisons).

First, averaging across proficiency levels, students who participated in extensive reading and extensive writing demonstrated significant improvement in writing across time, but such improvement was not found for the control group (see Table 4.6). Although the control group had the highest writing score among the three groups at the pretest, their growth was almost negligible over time. In contrast, the extensive reading group had the lowest score at the pretest; nevertheless, students in this group showed significant improvement across time. The significant gains by extensive reading and extensive writing groups were not statistically different from each other.

Taking proficiency into account, the results revealed that the significant gains in writing mostly came from high level students, namely Levels 4 and 5 (see Table 4.7). Specifically, the gain scores of the Level 5 students were more than twice as much as those of the Level 4 students. Similarly, Level 4 students showed improved scores that were at least twice as much as the gain scores of students in Levels 1, 2, and 3.

Table 4.7 Means (Standard Errors) for Post hoc Analysis of Writing Scores for the Time X Proficiency Level Interaction (N = 301)

	Pre-test	Post-test	Mean difference	F (1, 285)	partial η^2
Level 1	12.9 (1.7)	12.0 (2.1)	-.9 (1.9)	.22	.00
Level 2	28.0 (1.7)	30.4 (2.1)	2.4 (1.9)	1.5	.01
Level 3	38.5 (1.7)	40.1 (2.1)	1.6 (1.9)	.78	.00
Level 4	50.8 (1.8)	55.6 (2.2)	4.8 (2.0)	5.7*	.02
Level 5	58.4 (1.7)	69.5 (2.1)	11.1 (1.9)	35.4*	.11

Note. Maximum obtainable score: 100; * The mean difference is significant at the .05 level (Bonferroni adjustments for multiple comparisons).

RESEARCH QUESTION 3. GRAMMAR KNOWLEDGE GROWTH BY TREATMENT GROUP AND PROFICIENCY LEVEL

The third research question examines the students' grammatical knowledge, measured through three different tests focusing on general grammar, articles, and prepositions. For each measure, repeated-measures ANOVAs (Time x Group x Proficiency) were performed, and post hoc analyses followed for significant interaction effects. The following results are reported for each measure.

General Grammar

Table 4.8 presents descriptive statistics for scores on the general grammar test. Students in the three treatment groups showed an increase, although the change between pretest and posttest appeared different depending on L2 proficiency levels. Therefore, a repeated-measures ANOVA was conducted in order to investigate whether the effects of the group assignment differed by proficiency levels.

Table 4.8 *Means (Standard Deviations) of General Grammar Test Scores by Treatment Group and by Proficiency Level (N = 303)*

Levels	Extensive reading			Extensive writing			Control		
	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>
1 (Low)	22.8 (8.7)	25.9 (10.4)	27	22.6 (9.0)	27.6 (10.4)	23	20.8 (10.0)	34.2 (10.8)	12
2	28.2 (10.2)	38.0 (11.5)	22	24.2 (9.7)	35.4 (9.7)	26	28.8 (10.3)	36.7 (11.5)	12
3 (Mid)	33.7 (13.1)	46.1 (15.0)	27	33.8 (10.7)	48.8 (15.2)	21	31.5 (12.8)	47.7 (13.0)	13
4	39.3 (15.3)	56.0 (18.9)	21	44.3 (12.6)	61.2 (11.8)	30	41.1 (20.9)	57.8 (16.2)	9
5 (High)	59.8 (18.2)	78.4 (10.6)	25	67.6 (12.7)	80.0 (15.1)	21	58.6 (22.9)	75.0 (12.2)	14
Total	36.6 (18.6)	48.5 (22.5)	122	38.1 (19.3)	50.4 (21.9)	121	36.6 (20.8)	50.7 (19.9)	60

Note. Maximum obtainable score: 100.

As displayed in Table 4.9, results indicated that a significant main effect was found for time, $F(1, 288) = 177.4, p < .05$, with a large effect size (partial $\eta^2 = .38$), whereas there was no significant Time x Treatment interaction, $F(2, 288) = .39, p > .05$. That is, the three groups significantly improved from pretest to posttest, without a statistical difference among the groups. Also, a Time x Proficiency interaction effect was statistically significant, $F(4, 288) = 3.8, p < .05$, with a moderate effect size (partial $\eta^2 = .05$), whereas the three-way interaction effect (Time x Treatment x Proficiency) was not statistically significant, $F(8, 288) = .70, p > .05$. Based on these findings, we can infer that growth in knowledge of general grammar differed depending on L2 proficiency levels, but these improvement patterns of the proficiency levels did not differ substantially across the three treatment groups.

Table 4.9 *Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level*

Source	df	Sums of squares	Mean squares	F	p	Partial η^2
Within-subjects						
Time	1	21722.1	21722.1	177.4	.00*	.38
Time x Treatment	2	94.6	47.3	.39	.68	.00
Time x Proficiency	4	1842.7	460.7	3.8	.01*	.05
Time x Treatment x Proficiency	8	683.0	85.4	.70	.69	.02
Error	288	35265.8	122.5			
Between-subjects						
Treatment	2	386.1	193.1	.89	.41	.01
Proficiency	4	133476.2	33369.0	153.3	.00*	.68
Treatment x Proficiency	8	1745.1	218.1	1.00	.44	.03
Error	288	62696.6	217.7			

Note. * $p < .05$

The results of a post hoc analysis of the significant interaction effect (Time x Proficiency) revealed that most students, regardless of proficiency levels, showed significant increase from pretest to posttest with a medium-to-large effect size.

Nevertheless, the change scores of the middle and high proficiency level students (Levels 3, 4, and 5) were more than twice as much as those of the Level 1 students. This implies that the higher the language proficiency, the more gains in the knowledge of general grammar.

Table 4.10 *Means (Standard Errors) for Post hoc Analysis of General Grammar Test Scores for the Time X Proficiency Level Interaction (N = 303)*

	Pre-test	Post-test	Mean difference	<i>F</i> (1, 288)	partial η^2
Level 1	22.1 (1.7)	29.2 (1.7)	7.1 (2.1)	11.5*	.04
Level 2	27.1 (1.8)	36.7 (1.8)	9.6 (2.1)	20.3*	.07
Level 3	33.0 (1.8)	47.5 (1.7)	14.5 (2.1)	48.0*	.14
Level 4	41.6 (1.9)	58.3 (1.9)	16.7 (2.3)	53.5*	.16
Level 5	62.0 (1.7)	77.8 (1.7)	15.8 (2.1)	57.7*	.17

Note. Maximum obtainable score: 100; * The mean difference is significant at the .05 level (Bonferroni adjustments for multiple comparisons).

In addition, I examined the decomposed three-way interaction coming from the overall repeated-measures ANOVA to explore whether the improvement of the Level 1 students differed by treatment group (see top row of Table 4.8). As an exploratory analysis, this examination aimed to provide detailed information about the Level 1 students' growth, not to investigate the three-way interaction. As shown in Table 4.11, an examination of the Level 1 students' scores across the groups suggests that the significant gains in general grammar mostly came from the control group, who received regular instruction.

Table 4.11 *Exploratory Analysis on General Grammar Test Scores by Treatment Group and by Proficiency Level (N = 303)*

Levels	Extensive reading (n = 122)		Extensive writing (n = 121)		Control (n = 60)	
	F	partial η^2	F	partial η^2	F	partial η^2
1 (Low)	1.09	.00	2.35	.01	8.71*	.03
2	8.58*	.03	13.21*	.04	3.07	.01
3 (Mid)	16.97*	.06	19.29*	.06	13.85*	.05
4	23.82*	.08	34.71*	.11	10.21*	.03
5 (High)	35.32*	.11	13.14*	.04	15.43*	.05
Total	72.38*	.20	70.69*	.20	47.63*	.14

Note. * $p < .05$.

Interestingly, Level 1 students in the control group revealed significant gains after receiving regular instruction, whereas the corresponding level in the extensive reading or extensive writing group did not show such growth. Moreover, the change scores of the Level 1 students from pretest to posttest were as much as those of higher proficiency level students in the control group. In contrast, the mean differences between pretest and posttest widened as the L2 proficiency level increased for the extensive reading and extensive writing groups. In other words, students at all proficiency levels, except for Level 2, similarly benefitted from regular instruction in terms of general grammar knowledge, whereas students who had a certain language proficiency seemed to benefit from extensive reading and extensive writing. It should be noted that this is an exploratory analysis and needs further investigation to provide information about the differential effects of treatment for low-achieving students.

Articles

Means and standard deviations for the article test scores by treatment and proficiency level are presented in Table 4.12. These test scores were submitted to a repeated-measures ANOVA to examine the effect of time, treatment, and proficiency on the knowledge of articles.

Table 4.12 *Means (Standard Deviations) of Article Test Scores by Treatment Group and by Proficiency Level (N = 303)*

Levels	Extensive reading			Extensive writing			Control		
	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>
1 (Low)	32.8 (13.4)	39.4 (14.1)	27	32.6 (11.2)	32.4 (13.8)	23	27.5 (7.8)	37.5 (14.1)	12
2	37.0 (11.3)	44.3 (14.5)	22	41.2 (11.0)	45.8 (12.0)	26	42.1 (9.6)	46.3 (14.8)	12
3 (Mid)	44.6 (10.6)	51.3 (12.8)	27	44.8 (10.2)	58.1 (9.8)	21	41.9 (13.5)	58.5 (8.3)	13
4	46.7 (8.6)	54.5 (16.6)	21	51.3 (10.7)	61.5 (11.5)	30	53.9 (13.2)	60.0 (11.7)	9
5 (High)	57.8 (10.4)	72.2 (10.2)	25	56.9 (13.9)	72.1 (10.1)	21	58.2 (13.0)	75.7 (11.4)	14
Total	43.7 (14.0)	52.3 (17.7)	122	45.4 (13.9)	53.8 (17.6)	121	44.7 (15.7)	56.1 (18.0)	60

Note. Maximum obtainable score: 100.

The results of a repeated-measures ANOVA (see Table 4.13) revealed a significant effect of time, $F(1, 288) = 94.0, p < .05$, with a large effect size (partial $\eta^2 = .25$), but no Time x Treatment interaction effect, $F(2, 288) = .49, p > .05$. This indicates that most students performed better on the posttest than the pretest, regardless of treatment assignment. Moreover, there was a significant Time x Proficiency interaction effect, $F(4, 288) = 4.5, p < .05$, with a medium effect size (partial $\eta^2 = .06$), whereas the three-way interaction effect (Time x Treatment x Proficiency) was not statistically significant, $F(8, 288) = 1.0, p > .05$.

Table 4.13 *Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level*

Source	<i>df</i>	Sums of squares	Mean squares	<i>F</i>	<i>p</i>	Partial η^2
Within-subjects						
Time	1	11666.7	11666.7	94.0	.00*	.25
Time x Treatment	2	120.8	60.4	.49	.62	.00
Time x Proficiency	4	2247.6	561.9	4.5	.00*	.06
Time x Treatment x Proficiency	8	1017.6	127.2	1.0	.42	.03
Error	288	35751.5	124.1			
Between-subjects						
Treatment	2	462.1	231.1	1.43	.24	.01
Proficiency	4	63717.1	15929.3	98.44	.00*	.58
Treatment x Proficiency	8	1619.2	202.4	1.25	.27	.03
Error	288	46604.0	161.8			

Note. * $p < .05$

To examine the significant time-by-proficiency interaction effect, a post hoc analysis was conducted. Table 4.14 provides a detailed report regarding which proficiency level improved more than other proficiency levels across time.

Table 4.14 *Means (Standard Errors) for Post hoc Analysis of Article Test Scores for the Time X Proficiency Level Interaction (N = 303)*

	Pre-test	Post-test	Mean difference	<i>F</i> (1, 288)	partial η^2
Level 1	31.0 (1.5)	36.4 (1.7)	5.4 (2.1)	6.7*	.02
Level 2	40.1 (1.5)	45.4 (1.7)	5.4 (2.1)	6.2*	.02
Level 3	43.8 (1.5)	56.0 (1.7)	12.2 (2.1)	33.3*	.10
Level 4	50.6 (1.6)	58.7 (1.8)	8.1 (2.3)	12.2*	.04
Level 5	57.6 (1.5)	73.4 (1.7)	15.8 (2.1)	56.3*	.16

Note. Maximum obtainable score: 100; * The mean difference is significant at the .05 level (Bonferroni adjustments for multiple comparisons).

As shown in Table 4.14, students at all proficiency levels made significant gains, but students at Levels 3, 4, and 5 improved more than their peers at Levels 1 and 2. Again, the Level 1 students' improvement seemed to differ by treatment group (see top row of Table 4.12). As an exploratory analysis, I examined the decomposed information coming from the overall repeated-measures ANOVA.

Table 4.15 *Exploratory Analysis on Article Test Scores by Treatment Group and by Proficiency Level (N = 303)*

Levels	Extensive reading (<i>n</i> = 122)		Extensive writing (<i>n</i> = 121)		Control (<i>n</i> = 60)	
	<i>F</i>	Partial eta ²	<i>F</i>	Partial eta ²	<i>F</i>	Partial eta ²
1 (Low)	4.8*	.02	.00	.00	4.8*	.02
2	4.7*	.02	2.2	.01	.84	.00
3 (Mid)	4.8*	.02	15.0*	.05	14.3*	.05
4	5.2*	.02	12.5*	.04	1.4	.01
5 (High)	20.9*	.07	19.6*	.06	17.3*	.06
Total	35.7*	.11	35.6*	.11	27.9*	.09

Note. * $p < .05$.

As displayed in Table 4.15, students at all proficiency levels of the extensive reading group made significant gains in the knowledge of articles, whereas only some proficiency level students benefitted from extensive writing and regular instruction. This exploratory analysis indicates that extensive reading may help students improve their knowledge of articles regardless of proficiency level, whereas extensive writing may not be an effective instructional tool to help low level students (Levels 1 and 2) learn correct usage of articles. For Level 1 students, regular instruction offering explicit explanation of grammatical rules may be a better option for learning regularities of articles.

Prepositions

Descriptive statistics were calculated for the preposition test scores by groups and proficiency levels (see Table 4.16). Overall, students showed a slight increase from pretest to posttest.

Table 4.16 *Means (Standard Deviations) of Preposition Test Scores by Treatment Group and by Proficiency Level (N = 303)*

Levels	Extensive reading			Extensive writing			Control		
	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>	Pre	Post	<i>n</i>
1 (Low)	28.3 (11.8)	24.1 (9.5)	27	27.6 (8.6)	22.4 (8.4)	23	20.0 (10.7)	23.8 (8.0)	12
2	26.1 (13.5)	36.4 (11.1)	22	34.2 (11.1)	33.8 (9.4)	26	37.1 (11.0)	38.8 (9.1)	12
3 (Mid)	37.8 (12.6)	39.6 (10.2)	27	39.0 (11.8)	43.6 (13.5)	21	37.7 (11.8)	35.8 (8.4)	13
4	43.3 (13.6)	45.2 (19.9)	21	48.3 (11.1)	51.0 (13.0)	30	40.0 (15.6)	42.8 (15.6)	9
5 (High)	55.0 (13.5)	64.2 (7.6)	25	59.8 (12.7)	65.0 (14.0)	21	63.2 (15.1)	67.5 (12.8)	14
Total	38.1 (16.6)	41.6 (18.0)	122	41.7 (15.4)	43.0 (18.3)	121	40.3 (19.2)	42.4 (18.5)	60

Note. Maximum obtainable score: 100.

A repeated-measures ANOVA was performed to examine which groups and proficiency levels benefited from the instruction across time on the measures of prepositions. As shown in Table 4.17, there was a significant effect for time, $F(1, 288) = 7.1, p < .05$, with a small effect size (partial $\eta^2 = .02$), but this improvement did not differ among the three groups, $F(2, 288) = .82, p > .05$. Furthermore, the time-by-proficiency interaction was marginal but non-significant at a .05 statistical level, $F(4, 288) = 2.3, p = .06$. Likewise, the three-way interaction effect (Time x Treatment x Proficiency) was not significant, $F(8, 288) = 1.4, p > .05$.

Table 4.17 *Repeated-Measures ANOVA for Time, Treatment, and Proficiency Level*

Source	df	Sums of squares	Mean squares	F	p	Partial eta ²
Within-subjects						
Time	1	781.2	781.2	7.1	.01*	.02
Time x Treatment	2	180.5	90.3	.82	.44	.01
Time x Proficiency	4	1006.2	251.5	2.3	.06	.03
Time x Treatment x Proficiency	8	1196.0	149.5	1.4	.22	.04
Error	288	31824.2	110.5			
Between-subjects						
Treatment	2	762.4	381.2	2.2	.12	.02
Proficiency	4	89225.0	22306.2	125.8	.00*	.64
Treatment x Proficiency	8	2510.3	313.8	1.8	.08	.05
Error	288	51088.3	177.4			

Note. * $p < .05$

Although neither two-way nor three-way interactions were statistically significant, I conducted an exploratory analysis to determine which group showed significant gains from pretest to posttest, as evidenced by the main effect of time.

Table 4.18 *Exploratory Analysis on Preposition Test Scores by Treatment Group and by Proficiency Level (N = 303)*

Levels	Extensive reading (n = 122)		Extensive writing (n = 121)		Control (n = 60)	
	F	Partial eta ²	F	Partial eta ²	F	Partial eta ²
1 (Low)	2.2	.01	2.8	.01	.76	.00
2	10.4*	.04	.02	.00	.15	.00
3 (Mid)	.42	.00	2.0	.01	.22	.00
4	.35	.00	.97	.00	.31	.00
5 (High)	9.6*	.03	2.6	.01	1.2	.00
Total	7.8*	.03	1.0	.00	1.2	.00

Note. * $p < .05$.

As presented in Table 4.18, students in extensive writing and control groups did not reveal significant improvement. In contrast, extensive reading had a significantly positive effect on the growth of prepositions for students at Levels 2 and 5. However, the decreased or unchanged scores in the other proficiency levels of the extensive reading treatment cancelled out the improved scores of these two levels, and thus lowered the total gain scores from treatment instruction. Although statistical tests of the total mean differences from pretest to posttest indicated a significant improvement only for the extensive reading group, its overall improvement was relatively small and thus did not result in a significant group difference when compared to the extensive writing and control groups.

Summary

The impacts of yearlong extensive reading, extensive writing, and regular instruction on general grammar and on the specific grammar features of articles and prepositions were examined through repeated-measures ANOVAs. Overall, the three types of instructions were equally effective in improving the knowledge of general grammar and articles. Exploratory analyses indicated that regular instruction seemed to have positive effects particularly for students at Level 1 (the lowest level), whereas extensive writing may be more influential for students at Level 3 or above. Extensive reading seemed to have a generally positive impact for all levels. In terms of prepositions, however, the three groups made small gains over time, and significant improvement appeared only for the extensive reading group.

RESEARCH QUESTION 4. STUDENTS' ATTITUDES TOWARD INSTRUCTION AND L2 READING AND WRITING BY TREATMENT GROUP AND PROFICIENCY LEVEL

The fourth research question investigates affective dimensions associated with each instruction and with L2 reading and writing in general. Using a 5-point Likert scale, three different questionnaires measured: (a) post-attitudes toward each instruction with ten items; (b) attitude change toward L2 reading, with 26 items each on pre-and post-questionnaires; and (c) attitude change in relation to L2 writing, with 27 items each on pre-and post-questionnaires. To identify the components of attitude questionnaires, exploratory factor analysis (EFA) was conducted on each measure with a Varimax rotation. In extracting factors, items with a minimum eigenvalue of 1.0 and factor loadings at a level of .40 and higher were retained (Stevens, 2009). Cross-loaded items on multiple factors or stand-alone items were deleted. Reliabilities were calculated for each extracted factor. Using the extracted factors as dependent variables, I conducted a two-way (Group x Proficiency) ANOVA for students' attitudes toward each instruction as well as repeated-measures ANOVAs for attitude changes associated with reading and writing.

Instead of conducting separate EFA analysis on the pre- and post-measures of reading and writing attitudes, EFA was performed only on the post-measures. Even with identical items for the pre-and post-questionnaires, EFA analysis would likely produce different factors for each questionnaire. Due to this observation, it is recommended that EFA be conducted only on the post-questionnaire. Because students responded to the post-questionnaire after actually experiencing reading or writing-focused instruction, the post-questionnaire responses tend to be more distinguishable and appropriate than the pre-measures to specify attitude components. The pre-questionnaire items were grouped

based on EFA analysis of the post-questionnaire, and reliabilities of factors were computed to verify whether the items had internal consistency.

Attitudes toward Treatment Instruction

Exploratory factor analysis

Ten post-survey items inquired about students' evaluation of their respective program experiences (extensive reading, extensive writing, and extended regular instruction), their engagement, and perceived linguistic improvement. Their responses were submitted to exploratory factor analysis; results are presented in Table 4.19. A one-factor solution was produced without any cross-loaded or stand-alone items, explaining 60.9% of the total variance. The ten items obtained a high reliability ($\alpha = .93$).

Table 4.19 *One-Factor Solution for Students' Attitudes toward Treatment Instruction (N = 288)*

Statement	Loading	Mean	SD
6. My English writing ability improved due to the [program].	.854	2.72	1.06
5. The practice in the [program] increased my interest in English learning.	.844	2.71	1.12
3. The [program] was helpful for my English learning.	.837	2.87	1.07
2. My overall English ability improved due to the [program].	.833	2.90	1.11
9. My English grammar knowledge improved due to the [program].	.803	2.67	1.06
4. My English reading ability improved due to the [program].	.799	2.83	1.08
10. I liked the English [program].	.778	2.88	1.20
7. The English [program] was fun and enjoyable.	.764	2.97	1.24
8. I'd like to participate in the [program] next year as well.	.704	2.40	1.21
1. I was engaged in the [program] sincerely.	.537	3.61	1.12
Cronbach's alpha = .93		2.86	.87

Note. In the items, the word program was replaced by extensive reading, extensive writing, or regular instruction according to whichever instruction a student had actually experienced.

Analyses of students' attitudes toward their treatment by groups and proficiency levels

Descriptive statistics of the students' attitudes toward instruction are reported by groups and proficiency levels in Table 4.20. Overall, when averaged across proficiency levels, scores in the extensive writing group ($M = 3.1$) indicated more positive attitudes toward the instruction than those in the extensive reading ($M = 2.7$) and control groups ($M = 2.9$).

Table 4.20 *Means and Standard Deviations of Students' Attitudes toward Each Instruction by Treatment Group and by Proficiency Level (N = 288)*

Levels	Extensive reading			Extensive writing			Control		
	Mean	SD	n	Mean	SD	n	Mean	SD	n
1 (Low)	2.9	.97	25	2.5	.76	19	3.1	.87	10
2	2.9	.83	24	3.4	.88	25	3.2	.80	11
3 (Mid)	2.6	.83	27	2.9	.66	19	2.7	1.1	11
4	2.4	.79	20	3.0	.68	29	2.9	1.0	10
5 (High)	2.6	.92	24	3.1	.88	20	2.7	.85	14
Total	2.7	.87	120	3.01	.82	112	2.9	.93	56

Note. SD: Standard deviations.

In order to examine whether student attitude depended on group and proficiency level, a two-way ANOVA was performed (see Table 4.21). The main effect of treatment was statistically significant, $F(2, 273) = 3.79, p < .05$, with a small effect size (partial $\eta^2 = .02$), indicating that student attitude differed among the three groups. Proficiency was not statistically significant, $F(4, 273) = 2.31, p = .06$, although it approached the criterion level of .05. Also, there was no statistically significant interaction of treatment and proficiency, $F(8, 273) = 1.6, p > .05$, implying that attitudinal differences among the three groups did not significantly differ according to proficiency level.

Table 4.21 *Results for Two-Way (Treatment x Proficiency) ANOVA*

Source	<i>df</i>	Sums of squares	Mean squares	<i>F</i>	<i>p</i>
Treatment	2	5.4	2.7	3.8	.02*
Proficiency	4	6.7	1.7	2.3	.06
Treatment x Proficiency	8	9.0	1.1	1.6	.13
Error	273	196.1	.72		
Total	288	2567.9			

Note. * $p < .05$

Table 4.22 shows the treatment group contrasts with Bonferroni adjustments used to control the inflation of the Type I error rate. As shown in Table 4.22, the extensive writing group's attitudes were significantly higher than those of the extensive reading group's, with a moderate effect size ($d = .38$). Specifically, students in the extensive writing group reported higher means on attitudes including perceived improvement, engagement, and enjoyment, whereas their peers in the extensive reading group revealed the lowest average score toward the treatment instruction. Despite the significant difference, the gap between the extensive reading and extensive writing groups was rather small on a 5-point Likert scale. The gaps between the extensive writing and control groups and between the extensive reading and control groups did not statistically differ from each other.

Table 4.22 *Post hoc Pairwise Comparisons between Treatment Groups*

	Mean	<i>SD</i>	Comparisons	<i>MD</i>	<i>SE</i>	<i>p</i>	<i>d</i>
Extensive reading (ER)	2.7	.87	ER vs. EW	.30	.11	.02*	.38
Extensive writing (EW)	3.0	.82	EW vs. Co	.07	.14	1.0	--
Control (Co)	2.9	.93	ER vs. Co	.23	.14	.31	--

Note. Based on estimated marginal means; * $p < .05$, Bonferroni correction adjusted; *SD*: Standard deviations; *SE*: Standard error; *MD*: Mean difference; d = Cohen's d .

Attitudes toward L2 Reading

Exploratory factor analysis

In order to specify the underlying factors of the reading attitudes, exploratory factor analysis was performed on the 26-item post-reading questionnaire. Five factors were extracted, accounting for 63.04% of the total variance. There were no cross-loaded or stand-alone items. Based on these EFA results, the pre-reading questionnaire items were grouped into five factors. Means, standard deviations, and reliabilities were calculated for each factor (see Table 4.23). Reliabilities ranged from .64 to .91 for both pre-and post-questionnaires, indicating reasonable internal consistency for the factors.

Factor 1 was named *cognitive attitudes* because the items loaded on this factor reflected intellectual, practical, and linguistic values that were assumed to be gained from reading. Factor 2, *positive affect*, was associated with students' feelings in relation to reading, such as enjoyment, avoidance, and comfort. The items related to negative emotions (e.g., avoidance) were reverse-coded. Factor 3 was labeled *apprehension* because the items loaded on this factor assessed students' anxieties, fears, or worries. Factor 4 was connected to students' perceived L2 reading ability and was thus named *self-assessment*. Finally, Factor 5 was associated with students' intended behavior to engage in L2 reading and labeled *conative attitudes*.

Table 4.23 *Five-Factor Solution for Students' Attitudes toward Reading (N = 287)*

Statement	Pre <i>M</i> (<i>SD</i>)	Post <i>M</i> (<i>SD</i>)	Loading
Factor 1: Cognitive attitude about L2 reading	3.17 (.75)	3.36 (.77)	
18. I can improve my English vocabulary if I read English.	3.36 (1.00)	3.56 (1.06)	.837
22. I can improve my knowledge of grammar if I read English.	3.21 (1.03)	3.37 (1.06)	.792
14. I can improve my English writing performance if I read English.	3.29 (1.03)	3.53 (1.05)	.782
26. I can improve my English reading comprehension if I read English.	3.27 (1.06)	3.48 (1.08)	.747
12. Reading English is useful to get a good grade in class.	3.42 (1.03)	3.52 (.99)	.727
23. I can acquire broad knowledge if I read English.	3.15 (1.05)	3.29 (.97)	.680
3. I can improve my general English ability if I read English.	3.26 (1.02)	3.62 (.99)	.667
11. I can develop creative thinking skills if I read English.	2.79 (.94)	2.98 (1.01)	.640
4. I can develop critical thinking skills and reasoning skills if I read English.	2.75 (.88)	2.92 (.89)	.514
	$\alpha = .90$	$\alpha = .91$	
Factor 2: Positive affect about L2 reading	2.81 (.82)	2.80 (.83)	
6. Reading English is dull (reverse)	2.84 (1.15)	2.82 (1.11)	.788
24. Reading English is troublesome. (reverse)	2.99 (1.06)	2.71 (1.11)	.729
13. I want to avoid reading in English as much as possible. (reverse)	2.94 (1.16)	3.03 (1.11)	.724
10. I feel tired if I read English. (reverse)	3.03 (1.16)	2.92 (1.09)	.723
8. It is fun to read in English.	2.34 (1.02)	2.57 (1.02)	.719
1. I like to read in English.	2.44 (1.01)	2.45 (.99)	.689
9. I do not want to read in English even if the content is interesting. (reverse)	3.11 (1.14)	3.12 (1.12)	.624
	$\alpha = .87$	$\alpha = .89$	

Table 4.23 *Continued*

Factor 3: Apprehension about L2 reading	2.98 (.88)	2.84 (.91)	
2. I feel anxious if I don't know all the words in reading passages.	2.99 (1.17)	2.80 (1.17)	.857
19. I sometimes feel anxious that I may not understand what I read.	2.98 (1.13)	2.86 (1.17)	.853
5. I feel overwhelmed whenever I see a whole page of English in front of me.	2.97 (1.15)	2.84 (1.12)	.593
	$\alpha = .64$	$\alpha = .69$	
Factor 4: Self-assessment about L2 reading	2.45 (.92)	2.65 (.92)	
16. My grades for English reading tests are very good.	2.44 (1.04)	2.66 (1.02)	.855
17. I feel confident when I am reading in English.	2.37 (1.09)	2.57 (1.07)	.833
15. I am good at reading in English.	2.55 (.92)	2.71 (.97)	.749
	$\alpha = .89$	$\alpha = .88$	
Factor 5: Conative attitude about L2 reading	2.04 (.70)	2.13 (.76)	
21. I try to find time for reading in English.	2.11 (.90)	2.09 (.90)	.759
7. I go to a library to borrow or read English books.	1.54 (.74)	1.86 (1.02)	.707
25. I sometimes visit English websites and read them on the Internet.	2.11 (1.04)	2.07 (1.02)	.624
20. During my vacation I will read at least one English book.	2.40 (1.12)	2.47 (1.21)	.619
	$\alpha = .69$	$\alpha = .70$	

Note. *M*: Mean; *SD*: Standard deviation; Loadings are based on the post-questionnaire; α = Cronbach's alpha; Percentage variance explained: total variance, 63.04; cognitive: 20.00; positive affect: 16.75; negative affect: 7.40; self-assessment: 9.66; conative: 9.23.

Table 4.24 presents descriptive statistics for the five reading attitude factors by treatment group. At the onset of the study, regardless of group assignment, students had higher cognitive attitudes related to L2 reading than the mid-point (3.0) on a 5-point Likert scale. However, their positive affect, self-assessment, and conative attitudes were lower than the scale's mid-point. Put differently, whereas students highly valued linguistic, practical, and intellectual benefits from L2 reading, they considered reading activities less enjoyable, had lower confidence in reading, and thus rarely took opportunities to read in the L2 outside of class. Apprehension about L2 reading was approximately in the middle of the scale, implying that reading in the L2 may not provoke either intense anxiety or engender feelings of comfort. After yearlong instruction, attitude change appeared regardless of group assignment; the mean scores of cognitive attitudes and self-assessment increased, and apprehension decreased. In terms of positive affect and conative attitudes, slight differences appeared among the groups. To examine whether these attitude changes were statistically significant by group and proficiency levels, repeated-measures ANOVAs were performed on each reading attitude factor.

Table 4.24 *Means (Standard Deviations) of Reading Attitudes by Treatment Group (N = 287)*

Factor	Extensive reading (<i>n</i> = 115)		Extensive writing (<i>n</i> = 114)		Control (<i>n</i> = 58)	
	Pre	Post	Pre	Post	Pre	Post
Cognitive	3.2 (.74)	3.3 (.74)	3.2 (.76)	3.4 (.84)	3.2 (.77)	3.4 (.68)
Positive affect	2.8 (.81)	2.8 (.82)	2.8 (.73)	2.8 (.83)	2.8 (1.0)	3.0 (.87)
Apprehension	3.0 (.80)	2.8 (.81)	3.0 (.91)	2.9 (.96)	2.9 (.96)	2.8 (1.0)
Self-assess	2.5 (.94)	2.7 (.92)	2.4 (.90)	2.6 (.87)	2.5 (.93)	2.7 (1.0)
Conative	2.1 (.72)	2.3 (.79)	2.0 (.68)	1.9 (.66)	2.1 (.69)	2.2 (.80)

Analyses of students' attitudes toward reading by groups and proficiency levels

A repeated-measures ANOVA included one within-subject factor—time (pre-treatment, post-treatment)—and two between-subject factors—group (extensive reading, extensive writing, and control) and L2 proficiency (Levels 1 to 5). Post hoc analyses followed for significant interactions.

In terms of Factor 1, *cognitive attitudes*, the main effect of time was statistically significant, $F(1, 272) = 21.3, p < .05$, with a moderate effect size (partial $\eta^2 = .07$), indicating that students' perceived linguistic, practical, and intellectual values related to reading improvement across time. Also, the main effect of proficiency was statistically significant, $F(4, 272) = 13.9, p < .05$, with a large effect size (partial $\eta^2 = .17$), suggesting that students' cognitive attitudes differed depending on their language proficiency levels. However, there were no significant two-way or three-way interactions.

With regard to Factor 2, *positive affect*, the main effect of time was not statistically significant, $F(1, 272) = .01, p > .05$, implying that students' enjoyment or comfort as related to L2 reading did not significantly change over time when averaged across treatment groups and proficiency levels. Either the time-by-group or time-by-group-by-proficiency interaction effect was not significant. However, the main effect of proficiency, $F(4, 272) = 11.9, p < .05$, with a large effect size (partial $\eta^2 = .15$), as well as the Time x Proficiency interaction were statistically significant, $F(4, 272) = 2.5, p < .05$, with a small effect size (partial $\eta^2 = .04$). As shown in Figure 4.1, there was a tendency that students at lower levels (Levels 1 and 2) showed slight improvement, whereas students at Levels 3, 4, and 5 slightly decreased in terms of positive feelings about L2 reading. However, the differences between the pre-and post-measures were not statistically significant for any proficiency levels. Although the overall pattern of the

time-by-proficiency interaction was statistically significant, each proficiency level's change over time did not reach a significant level.

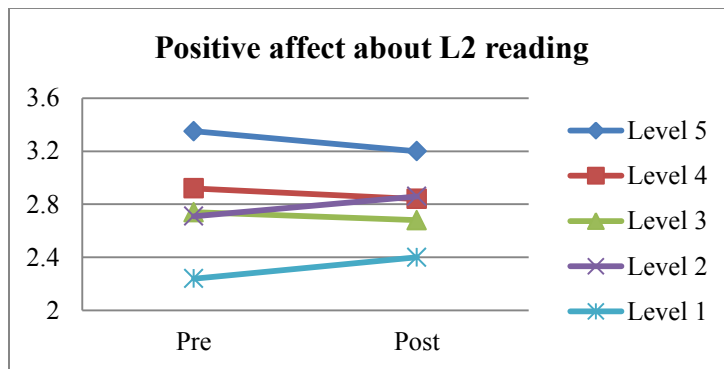


Figure 4.1 Attitude Change over Time by Proficiency Level

Regarding apprehension about L2 reading, the effect of time was found to be significant, $F(1, 272) = 5.5, p < .05$, with a small effect size (partial $\eta^2 = .02$), illustrating that, when averaged across treatment groups and proficiency levels, students' apprehension or worries about L2 reading decreased over time. The main effect of proficiency as well as the time-by-proficiency and time-by-group interactions was not statistically significant. However, there was a significant three-way interaction effect, $F(8, 272) = 2.0, p < .05$, with a moderate effect size (partial $\eta^2 = .06$), suggesting that students' apprehension about L2 reading differed depending on treatment groups and proficiency levels. For the significant interaction effect, post hoc analyses were performed (see Table 4.25). The results revealed that significantly different patterns appeared particularly for the students at Level 1. As shown in Figure 4.2, the extensive reading group's apprehension about L2 reading significantly declined, and the control group also showed a slight decrease. Yet, the extensive writing group's apprehension increased over time. Such significantly different patterns were not revealed for other proficiency levels.

Table 4.25 Means (Standard Deviations) of Apprehension about L2 Reading by Treatment Group and by Proficiency Level ($N = 287$)

Levels	Extensive reading ($n = 115$)			Extensive writing ($n = 114$)			Control ($n = 58$)		
	Pre	Post	F	Pre	Post	F	Pre	Post	F
1 (Low)	3.2 (1.05)	2.5 (.72)	19.8*	2.9 (.95)	3.1 (.98)	.89	2.9 (.83)	2.6 (1.04)	.69
2	3.1 (.67)	2.9 (.59)	.88.	3.0 (.93)	2.9 (1.08)	.56	2.9 (1.00)	2.9 (.81)	.05
3 (Mid)	2.9 (.82)	2.9 (1.00)	.09	2.9 (1.01)	2.7 (.96)	.85	3.7 (1.00)	3.4 (1.12)	1.6
4	2.9 (.69)	2.9 (.85)	.03	3.2 (.92)	2.9 (.96)	1.6	2.6 (.83)	2.7 (1.01)	.06
5 (High)	2.9 (.72)	2.8 (.77)	.37	2.9 (.77)	2.8 (.81)	.24	2.4 (.62)	2.5 (.90)	.16
Total	3.0 (.80)	2.8 (.81)	6.9*	3.0 (.91)	2.9 (.96)	1.0	2.9 (.96)	2.8 (1.00)	.56

Note. * $p < .05$.

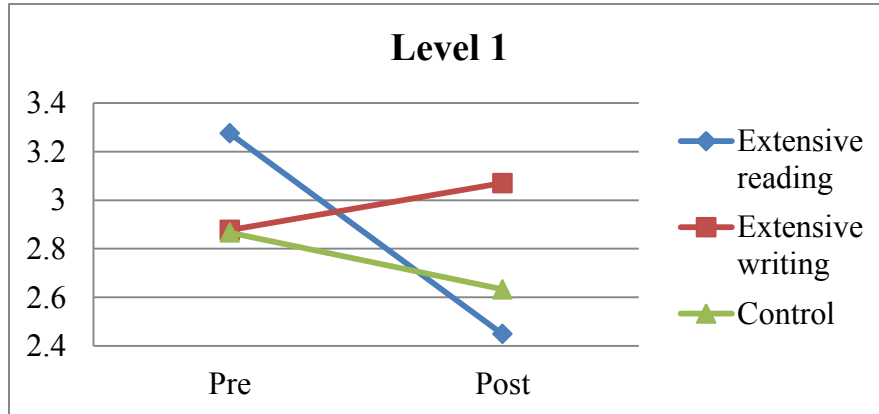


Figure 4.2 Attitude Change over Time by Treatment Group for Level 1 Students

With regard to *self-assessment*, there was a significant time effect, $F(1, 272) = 14.4$, $p < .05$, with a moderate effect size (partial $\eta^2 = .05$), indicating that students' assessment about their L2 reading ability significantly improved across time. Also, the effect of proficiency was statistically significant, $F(4, 272) = 33.2$, $p < .05$, with a large

effect size (partial $\eta^2 = .33$). The two-way interaction effect (Time x Proficiency) was close to a significance level ($p = .05$), implying that students at higher proficiency levels tended to evaluate their reading ability more highly than students at lower proficiency levels over time. Neither two-way (Time x Treatment) nor three-way (Time x Treatment x Proficiency) interaction effects were found to be significant.

Finally, for *conative attitudes*, there was a significant effect for time, $F(1, 272) = 4.0, p < .05$, with a small effect size (partial $\eta^2 = .02$), and the effect of proficiency was nearly significant, $F(4, 272) = 2.4, p = .05$. Whereas a Time x Treatment x Proficiency interaction effect was not significant, a significant two-way interaction between treatment and time was revealed, $F(2, 272) = 4.4, p < .05$, with a small effect size (partial $\eta^2 = .03$). The results suggest that students' behavioral intention for reading increased over time, and the degree of the improvement differed depending on treatment group. From these results we can infer that students who participated in reading-related activities, either extensive reading or regular instruction (control), increased their intention to read, whereas students who practiced writing decreased their conative attitudes about L2 reading (see Figure 4.3).

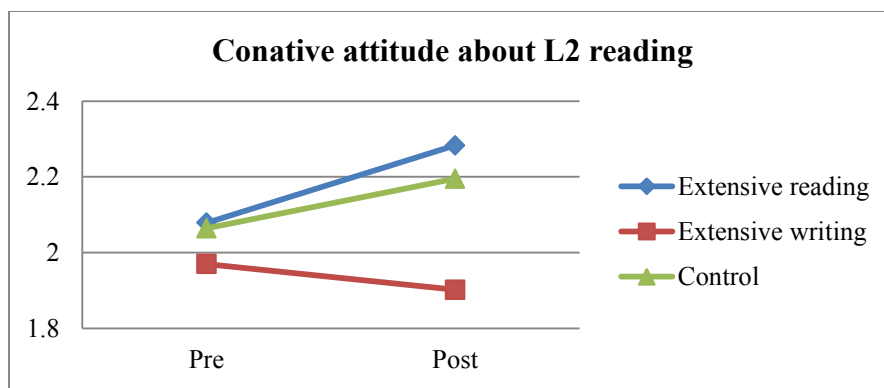


Figure 4.3 Conative Attitude Differences about L2 Reading by Groups over Time

Specifically, the extensive reading group's increase over time was statistically significant, $F(1, 272) = 9.5, p < .05$, but the changes by control and extensive writing groups did not lead to statistical significance. Moreover, for a post hoc analysis of the significant interaction effect, a one-way ANOVA was conducted separately for the pre- and post-conative attitude factor. The results revealed a significant group difference only for the post-conative attitude factor, favoring extensive reading, $F(2, 284) = 7.0, p < .05$. In terms of group contrasts on the post-conative attitude factor using Bonferroni adjustments, the difference between extensive reading and extensive writing groups was statistically significant. The gaps between control and extensive writing groups and between extensive reading and control groups did not significantly differ from each other.

Attitudes toward L2 Writing

Exploratory factor analysis

To identify components of writing attitudes, exploratory factor analysis was conducted on the post-writing questionnaire. Consistent with the EFA results of the reading attitudes, five identical factors were extracted without cross-loaded or stand-alone items, explaining 62.73% of the total variance. It seems reasonable that the same factors were extracted because the reading and writing questionnaires were almost identical. According to the EFA results, pre-questionnaire items were grouped as five factors. Descriptive statistics of the pre- and post-questionnaires and reliabilities for each factor are displayed in Table 4.26. Reliabilities indicated good internal consistency, ranging from .70 to .92. Similar to the reading attitude questionnaire, the extracted five factors were labelled *cognitive attitudes* (Factor 1), *positive affect* (Factor 2), *apprehension* (Factor 3), *self-assessment* (Factor 4), and *conative attitudes* (Factor 5).

Table 4.26 *Five-Factor Solution for Students' Attitudes toward Writing (N = 279)*

Statement	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Loadings
Factor 1: Cognitive attitude about L2 writing	3.26 (.81)	3.36 (.84)	
26. I can improve my English reading comprehension if I write in English.	3.29 (1.02)	3.39 (1.11)	.827
21. I can improve my English writing ability if I write in English.	3.36 (1.09)	3.54 (1.09)	.820
9. I can improve my English grammar if I write in English.	3.37 (1.05)	3.51 (1.03)	.806
7. I can improve my general English ability if I write in English.	3.29 (1.03)	3.49 (1.05)	.793
18. I can develop creative thinking skills if I learn to write in English.	3.12 (.99)	3.22 (.98)	.790
19. I can improve my English vocabulary if I write in English.	3.36 (1.04)	3.44 (1.05)	.771
23. I can develop critical thinking skills and reasoning skills if I learn to write in English.	2.94 (1.02)	3.05 (1.00)	.711
24. I can acquire broad knowledge if I learn to write in English.	3.37 (.97)	3.26 (1.07)	.700
	$\alpha = .92$	$\alpha = .92$	
Factor 2: Positive affect about L2 writing	2.36 (.78)	2.51 (.76)	
2. It is fun to write in English.	2.18 (.98)	2.39 (1.01)	.779
12. Writing in English is troublesome (reverse).	2.28 (1.15)	2.54 (1.14)	.761
6. I like to write in English.	2.04 (.92)	2.23 (.88)	.679
17. Writing in English is dull (reverse).	2.67 (1.08)	2.73 (1.03)	.614
4. I want to avoid writing in English as much as possible (reverse).	2.41 (1.11)	2.57 (1.07)	.486
16. Unless I have no choice, I would not use English to write compositions (reverse).	2.58 (1.20)	2.58 (1.07)	.483
	$\alpha = .82$	$\alpha = .83$	

Table 4.26 *Continued*

Factor 3: Apprehension about L2 writing	3.31 (.88)	3.16 (.85)	
11. I freeze up when unexpectedly asked to write English compositions.	3.14 (1.16)	3.04 (1.12)	.806
3. While writing English compositions, I feel worried and uneasy if I know they will be evaluated.	3.21 (1.20)	3.06 (1.16)	.774
10. My mind often goes blank when I start to work on an English composition.	3.43 (1.17)	3.25 (1.15)	.758
8. I often feel panic when I write English compositions under time constraint.	3.33 (1.11)	3.22 (1.13)	.750
1. My thoughts become jumbled when I write English compositions under time constraint.	3.65 (1.21)	3.53 (1.13)	.642
15. I'm afraid of my English composition being chosen as a sample for discussion in class.	3.10 (1.17)	2.88 (1.09)	.630
	$\alpha = .84$	$\alpha = .85$	
Factor 4: Self-assessment about L2 writing	2.14 (.81)	2.34 (.84)	
22. I am good at writing in English.	2.12 (.98)	2.32 (.98)	.792
25. I feel confident when I am writing in English.	2.13 (.94)	2.24 (.95)	.728
14. I write well on English tests.	2.18 (.91)	2.46 (1.01)	.674
	$\alpha = .83$	$\alpha = .82$	
Factor 5: Conative attitude about L2 writing	2.03 (.71)	2.06 (.70)	
13. I try to write in English daily, such as letters, diaries, or text messages.	2.00 (.96)	2.01 (.93)	.723
20. I sometimes visit English websites and write in English on the Internet.	1.91 (1.00)	1.91 (.99)	.711
5. I try to find time for practicing writing in English.	2.19 (.95)	2.17 (.90)	.633
27. During my vacation I will write in English for fun.	2.02 (.97)	2.14 (1.03)	.617
	$\alpha = .70$	$\alpha = .71$	

Note. *M*: Mean; *SD*: Standard deviation; Loadings are based on the post-questionnaire; α = Cronbach's alpha; Percentage variance explained: total variance, 62.73; cognitive: 19.83; positive affect: 11.82; negative affect: 13.61; self-assessment: 8.67; conative: 8.79.

Table 4.27 displays means and standard deviations of the five writing attitude factors at each time point for the three groups. At the beginning of the year, students had positive cognitive attitudes about L2 writing, higher ratings than the middle point (3.0) on a 5-point Likert scale. However, they reported a low level of positive feelings and a high level of apprehension about L2 writing, perceived their writing ability as less competent, and rarely attempted to write in English during their leisure time. After participating in the treatment instruction for two semesters, students' attitudes toward L2 writing seemed to change. Overall, the mean scores of cognitive attitudes, positive affect, self-assessment, and conative attitude increased, whereas apprehension about L2 writing decreased. To investigate whether these attitude changes were statistically significant by groups and proficiency levels, repeated-measures ANOVAs were carried out on each attitude factor.

Table 4.27 *Means (Standard Deviations) of Writing Attitudes by Treatment Group (N = 279)*

Factor	Extensive reading (<i>n</i> = 113)		Extensive writing (<i>n</i> = 112)		Control (<i>n</i> = 54)	
	Pre	Post	Pre	Post	Pre	Post
Cognitive	3.3 (.76)	3.3 (.82)	3.3 (.85)	3.5 (.90)	3.3 (.86)	3.3 (.77)
Positive affect	2.3 (.74)	2.5 (.73)	2.3 (.76)	2.5 (.81)	2.5 (.91)	2.6 (.76)
Apprehension	3.3 (.78)	3.2 (.76)	3.4 (.90)	3.1 (.87)	3.2(1.0)	3.1 (.98)
Self-assess	2.1 (.81)	2.3 (.81)	2.1 (.77)	2.3 (.85)	2.3 (.91)	2.4 (.91)
Conative	2.1 (.75)	2.1 (.73)	2.0 (.68)	2.0 (.69)	2.0 (.67)	2.2 (.68)

Analyses of students' attitudes toward writing by groups and proficiency levels

A repeated-measures ANOVA used time (pre-and post-questionnaires) as one within-subject factor and treatment groups (extensive reading, extensive writing, and control) and proficiency (Levels from 1 to 5) as two between-subjects variables. Post hoc analyses were conducted for significant interactions.

In terms of cognitive attitude about L2 writing, the effect of proficiency was statistically significant, $F(4, 264) = 10.3, p < .05$, with a large effect size (partial $\eta^2 = .14$), suggesting that the students' linguistic, practical, and intellectual value for L2 writing differed by their L2 proficiency level when averaged across treatment groups. Students at higher proficiency levels reported a high level of cognitive attitude about L2 writing, whereas students at lower proficiency levels showed a low level of cognitive attitude associated with L2 writing. There were no other significant effects in terms of main effect of time and two-way/three-way interactions. This indicates that cognitive attitude did not substantially change over time, and it did not differ by treatment group or proficiency level.

For positive affect about L2 writing, there was a significant effect for time, $F(1, 264) = 5.3, p < .05$, with a small effect size (partial $\eta^2 = .02$), indicating that students' positive feelings—such as enjoyment or comfort—significantly improved over time. Also, the effect of proficiency was statistically significant, $F(4, 264) = 9.7, p < .05$, with a small effect size (partial $\eta^2 = .13$), meaning that positive feelings related to L2 writing differed by proficiency levels. Students at higher proficiency levels reported more positive affect about L2 writing than students at lower proficiency levels. No two-way or three-way interactions were significant, indicating that the improved positive affect over time did not differ depending on treatment group or proficiency level.

A significant effect of time was found with regard to apprehension, $F(1, 264) = 7.0, p < .05$, with a small effect size (partial $\eta^2 = .03$), suggesting that students' anxieties, worries, or uneasiness about L2 writing significantly decreased over time, when averaged across treatment groups and proficiency levels. Moreover, there was a significant effect for proficiency, $F(4, 264) = 7.7, p < .05$, with a large effect size (partial $\eta^2 = .11$). Students at lower proficiency levels showed a higher level of apprehension about L2 writing than their peers at higher proficiency levels. No significant two-way or three-way interaction effects associated with apprehension were revealed, meaning that the significant decrease in writing apprehension across time similarly appeared among treatment groups and proficiency levels.

As for the fourth factor, self-assessment about L2 writing significantly improved over time, $F(1, 264) = 9.7, p < .05$, with a small effect size (partial $\eta^2 = .04$). There was also a significant effect for proficiency, $F(4, 264) = 23.1, p < .05$, with a large effect size (partial $\eta^2 = .26$), indicating that students at higher proficiency levels self-evaluated their writing ability more highly than their peers at lower proficiency levels. Moreover, there was a significant time-by-proficiency interaction effect, $F(4, 264) = 3.7, p < .05$, with a moderate effect size (partial $\eta^2 = .05$). As displayed in Figure 4.4, Level 1 students' self-ratings regarding their writing ability decreased from pretest to posttest, whereas students at Level 2 or higher levels evaluated their L2 writing performance more highly at the posttest. Post hoc analyses indicated that the change of self-ratings was statistically significant for students at Level 2, $F(1, 264) = 6.7, p < .05$, with a small effect size (partial $\eta^2 = .03$), and at Level 5, $F(1, 264) = 14.8, p < .05$, with a moderate effect size (partial $\eta^2 = .05$).

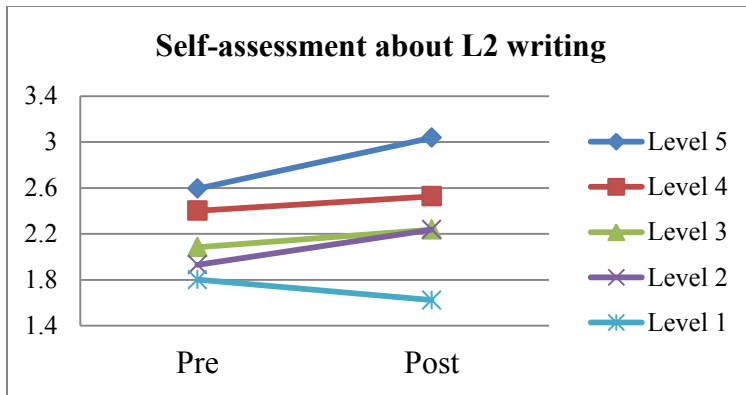


Figure 4.4 Attitude Change about L2 Writing over Time by Proficiency Level

Finally, for conative attitudes, there was no significant effect for time or for proficiency. Additionally, neither two-way nor three-way interaction effects were found to be significant. The results indicated that students' intentional behavior for L2 writing did not change over time, and no differences appeared depending on treatment groups or proficiency levels.

Summary

Using exploratory factor analyses, students' attitudes toward their particular instruction, and toward L2 reading and writing were specified as attitude factors; the means for each factor were used for each analysis. In terms of students' attitude toward instruction itself, extensive writing was most favorable among the three types of instruction.

With regard to L2 reading attitude, cognitive attitude, self-assessment, and conative attitude significantly increased over time, whereas apprehension showed a significant decrease across time. Positive affect related to L2 reading did not reveal a significant change over time. Specifically, the extensive reading group's apprehension about L2 reading substantially decreased for Level 1 students, whereas the control and extensive writing groups did not reveal significant change. Similarly, in terms of conative

attitude, the extensive reading group's behavioral intention for L2 reading significantly increased over time, whereas the control and extensive writing groups did not exhibit significant change regarding L2 reading.

In terms of L2 writing attitude, students' positive affect and self-assessment significantly increased from pretest to posttest. Students at higher proficiency levels evaluated their own writing ability as more capable than at the beginning of treatment, whereas Level 1 students assessed their writing skills as less capable than before. Moreover, apprehension significantly decreased across time. In terms of cognitive attitude and conative attitude, no significant changes appeared over time.

Chapter 5

DISCUSSION AND CONCLUSION

The purpose of the current study has been to examine the effects of extensive reading and writing on EFL adolescents' reading comprehension, writing performance, and grammar knowledge as well as their attitude toward their particular instruction, reading, and writing. To this end, a yearlong experiment was conducted as part of a regular English curriculum, measuring the students' linguistic gains and attitude changes. This chapter summarizes the study's results and relates the findings to previous research in terms of extensive reading, extensive writing, knowledge of grammar, and students' attitudes. This chapter also discusses the theoretical, practical, and pedagogical implications of the study. Finally, it reviews the limitations of the study and puts forward directions for future research.

THE EFFECTS OF READING AND WRITING ON READING COMPREHENSION AND WRITING PERFORMANCE

Before the instructional intervention began, the participants had mainly experienced teacher-centered traditional language instruction that involved interpretations of short passages along with explanations of grammar and vocabulary. Both reading English books and writing in English independently were new practices for these students. As evidenced by the background questionnaire administered at the beginning of the study, a majority of the students reported that they almost never or no more than once per month read (89%) or wrote (90%) for pleasure in English. After engaging in extensive reading or extensive writing, these students significantly improved in terms of reading comprehension and writing performance. I first discuss the effects of extensive reading and extensive writing on reading comprehension and then their contributions to

writing performance. Lastly, the influence of language proficiency on reading and writing is discussed.

The Effects of Extensive Reading on Reading Comprehension

The analysis of the pre- and post-reading comprehension measures indicated that students in the extensive reading group significantly improved over time, but the degree of improvement did not differ from the regular instruction group serving as a control. This finding indicates that extensive reading had an equivalently positive impact on reading comprehension as much as regular instruction. It should be noted that the extensive reading group were not recipients of teachers' explicit explanations of reading passages, grammar, and vocabulary, all of which were the focus of the regular instruction that the control group received. The teacher's role in the extensive reading group was to encourage students to read, to oversee their free reading in class, and to comment on students' book reports with a focus on meaning. Given the scant input from the teacher, it is remarkable that the extensive reading group made reading gains that were significant and similar to those of the regular instruction group.

Previous L1 and L2 research has also shown a comparable impact from extensive reading. In a comprehensive review of L1 research that compared the effects of extensive reading and traditional reading instruction on reading comprehension, Krashen (2004) found that 25 of the 54 studies favored extensive reading, 26 reported no differences between extensive reading and traditional language instruction, and three reported a negative effect from extensive reading. Recently, Mol and Bus (2011) found that print exposure had moderate to strong correlations with reading comprehension in a meta-analysis of 99 studies that examined students ranging from preschoolers to university students. In the L2 acquisition field, Smith (2006) reported that Taiwanese EFL high

school students who participated in extensive reading scored similarly on a reading comprehension measure after one-year instruction compared to their peers who received intensive reading instruction. Yet in Smith's study, the extensive reading group, five months after the treatment ended, outperformed the intensive reading group in a delayed post-test that evaluated listening, reading, and language usage. Nakanishi and Ueda (2011) conducted a yearlong L2 study that compared three types of approaches—extensive reading, a combination of shadowing practice and extensive reading, and translation activities—on reading comprehension among Japanese EFL university students. They found that students in the three groups substantially improved across the year without a significant difference among the groups.

Despite the findings of the current study and some previous studies that demonstrate the equivalent effects of extensive reading to other types of language instruction, it is true that there are more studies that support the superior impact of extensive reading over intensive reading or traditional language instruction. One possible interpretation of the inconsistent results may be that the existing research on extensive reading has selectively published findings with statistical significance. Accordingly, the currently published papers report only the advantages of extensive reading because studies with non-significant gains or equivalent improvement to other types of language instructions are rarely published (Nakanishi, 2015). This is called, to borrow Rosenthal's (1979) term, the *file drawer* problem. The file drawer problem is a reference to the tendency of studies that have obtained statistically significant results to have a greater likelihood of being submitted to or published in a journal, and thus, only selective findings are published.

It is also plausible that the amount read over two semesters may be insufficient for the superior impact of extensive reading come into view. Nakanishi (2015) suggested that

at least one academic year is necessary to make students become familiar with reading books and eventually enjoy reading. Considering previous extensive reading research that was mostly conducted for one semester or less (e.g., Al-Homoud & Schmitt, 2009; Iwahori, 2008; Yamashita, 2008), reading one book per week for two semesters in the current study would seem a good amount and duration to detect the positive effects of extensive reading. However, it should be noted that because this study included group activities every fourth week to increase students' reading motivation and interest in books, as suggested by Bamford and Day (2004), the number of books read across the two semesters ranged from 16 to 19 books. The claim supporting extensive reading is based on the fact that students accumulate a large amount of language input from reading, cumulative input that becomes the basis of students' language skills. In order to find a superior impact of extensive reading as reported in previous research, students may need to accumulate a substantial amount of language input by reading more books.

Another possibility is that extensive reading may be less beneficial for young adolescent learners than for university students. In fact, a number of studies that have reported significant improvement from extensive reading were mostly conducted at the college level (e.g., Al-Homoud & Schmitt, 2009; Lee, 2007; Mason & Krashen, 1997; Yamashita, 2008). Through a comprehensive meta-analysis of extensive reading research, Nakanishi (2015) also suggested that the effect of extensive reading increases with older students. The current study offers empirical evidence that extensive reading has comparable effects to regular instruction on reading comprehension among EFL middle school students. As to whether extensive reading may have weaker effects on young learners than on university students, further investigation is needed.

The Effects of Extensive Writing on Reading Comprehension

Learning to read by reading seems intuitive. The concept of learning to read by writing, however, seems unfamiliar to L2 learners and teachers. A few studies thus far have provided evidence that writing practice contributes to better reading. Hayes and Bahruth (1985) found that Spanish-speaking elementary students whose English proficiency was lower than their peers substantially improved in reading comprehension through a one-year daily journal writing program. Dana et al. (1991) revealed that experience in writing letters led sixth graders to improve their reading comprehension in the first language. More recently, Jones et al. (2010) demonstrated the positive role of two types of writing instruction, interactive writing and writing workshop, on the significant growth of early reading skills such as phonological awareness, alphabet knowledge, and word reading among kindergarteners. Consistent with prior work, the current study has found that students who practiced extensive writing showed a statistically significant increase in reading comprehension.

However, although the extensive writing group's improvement was larger than that of the extensive reading or control groups, not only did the extensive writing group show significant gains from the pretest to the posttest in reading comprehension but so did the extensive reading and control groups, without a statistical difference among the groups. Although it is noteworthy that the writing group did not engage in reading tasks, which were the main activities of the other two groups, it is possible that regular English instruction offered along with treatment lessons partly explain the writing group's reading gains. Because reading is likely to be taught and practiced in and out of the school as an essential component of English curriculum, it seems that the writing group's reading growth is partly, rather than exclusively, attributable to extensive writing activities.

It is interesting to note that previous research revealed similar findings as the current study. Crowhurst (1991) found that, in a first language, the effects of reading and writing practices on reading skills (measured by recall tests) were equivalent among children who were involved in either task for five weeks. This study also found that although the writing group showed a substantially larger increase from pretest to posttest than the reading group did, the difference was not statistically significant. Nummikoski (1991) discovered consistent results among university students learning Russian as a foreign language. There was no statistical difference in the reading improvement (measured by cloze tests) between reading and writing groups who engaged in each task for nine weeks. The synthesis of the prior work and the current study indicated that frequent writing helped improve reading skills as well as, or even better than, reading tasks.

Such a finding supports the contention that reading and writing share a common knowledge base and that they are interdependent and strongly correlated (Fitzgerald & Shanahan, 2000; Grabe & Kaplan, 1996; Tierney & Shanahan, 1991; Zamel, 1992). That is, because writing involves some of the same cognitive processes as reading, such as orthographic, phonological, and working memory skills, improving writing skills simultaneously develops reading skills (Berninger et al., 1994). Furthermore, the claims that writing instruction influences the growth of reading are based on the notion that writing requires more advanced cognitive processes including planning, organizing, thinking, and synthesizing skills. This writing process naturally refines one's understanding of text structures and attributes as well as the author's intention, and thus improves reading comprehension (Boscolo, 2008; Graham & Hebert, 2011; Stotsky, 1982). To date, language teachers have first focused on the development of reading and delayed teaching writing until reading ability had been acquired (Fitzgerald & Shanahan,

2000), and this phenomenon has occurred not only in L1 but also in L2 instruction. Given that writing activities strengthen reading ability as well as, or even better than, reading instruction, as revealed in the current study, there appears to be no point in postponing writing instruction until reading ability is fully established. L2 learners who are in the middle of developing their reading ability in the L2 may be able to benefit from L2-writing activities with regard to improving reading ability.

The Effects of Extensive Reading on Writing Performance

Another focus of this study has been to examine the effects of reading on writing performance. The results indicated that the extensive reading group significantly improved EFL adolescents' writing performance, whereas the control group, which was involved in translating short reading passages and receiving grammar and vocabulary instruction, did not exhibit such improvement. It is interesting that although neither extensive reading nor control groups involved in writing practices in the target language, but only the extensive reading group significantly improved in writing tests. This finding is especially noteworthy because the control group had the highest pretest score and was even significantly higher than the extensive reading group at the beginning of the study. Yet, the control group showed slight and insignificant increase over time, whereas the extensive reading group, which had the lowest score at the pretest, made significant gains at the posttest with a small-to-medium effect size of .04 (partial η^2).

Considering the students' learning context, the extensive reading group's improvement in writing would seem mostly attributable to reading books. The middle school that these students were attending was located in a low-socioeconomic area. The majority of the students did not experience English-speaking cultures (97%) or English writing for enjoyment (90%). Despite the cram schools that are prevalent for school-aged

students in South Korea and the regular school English instruction offered three days per week, it is very unlikely that these English lessons required students to write in paragraph format due to contextual challenges. There are many obstacles to teaching writing in foreign-language contexts like the current study, including time constraints, large class size (30-35 students per class), negotiation with local needs, lack of teacher experience in teaching English writing and student experience in learning the first language writing, all of which have been addressed by prior research (Leki, 2001; Reichelt, 2005). Furthermore, school English tests as well as high-stakes tests such as university entrance exams and standardized English tests do not assess students' writing proficiency. Accordingly, students and teachers may rarely feel the need to learn or teach English writing. That is, these students in the current study do not have sufficient opportunities or feel the necessity to develop their writing skills. Given that writing instruction was rarely provided in and out of school, the extensive reading group's improvement in writing performance may be mainly due to the pleasure reading program.

This finding is in accordance with previous research. Elley and Mangubhai (1983) revealed that ESL children who participated in pleasure reading outperformed their peers taught by the audio-lingual method on a test of story completion. Hafiz and Tudor (1989, 1990) also found that learners of English in an ESL or an EFL context showed the benefits of extensive reading in their improvement of several sub-writing skills. Recently, Lee and Hsu (2009) demonstrated that among Taiwanese EFL college students an extensive reading group who read books for one academic year outperformed in writing a control group that was involved in traditional language instruction. Such improvement in writing as a result of extensive reading again supports the reading-writing connections. That is, reading and writing share some of the same mental processes such as planning, composing meaning, revising, and monitoring the meaning-making process (Fitzgerald &

Shanahan, 2000; Tierney & Pearson, 1983; Tierney & Shanahan, 1991). It seems that the extensive reading group frequently engaged in the meaning-construction process on their own as they read books (as did writers), whereas the control group did not have chances to get involved in such cognitive processes due to the short reading passages and teachers' explicit instruction that precluded sufficient time to get involved in deep and independent meaning construction. Frequent reading of different genres of English books may offer readers meaning-making opportunities and serve as meaningful input to learn sub-components of writing, including rhetorical structures, stylistic patterns, and lexical and linguistic features (Hirvela, 2004). As Carson and Leki (1993) argued, reading serves as a basis for writing, and this is particularly true in academic contexts. Indeed, in academic settings, using reading input as source texts for writing has been a common practice and emphasized as skills critical to academic success (Grabe & Zhang, 2013; Hedgcock & Atkinson, 1993; Horowitz, 1986). The current investigation adds empirical evidence to the existing research in that reading can be used as a route to improving writing skills even for young adolescent EFL learners.

The Effects of Extensive Writing on Writing Performance

The extensive writing group significantly improved in writing performance, substantiating the claim that writing skills can be reinforced by frequent writing. Despite several studies demonstrating that an individual learns to write by writing (Baudrand-Aertker, 1992; Kern & Schultz, 1992; Sun, 2010), the lack of an untreated control group in these studies makes it difficult to establish causality or the effectiveness of the intervention. Some studies have even suggested that extra writing does not lead to better writing skills (Burger, 1989; Mason, 2003, 2004), and that the amount of writing was not

a significant indicator that distinguished good writers from weak writers (Sasaki & Hirose, 1996).

Moreover, research that compared the impacts of reading and writing on writing performance demonstrated that the amount of reading, rather than writing frequency, is a significant contributor to enhancing writing proficiency. For instance, in Tsang's (1996) study that examined EFL adolescents, an extensive reading group showed significant improvement in several areas of writing skills, whereas a frequent writing group achieved no significant increase in writing, and the writing group's performance did not differ from that of a control group who had mathematics instruction. Among EFL college students, Lee (2005) found that the amount of free reading was the only significant predictor of writing performance, whereas writing frequency did not significantly predict writing proficiency. It should be noted, however, that the writing group in Tsang's study had, in 24 weeks, only eight times of writing practice, whereas the current study's writing group practiced independent writing almost twice as often, i.e., 16 to 19 times, across seven months. In Lee's study, the amount of free writing or free reading was based on the EFL students' self-reported survey data. Consider these two facts: in foreign language-learning contexts, the practice of writing is not as frequent as that of reading and second, actual survey responses indicate that more than half the students reported almost never being involved in any form of leisure writing. It is possible then that the little or almost negligible frequency of L2 writing did not emerge as a compelling indicator of writing proficiency in the correlation-based analysis of structural equation modeling.

Inconsistent with previous studies, the current study showed that extensive writing can be an effective tool at enhancing writing proficiency as much as or more than extensive reading. Then, how does free writing lead to the development of writing skills? In a meta-analysis of first language writing intervention research, Rogers and Graham

(2008) identified nine instructional methods to improve writing skills, including strategy instruction for planning/drafting, goal setting for productivity, reinforcing specific writing outcomes, use of prewriting activities, teaching sentence construction skills, and strategy instruction for editing and paragraph writing. Note that teachers in the extensive writing group in the current study did not provide such writing instruction or teach strategies but only encouraged students to write and occasionally got involved in students' brainstorming activities to motivate them to begin writing. It is possible that the writing group would develop their own writing methods including generating ideas, organizing them coherently, and expressing their thoughts in writing while engaging in weekly writing tasks. Even if writing techniques or skills were not explicitly taught, the condition of being forced to write something in a foreign language might have led students to try diverse writing techniques, become aware of the process of writing, and learn to write by themselves. It is also conceivable that frequent writing may promote learners to notice the gap between what they know and what they can produce in writing (Swain, 2000), and this awareness makes them pay extra attention to language form and writing attributes that they have otherwise missed. That is, the more one writes, the quality of their writing improves (National Commission on Writing, 2003). Armstrong (2010) also claimed that frequent, various, and ungraded writing assignments help foreign language learners improve writing performance with regard to form and content. Thus, the result of the present study contributes to the existing L2-writing research by corroborating the finding that an increased amount of writing facilitates the development of writing skills among EFL adolescent learners.

The Influence of Language Proficiency on Improvement in Reading and Writing

Whereas previous research of extensive reading or extensive writing have typically examined the overall effectiveness of each treatment regardless of learners' target language proficiency, the current study has aimed to investigate the influence of language proficiency on students' reading and writing growth. Results indicated that the time-by-proficiency interaction was significant for both reading comprehension and writing proficiency, but there was no three-way interaction effect (Time x Treatment x Proficiency). That is, the degree of improvement in reading and writing seemed to depend on students' language proficiency levels, but these gains did not significantly differ among the three groups.

It is interesting that most students (all but Level 1) made significant gains in terms of reading comprehension whereas only the students who had a certain level of language proficiency (Levels 4 and 5) showed a significant increase in writing proficiency. Specifically, Students at Level 1, the lowest proficiency level, did not improve in either reading comprehension or writing performance. Students at Levels 2 and 3 demonstrated significant improvement in reading comprehension; nevertheless, such growth was not detected in writing performance. Students at Levels 4 and 5 made substantial growth both in reading comprehension and writing performance.

It is conceivable that the development of reading and writing skills may differ depending on language proficiency, as prior work has noted that the reading-writing relationship changes to varying degrees depending on level of language development (Eisterhold, 1990; Shanahan & Lomax, 1986). If students still lack fundamental language skills including spelling, essential vocabulary, and knowledge of sentence structures, it may be challenging or even frustrating to ask them to express their ideas in writing. Even though students at low- and middle-proficiency levels (Levels 2 and 3) were able to

enhance their ability to decode and comprehend texts, these reading skills were hardly transferred to writing proficiency. Their low language proficiency may have limited them in producing language on the written page to a level of sophistication equivalent to that of their reading. Unlike students at a low language proficiency level, growth both in reading and writing skills seems available for students who exceed a linguistic threshold and have good command of the target language. That is, as good readers read like writers by planning, making meaning, and revising (Tierney & Pearson, 1983), this reading-writing connection seems more obviously detected among students at higher proficiency levels.

It is worth noting that Level 1 students did not show an increase in either reading comprehension or writing performance. Previous studies have demonstrated that beginner-level adult EFL learners (Bell, 2001; Mason & Krashen, 1997) as well as low-achieving EFL secondary school students (Lai, 1993) can make significant gains in terms of reading comprehension and writing performance from extensive reading. Nonetheless, the current study showed no such improvement among students at the lowest proficiency group. Still, it is noteworthy that students at Level 2 (the second lowest proficiency level) made gains at least in reading comprehension. These results suggest that teachers may need to utilize different instructional approaches and strategies to develop the reading and writing skills of low-achieving students, a conjecture that needs further investigations.

At the same time, the finding that students at low proficiency levels improved in writing performance to a lesser degree than in reading comprehension performance corroborates the claim that, although reading and writing utilize some of the same cognitive subsystems, they have unique variances that are specific to either reading or writing (Berninger et al., 1994; Shanahan, 1984). It is possible that the cognitive subsystems unique to writing may need extra instruction or individual effort to develop. Thus far, reading has been emphasized over writing in language curriculum not just in

South Korea but around the world (Mallozzi & Malloy, 2007). For this reason, in an EFL context, many students “develop into very competent readers without developing their writing ability to the same degree” (Yoshimura, 2009, p. 1872). The current investigation has indicated that the development of writing skills is not easily achievable through independent reading or writing for students at lower proficiency levels. Thus, it seems necessary to provide a balanced curriculum for foreign language learners if they are to develop both reading and writing literacies.

THE EFFECTS OF READING AND WRITING ON KNOWLEDGE OF GRAMMAR

This study investigated whether EFL young learners can benefit, in terms of grammar knowledge, from extensive reading and extensive writing. Students in the three treatment groups demonstrated significant growth over time in each of the three outcome measures: general grammar, articles, and prepositions. Specific results by each measure and then the influence of language proficiency on grammar knowledge are discussed below.

The Effects of Extensive Reading and Extensive Writing on General Grammar

In terms of general grammar, students in the three groups substantially improved over time without a significant group difference. It is noteworthy that neither extensive reading nor extensive writing groups received explicit instruction on grammar rules, whereas the control group engaged in teacher instruction and grammar practices appearing in reading passages. Although all students received regular English instruction heavily guided by the textbook three days per week, it should be noted that 85% of the general grammar points tested in this study did not even appear in the textbook. Because teachers are required to follow the fixed curriculum using the given textbook, it seems unlikely that they provide instruction on grammar points that are not included in the textbook. Furthermore, school grammar instruction tends to focus on explaining specific grammar rules and practicing them at the sentence level to help prepare students for school exams. Although some students receive private English lessons after school, the instruction is likely to focus on reviewing the content covered in school and interpreting short passages. The school that these students were attending was located in a low socioeconomic area where quality private instruction and English language input-rich environment are rarely available. Thus, considering the instruction focusing on the textbook and the educational context in which these students were situated, the treatment

instruction seems partly attributable to students' growth in knowledge of general grammar.

In terms of the contribution of extensive reading to a general knowledge of grammar, previous studies have provided mixed findings. Some scholars have advocated the superior impact of extensive reading on grammar knowledge over regular instruction (Rodrigo et al., 2004; Sheu, 2003; Yang, 2001) and over an audio-lingual approach (Elley & Mangubhai, 1983). Others have indicated that extensive reading had scant benefits on the development of grammar knowledge (Yamashita, 2008). Although the present study did not exhibit a superior outcome for extensive reading on general grammar compared to the regular instruction that the control group received, it is important to note that students in the extensive reading group made significant gains without such instruction.

One theoretical explanation for the significant gains of the extensive reading group in the current study comes from research on incidental learning. It seems that repeated exposure to texts contributes to increasing students' awareness of structures and incidental learning of the structural patterns appearing in texts (Grabe, 2009). That is, while readers focus on meaning-making of texts, grammar learning occurs as a by-product of reading. Studies of incidental learning have thus far centered on learning vocabulary by reading (e.g., Bruton, Lopez, & Mesa, 2011; Pigada & Schmitt, 2006). In this regard, the current study adds valuable knowledge to the existing research on the effects of extensive reading on the development of general grammar among EFL adolescents.

Many studies have examined the role of grammar instruction on the development of writing. What has rarely been explored, however, is the reciprocal relationship—the contribution of writing to knowledge of grammar. A few previous studies have supported the idea that writing improves grammar. Sheen et al. (2009) indicated that writing alone,

without corrective feedback, helped enhance correct usage of certain grammar rules. Castaneda and Cho (2013) also advocated, in developing grammar, the role of wiki writing. Consistent with these two studies, the extensive writing group in the current study, from pretest to posttest, made significant gains in general grammar, though that growth did not statistically differ from the control group that received regular instruction. It should be acknowledged that the extensive writing group's improvement may not have solely originated from frequent writing practices but also from other sources such as regular English classes. Nevertheless, it is worth noting that the writing group did not receive either corrective feedback in their writing or grammar-focused instruction in regular instruction, as discussed earlier, but produced written essays on various topics only.

It is plausible that pushed output opportunities may help students in the extensive writing group become not only familiar with essay organization and paragraph writing but also more attentive to sentence structures and grammar rules that they frequently use in their writing. That is, frequent writing practice may have led the students to notice the gaps between what they thought they knew and what they could actually produce (Swain, 1993, 1995). This awareness may have encouraged them to recognize their weakness in the use of structures and become more conscious about correct usage of grammar. As suggested in Swain's Output Hypothesis and the current study, output tasks such as writing essays, can be an effective tool at drawing learners' attention to correct usage of structures and improve their linguistic accuracy.

The Effects of Extensive Reading and Extensive Writing on Articles and Prepositions

In terms of articles and prepositions, the three groups followed slightly different trajectories of improvement. The extensive reading group in all proficiency levels showed

significant gains on the knowledge of articles, whereas only certain proficiency levels benefitted from extensive writing and regular instruction. Regarding prepositions, the significant main effect of time indicated that students improved from pretest to posttest. Yet, further analyses of the gains by each group revealed that the significant growth was mainly brought about by the extensive reading group, whereas the extensive writing and control groups made no such gains over time. Interpreting these findings calls for caution because a time-by-treatment interaction effect was not statistically significant on either articles or prepositions. It is assumed that the differences among the three groups were relatively small and thus did not reach the significance level of .05. Despite the non-significant group differences, the findings from exploratory analyses offer useful information associated with the treatment instruction.

Extensive reading may be an effective approach to improving the knowledge of both articles and prepositions. Repeated exposure to articles and prepositions in storybooks may lead readers to become familiar with the usage of these structures in context and naturally sharpen their awareness. In a similar study by Lee, Schallert, and Kim (in press), an extensive reading group significantly outperformed a comparison group in knowledge of articles; the comparison group translated short reading passages. Neither group, however, showed significant gains in a particular measure of prepositions. In contrast, Song and Sardegna (2014) found that Korean EFL middle school learners significantly benefitted in knowledge of prepositions from extensive reading. Partially consistent with previous research, the current study indicated that extensive reading was as beneficial at improving the knowledge of articles as regular instruction and extensive writing and was more beneficial than the other two groups at improving knowledge of prepositions.

It is interesting that neither the extensive writing group nor the control group increased in terms of prepositions. Ferris and Roberts (2001) categorized errors of articles as treatable errors and errors of prepositions as untreatable errors. According to them, treatable errors may be easily fixed due to their heavy dependence on rules, whereas grammar features under the category of untreatable errors tend to be idiosyncratic and difficult to learn. Consistent with Ferris and Robert's study, students' overall gains in prepositions were relatively small compared to the change scores in general grammar and articles, when averaged across the three groups. Furthermore, the growth by the extensive writing and control groups failed to even reach a significance level. One reason that only the extensive reading group demonstrated a significant increase is that frequent exposure to prepositions in texts may help learners better accumulate their knowledge of prepositions. Because the usage of English prepositions is idiosyncratic and the meaning of a preposition changes depending on the context of the text (Ferris & Roberts, 2001), learners need to encounter various usages of prepositions in texts to reinforce the structure in their linguistic system.

The Influence of Language Proficiency on Improvement in Grammar

Taking language proficiency into account, two aspects need further discussion. First, extensive writing may not be a preferable form of instruction for students at a low-proficiency level in terms of grammar. Extensive writing students at Level 1 showed no improvement in any grammar measures, whereas students at the same level benefitted from extensive reading or regular instruction. It is plausible that not only the lack of basic knowledge of structures but also limited range of vocabulary in the target language may prevent these students from writing what they want to express. Composing an essay in English may be a daunting task for these students who are even struggling with formulating a sentence. Weekly pushed output opportunities, despite students' inability to

compose an essay in English, might have been frustrating, and thus they did not benefit from extensive writing as much as students at higher proficiency levels.

One reason that extensive reading and regular instruction were beneficial for Level 1 students may be that both approaches require receptive and comprehension skills. Although these students have great difficulty in producing language output, they can, at least, read easy storybooks and understand teachers' explanations of short reading passages and grammar rules. They may feel more comfortable and learn better in instructional conditions where they do not need to produce language output. In fact, Level 1 students made significant gains in general grammar from regular instruction and in articles from both extensive reading and regular instruction. These findings suggest that although pushed output opportunities help learners to move from semantic processing to syntactic processing and become more aware of linguistic forms, such tasks can be demanding, or even frustrating, for students at the lowest proficiency level.

THE EFFECTS OF READING AND WRITING ON STUDENTS' ATTITUDES

Students' attitudes were measured in terms of three aspects: first, students' feelings about each treatment instruction at the end of the study; second, students' attitude change toward L2 reading; and third, students' attitude change toward L2 writing. The specific results and related previous research are discussed in turn.

Students' Attitudes toward Treatment Instruction

A 10-item-survey on a five-point Likert scale measured students' attitudes toward their instruction at the end of the yearlong treatment. Students' responses were submitted to exploratory factor analysis, which resulted in a one-factor solution. I used this factor as a dependent measure in a two-way ANOVA. The results indicated that students in the extensive writing group showed significantly higher ratings than the extensive reading group, with a moderate effect size ($d = .38$). The differences in ratings between the extensive writing and control groups and between the extensive reading and control groups did not statistically differ.

It is noteworthy that the highest ratings among the three groups belonged to the extensive writing group, even though writing an essay in English would not be an easy or familiar task for these students. However, because students have had little experience in English composition, its novelty might have attracted their interest and enhanced their engagement in the activity. It is also possible that expressing one's ideas in writing may promote students' intrinsic motivation toward a writing task. One of the reasons people write is personal utility; writing, as a form of language, may allow an individual to satisfy his or her expressive, communicative, and descriptive desire (Smith, 1994). In this regard, students might have enjoyed writing in English as a way of expressing their thoughts. It should be noted, however, that extensive writing students at Level 1 showed no improvement in language measures and had the lowest scores in attitudes. That is,

students seem to need to have attained a certain level of language proficiency to enjoy expressive freedom of writing. If students lack the necessary vocabulary or grammar knowledge to produce language, forced writing opportunities may discourage or even frustrate them.

Many scholars have advocated extensive reading not only because of its widespread effects on language skills, but also its facilitative role in students' motivation and attitudes (Al-Homoud & Schmitt, 2009; Day & Bamford, 1998, 2002; Krashen, 2009; Yang, 2001). In the current study, the extensive reading group revealed significant gains in reading comprehension, writing performance, and knowledge of grammar. Nevertheless, these students did not perceive extensive reading as an enjoyable learning opportunity or an important source of improving their English skills, at least not to the extent reported in previous research. Considering that these students have grown accustomed to interpreting short passages with teachers' guidance, independent reading of English books may be viewed as a greater challenge. Hitosugi and Day (2004) found that U.S. university students learning Japanese as a foreign language displayed contradictory (favorable and unfavorable) dispositions toward extensive reading. That is, some students in the extensive reading group had been overwhelmed by reading authentic Japanese books because they were typically used to reading short passages appearing in a course textbook. Likewise, reading books in English may have imposed a burden on the extensive reading group in the current study and thus precluded any enjoyment they might otherwise have gotten from reading.

Moreover, it is worth noting that extensive reading students at lower proficiency levels (Levels 1 and 2) had higher attitude scores than their peers at higher proficiency levels (Levels 4 and 5). It is possible that students at low proficiency levels may choose easy children's books and enjoy the sense of achievement they derive from reading

English books. In contrast, students at high proficiency levels might have difficulty selecting appropriate materials for their linguistic and cognitive levels, even though a number of English books are available in the school library. Students at high English proficiency levels tend to be high-achievers in other subjects as well. Because of their advanced cognitive ability, these students may prefer to read complicated novels in their native language. In trying to read such intricate stories in English, despite their high English proficiency, they might have been challenged, or even frustrated, when attempting to read complicated stories, such as a Harry Potter book. Leung (2002) claimed that L2 readers' excitement or passion for reading quickly changed to frustration or confusion when they struggled to find suitable reading materials. Furthermore, it is possible that students at higher proficiency levels may have considered extensive reading to be less helpful than intensive reading practice or grammar instruction in helping them perform well on school English exams. Through a case study, Nishino (2007) revealed that two Japanese middle school students discontinued extensive reading, worried it was not effective enough to help them score high on the university entrance exams. Similar to students in Nishino's study, these middle school students' immediate and compulsive need was to raise their exam scores. Consequently, such compulsion may have negatively influenced their engagement with and enjoyment of the extensive reading activity.

Students' Attitudes toward L2 Reading

Students' attitudes toward L2 reading was assessed on a five-point Likert scale at the beginning and end of the treatment using a 26-item reading attitude questionnaire. Through an exploratory factor analysis, five factors were produced—cognitive attitude, positive affect, apprehension, self-assessment, and conative attitude. The results of a repeated-measures ANOVA indicated that cognitive attitudes, apprehension, self-

assessment, and conative attitudes significantly improved over time when averaged across groups, whereas positive affect about L2 reading did not show any change over time. These results suggest that further discussion is called for regarding two aspects.

One particularly interesting finding is that there was a three-way interaction effect regarding L2 reading apprehension. The extensive reading group's apprehension significantly decreased over time, whereas the extensive writing and control groups showed a non-significant change. Further analyses by proficiency levels indicated that the significant drop in the extensive reading group came from students at Level 1, and no outliers were detected in the data. Students at Level 1 in the control and extensive writing groups displayed either a slight decrease or increase. This finding suggests that being exposed to books helped reduce students' apprehension about L2 reading in general.

It should be noted that students at Level 1 were considered low achievers in English, with a mean score of 27 out of 100 in the four consecutive English tests in school. Even understanding a short passage in the English textbook guided by a teacher's explicit explanation might have been difficult for them because of insufficient knowledge of vocabulary and grammar. Due to their repeated poor achievement and being recognized as failing at school, these students could have grown highly apprehensive or even resistant to learning English. In this respect, it is worth noting that these students—with their high levels of apprehension, worry, and anxiety about English—substantially lowered their negative affect after being exposed to English books and after experiencing pleasure reading. Lee and Schallert (2014) claimed that access to English books and teachers' encouragement to read for pleasure are significant contributors to improving their perceived values in reading, behavioral intention to read, and self-assessment in reading. Consistent with Lee and Schallert's study, this study suggests that weak readers

may benefit from extensive reading in terms of lowering their apprehension about L2 reading.

Another interesting finding is that there was a time-by-treatment interaction effect in conative attitude, with the extensive reading group's showing significantly higher ratings than the extensive writing group. Conative attitudes refer to behavioral intentions that lead to action (Gerdes & Stromwall, 2008), in this case, reading. Without a conative attitude, an individual may not actually read, even if he or she has positive attitudes toward reading (Lee & Schallert, 2014). Students in the extensive reading group expressed their willingness to read English books even after the extensive reading instruction ended. In contrast, the extensive writing group exhibited, from the beginning to the end of the year, a decreased intention to read. This finding suggests that the yearlong pleasure reading experience may be an important source for helping students seek out more opportunities to read English books and possibly become frequent readers. This attitude change is noteworthy because approximately 90% of the students reported that at the beginning of the study they rarely read in English for pleasure. Again, as Lee and Schallert (2014) suggested, access to English books and teachers' encouragement to read books seem critical to the development of conative attitudes, both of which are main features of the extensive reading instruction.

Students' Attitudes toward L2 Writing

A 27-item questionnaire, using a five-point Likert scale, was administered at the beginning and end of the year to examine students' attitude change toward L2 writing. An exploratory factor analysis produced five factors: cognitive attitude, positive affect, apprehension, self-assessment, and conative attitude. The results of a repeated-measures ANOVA revealed that positive affect and self-assessment significantly improved,

apprehension demonstrated a significant decrease, and cognitive attitude and conative attitudes did not show any change over time. Yet, none of the five factors were statistically different by group, indicating that students in the three treatment groups showed similar patterns in their attitudes toward L2 writing.

Despite the increased positive affect and lowered apprehension, students' cognitive and conative attitudes stayed almost the same over time. This tendency seems to contrast with L2 reading attitudes in that cognitive and conative attitudes about L2 reading significantly improved over time. Note that cognitive attitudes mean perceived practical, linguistic, and intellectual values that can be gained from the activity; conative attitudes imply individuals' intentions to take action in the near future. In terms of L2 reading, students became more aware of the cognitive values that can be achieved from L2 reading and their willingness to engage in reading was thus likely to have intensified over the year. Such phenomenon, however, was absent with regard to L2 writing. Whereas students expressed their increased intention for reading English books after participating in extensive reading, the extensive writing group did not present their will to continue practicing writing in English. This opposing conative attitude toward reading and writing is particularly interesting because the extensive writing group had significantly more positive attitudes toward the treatment instruction than the extensive reading group in a post-survey.

One possible explanation for this contrasting result is that different values are placed on reading and writing skills in school curriculum, and in this case, English reading ability is more highly valued than writing. In fact, English writing is not even evaluated on school tests or university entrance exams; what is considered vital to achieving high scores in these tests is English reading ability. Despite enjoying extensive writing activities and believing it to be helpful in English learning, students may not feel

the necessity to practice it unless writing becomes a component of English tests. In this respect, it is understandable why students' cognitive attitudes (perceived practical, linguistic, and intellectual values) as well as their conative attitude toward L2 writing did not significantly improve over time despite their positive affect about L2 writing.

IMPLICATIONS

This study compared the effects of three types of learning approaches—extensive reading, extensive writing, and regular instruction—on EFL adolescents’ language skills and attitudes. The findings suggest theoretical, practical, and pedagogical importance for the second or foreign language acquisition field. In what follows, these implications are discussed in turn.

Theoretical Implications

The current study offers empirical support for the mutual influence of reading and writing in a foreign language. Although a number of scholars have claimed that reading and writing involve the same cognitive sub-processes and that developing one skill facilitates the other (Grabe & Kaplan, 1996; Tierney & Shanahan, 1991; Zamel, 1992), reading and writing have been considered independent skills and taught separately in practice. The lack of empirical evidence examining the reading-writing connection has not properly supported such a contention. In this regard, the findings of the current study may offer robust evidence of the reciprocal relationship between reading and writing, as it has corroborated the claim that reading practice improves writing performance, and frequent writing enhances reading comprehension through a yearlong experimental study. This finding suggests that reading and writing skills are not only simply connected but also intricately overlapped and that reading and writing share at least some of the cognitive skills.

At the same time, the current study examined whether incidental learning can occur from being exposed to a large amount of language input and whether pushed output opportunities can lead students to improve linguistic accuracy. Scholars have recognized that incidental learning can take place from reading especially for vocabulary (e.g., Eckerth & Tavakoli, 2012; Schmitt, 2008; Zahar, Cobb, & Spada, 2001). What has rarely

been explored, however, is incidental learning of grammar from reading. Likewise, previous research on the role of pushed output and the noticing function of output opportunities have focused on particular grammar features (Izumi, 2002; Izumi & Bigelow, 2000; Izumi et al., 1999; Song & Suh, 2008). Yet the contribution of pushed output to knowledge of general grammar has received scant attention. The results of the present study would expand the current understanding of the incidental learning of grammar by reading and the unique role of output on syntactic knowledge. Approaching this issue from a broader perspective, this study compared the differential effects of input- and output-focused activities on the development of grammar, reading, and writing. Thus, its findings may fulfill the need to investigate how differently input and output practices contribute to foreign language learning.

Practical Implications

To date, teachers have rarely devoted sufficient attention and time to extensive reading or writing instruction particularly in junior high or high school contexts. Teachers may struggle to allocate time for book reading in the already existing curriculum while trying to meet the students' immediate exam-preparation needs. Also, extensive writing is rarely introduced especially in foreign language learning contexts. Previous research has reported several obstacles to teaching writing, such as large class size and the lack of teacher and learner experience in writing. In this regard, the current study provides an example of actual implementation of extensive reading and extensive writing as a portion of regular school instruction in a foreign language context.

Moreover, this study has demonstrated how to promote students' engagement and motivation toward extensive reading and extensive writing. For extensive reading, several methods were employed: labelling books with stickers based on language-proficiency

levels, having students write short book reports in their native language, and having teachers offer comments on the content in students' book reports. For extensive writing, students were allowed to express their artistic freedom by writing and drawing; teachers served as a reader for students' writing, rather than a corrective feedback provider. For both groups, group activities were incorporated every fourth week, following Bamford and Day's (2004) suggestions. The whole procedure as well as the specific techniques taken in the process of program implementation may help interested teachers understand what to consider when initiating extensive reading or extensive writing programs in a school environment.

Pedagogical Implications

From the point of view of pedagogical value, the most important finding of the current study is that adolescent foreign language learners can benefit from independent reading and writing activities as much as or even more than regular instruction. Thus far, either reading books or essay writing independently has rarely taken place during regular school instruction. One reason comes from contextual constraints such as class size and local needs. More importantly, not only teachers but also parents may doubt whether young adolescent learners can take advantage of reading books and writing essays independently, with little guidance from teachers. In South Korea, many young students are forced to attend private English institutes after school due to their parents' strong belief that extra teacher-centered instruction can improve these learners' English skills. As a consequence, these students have relatively limited time and opportunities to initiate their own learning. It may be true that teacher-directed instruction can quickly and efficiently result in higher exam scores. Nonetheless, the finding is pedagogically important that only the extensive reading and writing groups, not the control group

(regular instruction), significantly improved in writing performance and that after engaging in extensive reading students showed a lowered apprehension of English reading and in fact a greater willingness to read English books. In the long term, in order to lead young learners to become autonomous learners, readers, and writers, parents and teachers should allow young learners to have time to read books and write freely, encouraging them to be independent language learners.

Furthermore, the findings of the study can assist teachers make decisions about L2 reading curricula. Over the decades, in spite of the reported linguistic and attitude benefits of extensive reading, it seems that in practice it has not been readily adopted (Davis, 1995). One reason is that many educators still believe that intensive reading alone can make good readers (Day & Bamford, 1998). An intensive reading approach, analyzing short texts with teachers' explicit teaching of grammar, vocabulary, and reading skills, is most assuredly beneficial for improving some aspects of reading ability. Nonetheless, extensive reading also has its own value and needs to be introduced to students as a reading instruction alternative (Carrell & Carson, 1997). Another reason that teachers are reluctant to implement extensive reading is that the teacher's role in extensive reading tends to be limited to encouraging students to read more; they play a less central role in the classroom (Day & Bamford, 1998; Renandya & Jacobs, 2002). This may make teachers look lazy or even anti-pedagogical because while their students read teachers, seemingly, merely read books as well. However, as Day and Bamford (1998) noted, the teacher's role as an example of a reader and a member of a reading community is significant and can promote students' reading behavior. By corroborating that extensive reading can be as effective as or more than regular instruction, the current study suggests that extensive reading be incorporated as part of regular language curricula.

Moreover, this study provides justification for second or foreign language teachers to introduce L2 writing instruction in middle schools. Influenced by developmental readiness theories in the first language, teachers have delayed teaching writing until reading literacy is firmly established (Fitzgerald & Shanahan, 2000). In a similar vein, L2 writing, considered more advanced than other language skills, has been postponed until the later stage of second or foreign language learning. The results of the current study revealed that L2 writing can be beneficial for students whose language proficiency is not yet fully evolved. Thus, foreign language teachers need not restrain themselves from giving pushed output chances to students and in fact should provide as many opportunities as possible to produce language output in class.

LIMITATIONS

This study does have several limitations. First, all participants were recruited from one Korean middle school, which drew students from low socioeconomic neighborhoods. For generalizability of the study's findings, replication studies need to be conducted with other populations or with different language backgrounds.

Second, the improvement revealed in language measures may be partly attributable to regular English classes or private English instruction. Regular English classes occurred three times a week, heavily focusing on a textbook that included sections of interpreting short reading passages, listening and speaking dialogues, and sentence-level writing. Although not all linguistic skills tested in this study were explicitly taught in regular instruction, the possible language gains from these regular classes may not be negligible. Likewise, private English instruction after school might have influenced students' linguistic gains, although the participants in this particular school (located in a

low-income working neighborhood) reported less exposure to private English education than other middle school students attending schools in wealthier neighborhoods.

Another limitation originates from the linguistic measures. Students' reading comprehension and grammar knowledge were tested through multiple-choice questions for pretest and posttest: reading comprehension (30 items), general grammar (20 items), articles (20 items), and prepositions (20 items). Although Williams, Skinner, and Jaspers (2007) argued that multiple-choice-tests may be a reliable test of reading and not simply of test-taking skills or guessing strategies, such a measure might have assessed only a receptive knowledge of grammar and reading comprehension.

Finally, the number of books and writings throughout the two academic semesters was relatively small, ranging from 16 to 19. One reason is that students participated in group activities related to their treatment instruction every fourth week, following suggestions of Bamford and Day (2004) to promote motivation. Moreover, because this study was conducted as a portion of regular English curriculum, the amount of treatment instruction was inevitably influenced by contextual constraints, such as school exams or events. Therefore, in making applications of the study's findings, these limitations should be taken into consideration.

FUTURE RESEARCH

In the field of second language acquisition, research on reading-writing connections is still in its emergent stage. Due to the scarcity of empirical studies on this issue, more work is warranted to understand further whether reading enhances writing, and vice versa. Related to this topic, several research areas merit investigation.

This study measured writing ability through a descriptive essay test, which allows for a great deal of artistic freedom with regard to form and content, and which measures

whether students can describe something in writing based on their experience. In order to substantiate further the reciprocal relationship between reading and writing, different types of writing abilities need to be investigated. It will be interesting to examine whether extensive reading and extensive writing can contribute to improving argumentative writing performance. Persuasive writing is known to require advanced thinking, reasoning, and writing skills because writers need to establish a position on a topic and convince readers with evidence and logical reasons in a concise manner. Whereas extensive reading and extensive writing improved descriptive writing performance, whether similar results can be achieved in argumentative writing merits further investigation.

Moreover, students' writing performance was assessed based on six subscales: organization, content, vocabulary, grammar, mechanics, and overall impression. Because this study focused on overall writing performance as a consequence of reading and writing practice, I did not examine which aspects of writing have been more improved than others. Reexamining the students' gain scores by each subskill may provide meaningful information regarding the effects of extensive reading and extensive writing on different features of writing proficiency.

Lastly, research on the differential effects of reading and writing for boys and girls may need more examination. Gender is one of the frequently studied variables particularly in reading research. In general, girls have a higher level of reading motivation, read more often, value reading more highly, and have more reading abilities than boys. In this regard, the impact of extensive reading may have been different for boys and girls. Research on extensive reading and extensive writing by gender may help teachers accommodate their students' needs by gender and inform researchers of how

differently girls and boys are motivated to read and write, and how such different reading and writing instruction affects their L2 learning.

CONCLUSION

This dissertation study was designed to examine whether reading a large amount of text improves writing performance along with reading comprehension and grammar knowledge, and whether extensive writing develops reading comprehension along with writing ability and knowledge of grammar. The findings indicate that reading and writing skills are mutually facilitative and that incidental learning of grammar can take place and pushed output opportunities can enhance learners' awareness of linguistic forms. This study can be a welcome addition to the second language acquisition research field that currently lacks empirical evidence regarding the reading-writing connections, incidental learning of grammar, and the role of pushed output tasks in general grammar. Also, the present study may help L2 educators make decisions in curriculum design in relation to reading and writing by elucidating the effects of each instruction. Moreover, this study refines current understandings of the impact of extensive reading and extensive writing on middle school students' L2 learning. Despite the large population of middle school students who are beginning to learn a second or foreign language as a component of school curriculum, little research has focused on young adolescents' L2 learning practices and their attitudes toward instruction. This study offers valuable information that adolescent foreign language learners, whose L2 reading and writing proficiency is less fully developed, can benefit from reading and writing independently.

Appendix A Background Questionnaire

1. Sex: ① Boy ② Girl
2. Have you ever attended private or extra-curricular English courses or lessons?
① No, never ② yes, for less than 1 year ③ yes, for 1-2 years
④ yes, for 3-4 years ⑤ yes, for more than 5 years
3. Have you ever stayed in an English-speaking country for studying or traveling?
① No, never ② yes, for less than a month ③ yes, for less than 6 months
④ yes, for less than 1 year ⑤ yes, for more than 1 year
4. How often do you read something in Korean for pleasure?
① almost never ② once a month ③ once a week
④ 3-4 times a week ⑤ almost everyday
5. How often do you read books in English for pleasure?
① almost never ② once a month ③ once a week
④ 3-4 times a week ⑤ almost everyday
6. How often do you write in Korean for pleasure (writing letters, keeping a diary, or writing for self-expressions and enjoyment)?
① almost never ② once a month ③ once a week
④ 3-4 times a week ⑤ almost everyday
7. How often do you write something in English for pleasure (writing letters, keeping a diary, or writing for self-expressions and enjoyment)?
① almost never ② once a month ③ once a week
④ 3-4 times a week ⑤ almost everyday

Appendix B Post-Attitude Survey

Directions: Read each statement and indicate to which degree you agree with each statement.

1 (strongly disagree) - 2 (disagree) - 3 (neutral) - 4 (agree) - 5 (strongly agree)

	1	2	3	4	5
1. I was engaged in the [program] sincerely.					
2. My overall English ability improved due to the [program].					
3. The [program] was helpful for my English learning.					
4. My English reading ability improved due to the [program].					
5. The practice in the [program] increased my interest in English learning.					
6. My English writing ability improved due to the [program].					
7. The English [program] was fun and enjoyable.					
8. I'd like to participate in the [program] next year as well.					
9. My English grammar knowledge improved due to the [program].					
10. I liked the English [program].					

Note. In the items, the word [program] was replaced by extensive reading, extensive writing, or regular instruction according to whichever instruction a student had actually experienced.

Appendix C English Reading Attitude Survey

Directions: Read each statement and indicate to which degree you agree with each statement.

- 1 = Not at all true of me
- 2 = Mildly true of me
- 3 = Moderately true of me
- 4 = Mostly true of me
- 5 = Completely true of me

Statement	
1. I like to read in English.	
2. I feel anxious if I don't know all the words in reading passages.	
3. I can improve my general English ability if I read English.	
4. I can develop critical thinking skills and reasoning skills if I read English.	
5. I feel overwhelmed whenever I see a whole page of English in front of me.	
6. Reading English is dull.	
7. I go to a library to borrow or read English books.	
8. It is fun to read in English.	
9. I do not want to read in English even if the content is interesting.	
10. I feel tired if I read English.	
11. I can develop creative thinking skills if I read English.	
12. Reading English is useful to get a good grade in class.	
13. I want to avoid reading in English as much as possible.	
14. I can improve my English writing ability if I read English.	
15. I am good at reading in English.	
16. My grades for English reading tests are very good.	
17. I feel confident when I am reading in English.	
18. I can improve my English vocabulary if I read English.	
19. I sometimes feel anxious that I may not understand what I read.	
20. During my vacation I will read at least one English book.	
21. I try to find time for reading in English.	
22. I can improve my English grammar if I read English.	
23. I can acquire broad knowledge if I read English.	
24. Reading English is troublesome.	
25. I sometimes visit English websites and read them on the Internet.	
26. I can improve my English reading ability if I read English.	

Appendix D English Writing Attitude Survey

Directions: Read each statement and indicate to which degree you agree with each statement.

- 1 = Not at all true of me
- 2 = Mildly true of me
- 3 = Moderately true of me
- 4 = Mostly true of me
- 5 = Completely true of me

Statement	
1. My thoughts become jumbled when I write English compositions under time constraint.	
2. It is fun to write in English.	
3. While writing English compositions, I feel worried and uneasy if I know they will be evaluated.	
4. I want to avoid writing in English as much as possible.	
5. I try to find time for practicing writing in English.	
6. I like to write in English.	
7. I can improve my general English ability if I write in English.	
8. I often feel panic when I write English compositions under time constraint.	
9. I can improve my English grammar if I write in English.	
10. My mind often goes blank when I start to work on an English composition.	
11. I freeze up when unexpectedly asked to write English compositions.	
12. Writing in English is troublesome.	
13. I try to write in English daily, such as letters, diaries, or text messages.	
14. I write well on English tests.	
15. I'm afraid of my English composition being chosen as a sample for discussion in class.	
16. Unless I have no choice, I would not use English to write compositions.	
17. Writing in English is dull.	
18. I can develop creative thinking skills if I learn to write in English.	
19. I can improve my English vocabulary if I write in English.	
20. I sometimes visit English websites and write in English on the Internet.	
21. I can improve my English writing ability if I write in English.	
22. I am good at writing in English.	
23. I can develop critical thinking skills and reasoning skills if I learn to write in English.	
24. I can acquire broad knowledge if I learn to write in English.	
25. I feel confident when I am writing in English.	
26. I can improve my English reading comprehension if I write in English.	
27. During my vacation I will write in English for fun.	

Appendix E Analytic Scoring Rubric: Descriptive Writing

Organization (20 points)	
A: 20-17, Excellent	Ideas clearly stated, well-organized, clear, and coherent Logical sequencing Cohesive on both sentence and paragraph level
B: 16-13, Good	Loosely organized but main ideas stand out Limited support Logical but incomplete sequencing
C: 12-9, Average	Ideas confused or disconnected Lacks logical sequencing and development
D: 8-5, Fair	Hard to communicate Little organization
E: 4-1, Poor	Almost no organization or not enough to evaluate Does not communicate
F: 0, Very poor	Nothing is written
Content (20 points)	
A: 20-17, Excellent	Knowledgeable, substantive, and thorough development of thesis Relevant to assigned topic
B: 16-13, Good	Some knowledge of subject Limited development of thesis Mostly relevant to topic, but lacks detail
C: 12-9, Average	Limited knowledge of subject Little substance Inadequate development of topic
D: 8-5, Fair	Does not show knowledge of subject Non-substantive Not pertinent
E: 4-1, Poor	Almost no content or not enough to evaluate
F: 0, Very poor	Nothing is written
Vocabulary (20 points)	
A: 20-17, Excellent	Sophisticated range of vocabulary Effective word or idiom choice and usage Word form mastery Appropriate register
B: 16-13, Good	Adequate range of vocabulary Occasional errors of word or idiom form, choice, usage but meaning not obscured
C: 12-9, Average	Limited range of vocabulary Frequent errors of word or idiom form, choice, usage Meaning confused or obscured, but mostly communicating clear ideas

D: 8-5, Fair	Essentially translation Little knowledge of English vocabulary, idioms, word form Communicating few clear ideas Mostly inaccurate vocabulary
E: 4-1, Poor	Almost no knowledge of English vocabulary Not enough to evaluate Little assessable language
F: 0, Very poor	Nothing is written
Grammar (20 points)	
A: 20-17, Excellent	Effective complex constructions Few errors in grammar
B: 16-13, Good	Effective but simple constructions Minor problems in complex constructions Several errors in grammar <i>but meaning seldom obscured</i>
C: 12-9, Average	Major problems in simple and complex constructions Frequent errors in grammar Meaning confused or obscured, but generally without causing breakdown
D: 8-5, Fair	Extremely limited range of structures Virtually no mastery of sentence construction rules Dominated by errors Frequently breakdown of communication
E: 4-1, Poor	Almost no knowledge of grammar or not enough to evaluate Dose not communicate
F: 0, Very poor	Nothing is written
Mechanics (10 points)	
A: 10-9, Excellent	Demonstrate mastery of conventions Few errors of spelling, punctuation, capitalization, and paragraphing
B: 8-7, Good	Occasional errors of spelling, punctuation, capitalization, paragraphing <i>but meaning not obscured</i>
C: 6-5, Average	Frequent errors of spelling, punctuation, capitalization, and paragraphing Meaning confused or obscured, but generally without causing breakdown
D: 4-3, Fair	Little mastery of conventions Dominated by errors of spelling, punctuation, capitalization, and paragraphing Frequently breakdown of communication
E: 2-1, Poor	Almost no knowledge of conventions or not enough to evaluate
F: 0, Very poor	Nothing is written
Overall impression (10 points)	
A: 10/9, Excellent	Effectively addresses the topic and task

	<p>Is well organized and well developed, using clearly appropriate explanations, exemplifications and/or details</p> <p>Displays unity, progression and coherence</p> <p>Displays consistent facility in the use of language, demonstrating syntactic variety, appropriate word choice, though it may have minor lexical or grammatical errors</p>
B: 8/7, Good	<p>Addresses the topic and task well, though some points may not be fully elaborated</p> <p>Is generally well organized and well developed, using appropriate and sufficient explanations, exemplifications and/or details</p> <p>Displays unity, progression and coherence, though it may contain occasional redundancy, digression, or unclear connections</p> <p>Displays facility in the use of language, demonstrating syntactic variety and range of vocabulary, though it will probably have occasional noticeable minor errors in structure, word form or use of idiomatic language that do not interfere with meaning</p>
C:6/5, Average	<p>Addresses the topic and task using somewhat developed explanations, exemplifications and/or details</p> <p>Displays unity, progression and coherence, though connection of ideas may be occasionally obscured</p> <p>May demonstrate inconsistent facility in sentence formation and word choice that may result in lack of clarity and occasionally obscure meaning</p> <p>May display accurate but limited range of syntactic structures and vocabulary</p>
D: 4/3, Fair	<p>Limited development in response to the topic and task</p> <p>Inadequate organization or connection of ideas</p> <p>Inappropriate or insufficient exemplifications, explanations or details to support or illustrate generalizations in response to the task</p> <p>A noticeably inappropriate choice of words or word forms</p> <p>An accumulation of errors in sentence structure and/or usage</p>
E: 2/1, Poor	<p>Serious disorganization or underdevelopment</p> <p>Little or no detail, or irrelevant specifics, or questionable responsiveness to the task</p> <p>Serious and frequent errors in sentence structure or usage</p>
F: 0, Very poor	<p>An essay at this level merely copies words from the topic, rejects the topic, or is otherwise not connected to the topic, is written in a foreign language, consists of keystroke characters, or is blank.</p>

References

- Al-Homoud, F., & Schmitt, N. (2009). Extensive reading in a challenging environment: A comparison of extensive and intensive reading approaches in Saudi Arabia. *Language Teaching Research*, 13(4), 383-401. doi: 10.1177/1362168809341508
- Andrews, R., Torgerson, C., Beverton, S., Freeman, A., Locke, T., Low, G., Robinson, A., & Zhu, D. (2006). The effect of grammar teaching on writing development. *British Educational Research Journal*, 32(1), 39-55.
- Armstrong, K. M. (2010). Fluency, accuracy, and complexity in graded and ungraded writing. *Foreign Language Annals*, 43(4), 690-702. doi: 10.1111/j.1944-9720.2010.01109.x
- Bailey, K. (1998). *Learning about language assessment*. Laguna Hills, CA: International Thomson.
- Bamford, J., & Day, R. (2004). *Extensive reading activities for language teaching*. Cambridge: Cambridge University Press.
- Baudrand-Aertker, L. (1992). *Dialogue journal writing in a foreign language classroom: Assessing communicative competence and proficiency*. Unpublished doctoral dissertation, Louisiana State University, Baton Rouge.
- Becker, M., McElvany, N., & Kortenbruck, M. (2010). Intrinsic and extrinsic reading motivation as predictors of reading literacy: A longitudinal study. *Journal of Educational Psychology*, 102(4), 773.
- Belcher, D. D., & Hirvela, A. (2001). *Linking literacies: Perspectives on L2 reading-writing connections*. Ann Arbor, MI: University of Michigan Press Ann Arbor.
- Bell, T. I. (2001). Extensive reading: Speed and comprehension. *The Reading Matrix*, 1(1), 1-13.
- Bereiter, C., & Scardamalia, M. (1984). Learning about writing from reading. *Written Communication*, 1, 163-188.
- Berninger, V. W., Cartwright, A. C., Yates, C. M., Swanson, H. L., & Abbott, R. D. (1994). Developmental skills related to writing and reading acquisition in the intermediate grades. *Reading and Writing*, 6(2), 161-196. doi: 10.1007/BF01026911
- Bitchener, J. (2008). Evidence in support of written corrective feedback. *Journal of Second Language Writing*, 17(2), 102-118.
- Bitchener, J., Young, S., & Cameron, D. (2005). The effect of different types of corrective feedback on ESL student writing. *Journal of Second Language Writing*, 14(3), 191-205.

- Boscolo, P. (2008). Writing in primary school. In C. Bazerman (Ed.), *Handbook of research on writing: History, society, school, individual, text* (pp. 293–309). New York: Erlbaum.
- Braine, G. (2002). Academic literacy and the nonnative speaker graduate student. *Journal of English for Academic Purposes*, 1(1), 59-68.
- Brandt, D. (1994). Remembering writing, remembering reading. *College Composition and Communication*, 45, 459-479. doi: 10.2307/358760
- Brandt, D. (2001). *Literacy in American lives*. Cambridge, UK: Cambridge University Press.
- Bruton, A., Lopez, M. G., & Mesa, R. E. (2011). Incidental L2 vocabulary learning: An impracticable term? *TESOL Quarterly*, 45(4), 759-768.
- Burger, S. (1989). Content-based ESL in a sheltered psychology course: Input, output and outcomes. *TESL Canada Journal*, 6(2), 45-59.
- Carrell, P. L., & Carson, J. G. (1997). Extensive and intensive reading in an EAP setting. *English for Specific Purposes*, 16(1), 47-60.
- Carson, J. E., Carrell, P. L., Silberstein, S., Kroll, B., & Kuehn, P. A. (1990). Reading-writing relationships in first and second language. *TESOL Quarterly*, 24(2), 245-266.
- Carson, J. E., & Leki, I. (1993). *Reading in the composition classroom: Second language perspective*. Boston: Heinle & Heinle.
- Castañeda, D. A., & Cho, M.-H. (2013). The role of wiki writing in learning Spanish grammar. *Computer Assisted Language Learning*, 26(4), 334-349. doi: 10.1080/09588221.2012.670648
- Chen, C., & Truscott, J. (2010). The effects of repetition and L1 lexicalization on incidental vocabulary acquisition. *Applied Linguistics*, 31, 693-713. doi: 10.1093/applin/amq031
- Cheng, Y.-S. (2002). Factors associated with foreign language writing anxiety. *Foreign Language Annals*, 35(6), 647-656. doi: 10.1111/j.1944-9720.2002.tb01903.x
- Cheng, Y.-S., Horwitz, E. K., & Schallert, D. L. (1999). Language anxiety: Differentiating writing and speaking components. *Language learning*, 49(3), 417-446. doi: 10.1111/0023-8333.00095
- Cheng, Y. S. (2004). A measure of second language writing anxiety: Scale development and preliminary validation. *Journal of Second Language Writing*, 13(4), 313-335. doi: 10.1016/j.jslw.2004.07.001
- Cho, K.-S., & Krashen, S. (1994). Acquisition of vocabulary from the sweet valley kids series: Adult ESL acquisition. *Journal of Reading*, 37, 662-667.

- Chodorow, M., Tetreault, J. R., & Han, N.-R. (2007). *Detection of grammatical errors involving prepositions*. Paper presented at the Proceedings of the fourth ACL-SIGSEM workshop on prepositions.
- Clark, R. E. (1994). Media will never influence learning. *Educational Technology Research and Development*, 42(2), 21-29. doi: 10.1007/BF02299088
- Coady, J. (1997). L2 vocabulary acquisition through extensive reading. In J. Coady. & T. Huckin (Eds.), *Second language vocabulary acquisition* (pp. 225-237). Cambridge Cambridge University Press.
- Crowhurst, M. (1991). Interrelationships between reading and writing persuasive discourse. *Research in the Teaching of English*, 25(3), 314-338.
- Cutler, L., & Graham, S. (2008). Primary grade writing instruction: A national survey. *Journal of Educational Psychology*, 100(4), 907-919. doi: 10.1037/a0012656
- Daly, J. A., & Miller, M. D. (1975). The empirical development of an instrument to measure writing apprehension. *Research in the Teaching of English*, 9(3), 242-249. doi: 10.2307/40170632
- Dana, M. E., Scheffler, A. J., Richmond, M. G., & Smith, S. (1991). Writing to read: Pen palling for a purpose. *Reading Improvement*, 28(2), 113-118.
- Davis, C. (1995). Extensive reading: An expensive extravagance? *ELT Journal*, 49(4), 329-336.
- Day, R., & Bamford, J. (1998). *Extensive reading in the second language classroom*. Cambridge: Cambridge University Press.
- Day, R., & Bamford, J. (2002). Top ten principles for teaching extensive reading. *Reading in a Foreign Language*, 14(2), 136-141.
- Donato, R. (1994). Collective scaffolding in second language learning. In J. P. Lantolf & G. Appel (Eds.), *Vygotskian approaches to second language research* (pp. 33-56). Norwood, NJ: Ablex.
- Eckerth, J., & Tavakoli, P. (2012). The effects of word exposure frequency and elaboration of word processing on incidental L2 vocabulary acquisition through reading. *Language Teaching Research*, 16(2), 227-252. doi: 10.1177/1362168811431377
- Educational Testing Service (2014). TOEFL® iBT independent writing rubrics. Princeton, NJ: Educational Testing Service. Retrieved from http://www.ets.org/s/toefl/pdf/toefl_writing_rubrics.pdf
- Eisterhold, J. C. (1990). Reading-writing connections: Toward a description for second language learners. In B. Kroll (Ed.), *Second language writing: Research insights for the classroom* (pp. 88-101). New York: Cambridge University Press.

- El-Koumy, A. S. A. (1997). Exploring the reading-writing relationship in NES and EFL students (pp. 1-15). Online Submission (ERIC)
- Elley, W.B. (1991). Acquiring literacy in a second language: The effect of book-based programs. *Language Learning*, 41(3), 375-411.
- Elley, W. B., & Foster, D. (1996). *Sri Lanka books in schools project: Final report*. London: International Book Development.
- Elley, W. B., Le Rous, N., & Schollar, E. (1998). *Evaluation of sunshine book-based project in South African schools*. Auckland: Wendy Pye, Ltd.
- Elley, W. B., & Mangubhai, F. (1983). The impact of reading on second language learning. *Reading Research Quarterly*, 19(1), 53-67. doi: 10.2307/747337
- Emig, J. (1977). Writing as a mode of learning. *College Composition and Communication*, 28(2), 122-128. doi: 10.2307/356095
- Ewert, D. E. (2011). ESL curriculum revision: Shifting paradigms for success. *Journal of Basic Writing*, 30(1), 5-33.
- Fazio, L. L. (2001). The effect of corrections and commentaries on the journal writing accuracy of minority-and majority-language students. *Journal of Second Language Writing*, 10(4), 235-249.
- Feng, S., & Powers, K. (2005). The short- and long-term effect of explicit grammar instruction on fifth graders' writing. *Reading Improvement*, 42(2), 67-72.
- Ferris, D., & Roberts, B. (2001). Error feedback in L2 writing classes: How explicit does it need to be? *Journal of Second Language Writing*, 10(3), 161-184.
- Fishbein, M., & Ajzein, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fitzgerald, J. (1990). Reading and writing as "mind meeting.". In S. Timothy (Ed.), *Reading and writing together: New perspectives for the classroom* (pp. 81-97). Norwood, MA: Christopher-Gordon.
- Fitzgerald, J. (1992). *Towards knowledge in writing: Illustrations from revision studies*. New York: Springer-Verlag.
- Fitzgerald, J., & Shanahan, T. (2000). Reading and writing relations and their development. *Educational Psychologist*, 35(1), 39-50. doi: 10.1207/S15326985EP3501_5
- Gass, S. (1999). Discussion: Incidental vocabulary learning. *Studies in Second Language Acquisition*, 21(2), 319-333.
- Gerdes, K. E., & Stromwall, L. K. (2008). Conation: A missing link in the strengths perspective. *Social Work*, 53(3), 233-242.

- Grabe, W. (2009). *Reading in a second language: Moving from theory to practice*. New York: Cambridge University Press.
- Grabe, W., & Kaplan, R. B. (1996). *Theory and practice of writing*. London: Longman.
- Grabe, W., & Zhang, C. (2013). Reading and writing together: A critical component of English for academic purposes teaching and learning. *TESOL Journal*, 4(1), 9-24. doi: 10.1002/tesj.65
- Graham, S., & Hebert, M. (2011). Writing to read: A meta-analysis of the impact of writing and writing instruction on reading. *Harvard Educational Review*, 81(4), 710-744.
- Graham, S., & Perin, D. (2007). A meta-analysis of writing instruction for adolescent students. *Journal of Educational Psychology*, 99(3), 445-476. doi: 10.1037/0022-0663.99.3.445
- Hafiz, F. M., & Tudor, I. (1989). Extensive reading and the development of language skills. *ELT Journal*, 43(1), 4-13. doi: 10.1093/elt/43.1.4
- Hafiz, F. M., & Tudor, I. (1990). Graded readers as an input medium in L2 learning. *System*, 18(1), 31-42. doi: 10.1016/0346-251X(90)90026-2
- Harklau, L. (2002). The role of writing in classroom second language acquisition. *Journal of Second Language Writing*, 11(4), 329-350. doi: 10.1016/s1060-3743(02)00091-7
- Harklau, L. (2007). The adolescent English language learner. In J. Cummins & C. Davison (Eds.), *International Handbook of English Language Teaching* (Vol. 15, pp. 639-653). New York: Springer.
- Hayes, C. W., & Bahruth, R. (1985). Querer es poder. In J. Hansen & T. Newkirk (Eds.), *Breaking ground: Teachers relate reading and writing in the elementary school* (pp. 97-111). Portsmouth: Heinemann.
- Hedgcock, J., & Atkinson, D. (1993). Differing reading-writing relationships in L1 and L2 literacy development? *TESOL Quarterly*, 27(2), 329-333. doi: 10.2307/3587155
- Hendricks, M. (2010). *Consciousness-raising and prepositions*. Paper presented at the English Teaching Forum.
- Hirvela, A. (2004). *Connecting reading and writing in second language writing instruction*. Ann Arbor, MI: The University of Michigan Press.
- Hitosugi, C. I., & Day, R. R. (2004). Extensive reading in Japanese. *Reading in a Foreign Language*, 16(1), 20-30.
- Horowitz, D. (1986). What professors actually require: Academic tasks for the ESL classroom. *TESOL Quarterly*, 20(3), 107-120. doi: 10.2307/3586294

- Hsu, J.-Y. (2004). Reading, writing, and reading-writing in the second language classroom: A balanced curriculum. Available from EBSCOhost eric, from Online Submission (ERIC).
- Hulstijn, J. H. (2003). Incidental and intentional learning. In C. J. Doughty & M. H. Long (Eds.), *The handbook of second language acquisition* (pp. 349-381). Oxford, England: Blackwell.
- Hulstijn, J. H. (2005). Theoretical and empirical issues in the study of implicit and explicit second-language learning. *Studies in Second Language Acquisition*, 27(2), 129-140. doi: 10.1017/S0272263105050084
- Hunt, K. W. (1965). Grammatical structures written at three grade levels (NCTE Research Report No. 3). Urbana, IL: National Council of Teachers of English.
- Iwahori, Y. (2008). Developing reading fluency: A study of extensive reading in EFL. *Reading in a Foreign Language*, 20(1), 70-91.
- Izumi, S. (2002). Output, input enhancement, and the noticing hypothesis. *Studies in Second Language Acquisition*, 24(4), 541-577. doi: doi:10.1017/S0272263102004023
- Izumi, S., & Bigelow, M. (2000). Does output promote noticing and second language acquisition? *TESOL Quarterly*, 34(2), 239-278.
- Izumi, S., Bigelow, M., Fujiwara, M., & Fearnow, S. (1999). Testing the output hypothesis: Effects of output on noticing and second language acquisition. *Studies in Second Language Acquisition*, 21(3), 421-452.
- Janopoulos, M. (1986). The relationship of pleasure reading and second language writing proficiency. *TESOL Quarterly*, 20(4), 763-768. doi: 10.2307/3586526
- Johnstone, K. M., Ashbaugh, H., & Warfield, T. D. (2002). Effects of repeated practice and contextual-writing experiences on college students' writing skills. *Journal of Educational Psychology*, 94(2), 305.
- Jones, C. D. o., Reutzel, D. R., & Fargo, J. D. (2010). Comparing two methods of writing instruction: Effects on kindergarten students' reading skills. *Journal of Educational Research*, 103(5), 327-341.
- Kern, R. G., & Schultz, J. M. (1992). The effects of composition instruction on intermediate level French students' writing performance: Some preliminary findings. *The Modern Language Journal*, 76(1), 1-13. doi: 10.2307/329893
- Kim, K. J. (2011). Reading motivation in two Languages: An examination of EFL college students in Korea. *Reading and Writing: An Interdisciplinary Journal*, 24(8), 861-881.
- Krashen, S. (1982). *Principles and practice in second language acquisition*. Oxford: Pergamon.

- Krashen, S. (1989). We acquire vocabulary and spelling by reading: Additional evidence for the input hypothesis. *The Modern Language Journal*, 73(4), 440-464.
- Krashen, S. (2004). *The power of reading: Insights from the research* (2nd ed.). Portsmouth, NH: Heinemann.
- Krashen, S. (2009). Anything but reading. *Knowledge Quest*, 37(5), 18-25.
- Krashen, S. D. (2011). *Free voluntary reading*. Santa Barbara, CA: Libraries Unlimited.
- Kweon, S.-O., & Kim, H.-R. (2008). Beyond raw frequency: Incidental vocabulary acquisition in extensive reading. *Reading in a Foreign Language*, 20(2), 191-215.
- Lai, F.-K. (1993). The effect of a summer reading course on reading and writing skills. *System*, 21(1), 87-100. doi: 10.1016/0346-251X(93)90009-6
- Laufer, B., & Hulstijn, J. (2001). Incidental vocabulary acquisition in a second language: The construct of task-induced involvement. *Applied Linguistics*, 22(1), 1-26.
- Lee, J., & Schallert, D. L. (2014). Literate actions, reading attitudes, and reading achievement: Interconnections across languages for adolescent learners of English in Korea. *The Modern Language Journal*, 98(2), 553-573.
- Lee, J., Schallert, D. L., & Kim, E. (in press). Effects of extensive reading and translation activities on grammar knowledge and attitudes for EFL adolescents. *System*.
- Lee, S.-Y. (2007). Revelations from three consecutive studies on extensive reading. *RELJ Journal*, 38(2), 150-170. doi: 10.1177/0033688207079730
- Lee, S.-Y., & Hsu, Y.-Y. (2009). Determining the crucial characteristics of extensive reading program: The impact of extensive reading on EFL writing. *The International Journal of Foreign Language Teaching*, 5(1), 12-20.
- Lee, S. Y. (2005). Facilitating and inhibiting factors in English as a foreign language writing performance: A model testing with structural equation modeling. *Language Learning*, 55(2), 335-374. doi: 10.1111/j.0023-8333.2005.00306.x
- Lee, S. Y., & Krashen, S. (1996). Free voluntary reading and writing competence in Taiwanese high school students. *Perceptual and Motor Skills*, 83(2), 687-690.
- Lee, S. Y., & Krashen, S. (1997). Writing apprehension in Chinese as a first language. *Review of Applied Linguistics*, 115-116, 27-35.
- Leki, I. (1991). Twenty-five years of contrastive rhetoric: Text analysis and writing pedagogues. *TESOL Quarterly*, 25(1), 123-143.
- Leki, I. (2001). Material, educational, and ideological challenges of teaching EFL writing at the turn of the century. *International Journal of English Studies*, 1(2), 197-209.
- Leung, C. Y. (2002). Extensive reading and language learning: A diary study of a beginning learner of Japanese. *Reading in a Foreign Language*, 14(1), 66-81.

- Lituanas, P. M., Jacobs, G. M., & Renandya, W. A. (1999). A study of extensive reading with remedial reading students. In Y. M. Cheash & S. M. Ng (Eds.), *Language instruction issues in Asian classrooms* (pp. 89-104). Newark, DE: International Development in Asia Committee, International Reading Association.
- Mallozzi, C. A., & Malloy, J. A. (2007). International reports on literacy research. *Reading Research Quarterly*, 42(1), 161-166. doi: 10.1598/RRQ.42.1.9
- Mason, B. (2003). *A study of extensive reading and the developing of grammatical accuracy by Japanese university students learning English*. Unpublished doctoral dissertation, Temple University, Philadelphia, PA.
- Mason, B. (2004). The effect of adding supplementary writing to an extensive reading program. *International Journal of Foreign Language Teaching*, 1(1), 2-16.
- Mason, B., & Krashen, S. (1997). Extensive reading in English as a foreign language. *System*, 25(1), 91-102. doi: 10.1016/S0346-251X(96)00063-2
- Master, P. (1995). Consciousness raising and article pedagogy. In D. Belcher & G. Braine (Eds.), *Academic writing in a second language*, (pp. 183-204). Ablex, Norwood, NJ.
- Master, P. (2002). Information structure and English article pedagogy. *System*, 30(3), 331-348. doi: 10.1016/S0346-251X(02)00018-0
- Mol, S. E., & Bus, A. G. (2011). To read or not to read: A meta-analysis of print exposure from infancy to early adulthood. *Psychological Bulletin*, 137(2), 267-296. doi: 10.1037/a0021890
- Mori, S. (2002). Redefining motivation to read in a foreign language. *Reading in a Foreign Language*, 14(2).
- Nakanishi, T. (2015). A meta-analysis of extensive reading research. *TESOL Quarterly*, 49(1), 1-32. doi: 10.1002/tesq.157
- Nakanishi, T., & Ueda, A. (2011). Extensive reading and the effect of shadowing. *Reading in a Foreign Language*, 23(1), 1-16.
- National Commission on Writing. (2003, April). The neglected "R": The need for a writing revolution. Retrieved April 7, 2015, from http://www.writingcommission.org/prod_downloads/writingcom/neglectedr.pdf.
- Nelson, N., & Calfee, R. C. (1998). *The reading-writing connection*. Chicago, IL: National Society for the Study of Education.
- Nippold, M. A. (Ed.). (1998). *Later language development: The school-age and adolescent years*. Boston, MA: College-Hill Press.
- Nishino, T. (2007). Beginning to read extensively: A case study with Mako and Fumi. *Reading in a Foreign Language*, 19(2), 76-105.

- Nobuyoshi, J., & Ellis, R. (1993). Focused communication tasks and second language acquisition. *ELT Journal*, 47(3), 203-210.
- Nummikoski, E. (1991). *The effects of interactive writing assignments on the written language proficiency of first year students of Russian*. Unpublished doctoral dissertation, The University of Texas at Austin.
- Palmer, H. E. (1964). *The principles of language-study*. Oxford: Oxford University Press. (Original work published in 1921).
- Paris, S. G. (2005). Reinterpreting the development of reading skills. *Reading Research Quarterly*, 40(2), 184-202. doi: 10.1598/RRQ.40.2.3
- Pearson, P. D. (1985). Changing the face of reading comprehension instruction. *The Reading Teacher*, 38(8), 724-738.
- Pfost, M., Hattie, J., Dörfler, T., & Artelt, C. (2014). Individual differences in reading development: A review of 25 years of empirical research on Matthew effects in reading. *Review of Educational Research*, 84(2), 203-244 doi: 10.3102/0034654313509492
- Pica, T. (1992). The textual outcomes of native speaker-non-native speaker negotiation: What do they reveal about second language learning? In C. Kramsch & S. McConnell-Ginet (Eds.), *Text and context* (pp. 198-237). Cambridge, MA: Heath.
- Pigada, M., & Schmitt, N. (2006). Vocabulary acquisition from extensive reading: A case study. *Reading in a Foreign Language*, 18(1), 1-28.
- Reber, A. S. (1989). Implicit learning and tacit knowledge. *Journal of Experimental Psychology: General*, 118(3), 219-235.
- Reber, A. S. (1996). *Implicit learning and tacit knowledge: An essay on the cognitive unconscious*. Oxford University Press.
- Reber, A. S., & Allen, R. (2000). Individual differences in implicit learning: Implications for the evolution of consciousness. In R. Kunzendorf & B. Wallace (Eds.), *Individual differences in conscious experience* (pp. 227-250). Amsterdam: Benjamins.
- Reichelt, M. (2001). A critical review of foreign language writing research on pedagogical approaches. *The Modern Language Journal*, 85(4), 578-598. doi: 10.1111/0026-7902.00127
- Reichelt, M. (2005). English-language writing instruction in Poland. *Journal of Second Language Writing*, 14(4), 215-232. doi: 10.1016/j.jslw.2005.10.005
- Renandya, W. A. (2007). The power of extensive reading. *RELC Journal*, 38(2), 133-149.
- Renandya, W. A., & Jacobs, G. M. (2002). Extensive reading: Why aren't we all doing it. In J. C. Richards & W. A. Renandya (Eds.), *Methodology in language teaching*:

- An anthology of current practice* (pp. 295-302). Cambridge: Cambridge University Press.
- Renandya, W. A., Rajan, B. R., & Jacobs, G. M. (1999). Extensive reading with adult learners of English as a second language. *RELC Journal*, 30(1), 39-60. doi: 10.1177/003368829903000103
- Robb, T. N., & Susser, B. (1989). Extensive reading vs. skills building in an EFL context. *Reading in a Foreign Language*, 5(2), 239-251.
- Robinson, H. M. (2010). A system for understanding and selecting English-language articles for advanced ESL writers. *TESOL Journal*, 1(3), 338-357.
- Rodrigo, V., Krashen, S., & Gribbons, B. (2004). The effectiveness of two comprehensible-input approaches to foreign language instruction at the intermediate level. *System*, 32(1), 53-60.
- Rogers, L. A., & Graham, S. (2008). A meta-analysis of single subject design writing intervention research. *Journal of Educational Psychology*, 100(4), 879-906. doi: 10.1037/0022-0663.100.4.879
- Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin*, 86(3), 638-641. doi: 10.1037/0033-2909.86.3.638
- Santa, C. M., & Høien, T. (1999). An assessment of early steps: A program for early Intervention of reading problems. *Reading Research Quarterly*, 34(1), 54-79. doi: 10.2307/748269
- Sasaki, M., & Hirose, K. (1996). Explanatory variables for EFL students' expository writing. *Language Learning*, 46(1), 137-168. doi: 10.1111/j.1467-1770.1996.tb00643.x
- Schmitt, N. (2008). Review article: Instructed second language vocabulary learning. *Language Teaching Research*, 12(3), 329-363.
- Shanahan, T. (1984). Nature of the reading-writing relation: An exploratory multivariate analysis. *Journal of Educational Psychology*, 76(3), 466-477. doi: 10.1037/0022-0663.76.3.466
- Shanahan, T., & Lomax, R. (1986). An analysis and comparison of theoretical models of the reading-writing relationship. *Journal of Educational Psychology*, 78(2), 116-123. doi: 10.1037/0022-0663.78.2.116
- Sheen, Y., Wright, D., & Moldawa, A. (2009). Differential effects of focused and unfocused written correction on the accurate use of grammatical forms by adult ESL learners. *System*, 37(4), 556-569.
- Sheu, S. P.-H. (2003). Extensive reading with EFL learners at beginning level. *TESL Reporter*, 36(2), 8-26.

- Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, 86(2), 420-428. doi: 10.1037/0033-2909.86.2.420
- Silva, T. (1990). Second language composition instruction: Developments, issues, and directions in ESL. In B. Kroll (Ed.), *Second language writing: Research insights for the classroom* (pp. 11-23). Cambridge, NY: Cambridge University Press.
- Smith, F. (1994). *Writing and the writer*. New York, NY: Routledge.
- Smith, K. (2006). A comparison of "pure" extensive reading with intensive reading and extensive reading with supplementary activities. *The International Journal of Foreign Language Teaching*, 2(2), 12-15.
- Song, J., & Sardegna, V. G. (2014). EFL learners' incidental acquisition of English prepositions through enhanced extensive reading instruction. *RELC Journal*, 45(1), 67-84.
- Song, M.-J., & Suh, B.-R. (2008). The effects of output task types on noticing and learning of the English past counterfactual conditional. *System*, 36(2), 295-312. doi: 10.1016/j.system.2007.09.006
- Spivey, N. N. (1990). Transforming texts constructive processes in reading and writing. *Written Communication*, 7(2), 256-287.
- Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly*, 21(4), 360-407. doi: 10.1598/RRQ.21.4.1
- Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences*. New York: Taylor & Francis.
- Stotsky, S. (1982). The role of writing in developmental reading. *Journal of Reading*, 25(4), 330-340.
- Stotsky, S. (1983). Research on reading/writing relationships: A synthesis and suggested directions. *Language Arts*, 60(5), 627-642.
- Stotsky, S. (1984). Research on reading/writing relationships: A synthesis and suggested directions. In J. M. Jensen (Ed.), *Composing and comprehending* (pp. 7-22). Austin, TX: University of Texas.
- Sun, Y.-C. (2010). Extensive writing in foreign-language classrooms: A blogging approach. *Innovations in Education and Teaching International*, 47(3), 327-339. doi: 10.1080/14703297.2010.498184
- Swain, M. (1985). Communicative competence: Some roles of comprehensible input and output in its development. In S. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 235-253). Rowley, MA: Newbury House.

- Swain, M. (1993). The output hypothesis: Just speaking and writing aren't enough. *Canadian Modern Language Review*, 50(1), 158-164.
- Swain, M. (1995). Three functions of output in second language learning. In G. Cook & B. Seidlhofer (Eds.), *Principles and practice in applied linguistics: Studies in honour of H. G. Widdowson* (pp. 125-144). Oxford: Oxford University Press.
- Swain, M. (2000). The output hypothesis and beyond: Mediating acquisition through collaborative dialogue. In J. Lantolf (Ed.), *Sociocultural theory and second language acquisition* (Vol. 97, pp. 97-114). Oxford, England: Oxford University Press.
- Takase, A. (2007). Japanese high school students' motivation for extensive L2 reading. *Reading in a Foreign Language*, 19(1), 1-18.
- Tanaka, H., & Stapleton, P. (2007). Increasing reading input in Japanese high school EFL classrooms: An empirical study exploring the efficacy of extensive reading. *The Reading Matrix*, 7(1), 115-131.
- Tierney, & Shanahan, T. (1991). Research on the reading-writing relationship: Interactions, transactions and outcomes. In R. Barr, M. L. Kamil, P. Mosenthal & P. D. Pearson (Eds.), *The handbook of reading research* (Vol.2, pp.246-280) (pp. 246-280). Hillsdale, NJ: Erlbaum.
- Tierney, R. J., & Pearson, P. D. (1983). Toward a composing model of reading. *Language Arts*, 60(5), 568-580.
- Truscott, J. (1996). The case against grammar correction in L2 writing classes. *Language Learning*, 46(2), 327-369.
- Truscott, J. (2004). Evidence and conjecture on the effects of correction: A response to Chandler. *Journal of Second Language Writing*, 13, 337-343.
- Truscott, J. (2007). The effect of error correction on learners' ability to write accurately. *Journal of Second Language Writing*, 16(4), 255-272.
- Tsang, W.-K. (1996). Comparing the effects of reading and writing on writing performance. *Applied Linguistics*, 17(2), 210-233. doi: 10.1093/applin/17.2.208
- Tudor, I., & Hafiz, F. M. (1989). From input to intake: The effect of simplified readers on ESL development. *Journal of Reading*, 32(8), 688-693.
- Unrau, N., & Schlackman, J. (2006). Motivation and its relationship with reading achievement in an urban middle school. *Journal of Educational Research*, 100(2), 81-101.
- Wigfield, A., & Guthrie, J. T. (1995). Dimensions of children's motivations for reading: An initial study. *Reading Research Report*, 34.

- Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breath of their reading. *Journal of Educational Psychology*, 89, 420-432.
- Wigfield, A., & Guthrie, J. T. (2000). Engagement and motivation in reading. In M. Kamil, R. Barr, P. Mosenthal & D. Pearson (Eds.), *Handbook of reading research: Volume III* (pp. 403-422). New York: Erlbaum.
- Williams, J. (2004). *Teaching writing in second and foreign language classrooms*. New York, NY: McGraw-Hill.
- Yamashita, J. (2008). Extensive reading and development of different aspects of L2 proficiency. *System*, 36(4), 661-672. doi: 10.1016/j.system.2008.04.003
- Yang, A. (2001). Reading and the non-academic learner: A mystery solved. *System*, 29(4), 451-466.
- Yoshimura, F. (2009). Effects of connecting reading and writing and a checklist to guide the reading process on EFL learners' learning about English writing. *Social and Behavioral Sciences*, 1(1), 1871-1883.
- Zahar, R., Cobb, T., & Spada, N. (2001). Acquiring vocabulary through reading: Effects of frequency and contextual richness. *Canadian Modern Language Review*, 57(4), 541-572.
- Zamel, V. (1992). Writing one's way into reading. *TESOL Quarterly*, 26(3), 463-485. doi: 10.2307/3587174

Vita

In 2000, Juhee Lee graduated from Seoul National University High School. In the same year, she began her undergraduate degree at Seoul National University. While in college, she studied abroad at the University of British Columbia as an exchange student and at the University of Technology in Sydney Insearch program. In 2006, she earned her double Bachelor of Arts degrees with honors in English Language Education and in Ethics Education. From 2006 to 2011, she taught English at a middle school as well as on the Internet, TV, and the radio at the Korean Education Broadcasting System (EBS). While working as a full time teacher, she gained her master's degree in English Language Education at Seoul National University. In September 2011, she joined the doctoral program in Foreign Language Education at the University of Texas at Austin with a Graduate School Recruitment Fellowship and a Korean Government Scholarship. In 2013, she was employed as an assessment graduate assistant in the School of Undergraduate Studies at the University of Texas at Austin. During her doctoral studies, she was awarded a College of Education Continuing Fellowship, Henderson Foundation Scholarships, and Professional Development Awards from UT as well as an American Association of University Women Doctoral Fellowship. Her research interests included second language reading and writing, teaching grammar, learner motivation and attitudes, teaching methods in TESOL, teacher education, and computer-assisted language learning.

Email: juheelee.carpediem@gmail.com

This dissertation was typed by Juhee Lee.