Decoding Skills vs. Reading Fluency in Korean High School EFL Learners’ Reading Comprehension

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Despite the general understanding of the prominent role of basic reading sub-skills, such as decoding abilities and reading fluency, in the reading comprehension of younger and proficient first and second language readers, little is known about the role of these skills in older and less skilled readers in foreign language contexts. The present study was designed to investigate how decoding skills and reading fluency relate to the reading comprehension of such readers, and to identify the relative strengths between the two. Two hundred twenty two Korean high school students participated, and their performance on decoding, reading fluency, and reading comprehension tasks was analyzed. The results showed that both decoding skills and reading fluency were strongly correlated to reading comprehension. Moreover, between the two fundamental reading sub-skills, decoding skills outperformed reading fluency in explaining reading comprehension, making a unique contribution beyond the effects of reading fluency. These findings suggest that a basic skill like word decoding still deserves instructional attention even at the secondary schools in EFL contexts.

Key words: decoding skills, reading fluency, reading comprehension, Korean EFL learners

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1. INTRODUCTION

Since the seventh National Curriculum, which highlighted the use of English as basic interpersonal communicative skills (BICS), was enacted in 2001, communicative approaches mainly focusing on both speaking and listening skills have been widely accepted for English education in Korean elementary schools (Ko, 2010). In this context, reading instruction has been relatively limited to teaching how to differentiate and articulate words correctly while reading. Though included in the national curriculum, an effort to develop students’ decoding ability or to provide explicit phonics instruction has been scarce or, if any, has targeted only younger learners for a very short period of time (Ko, 2012). Without sufficient instruction or training on basic reading skills such as decoding abilities in elementary schools, reading instruction in secondary schools in Korea has largely focused on understanding the grammatical elements and word meanings embedded in the texts or answering comprehension questions, which requires more higher level cognitive skills such as inferencing, discerning cohesive ties, or identifying main ideas (Kim & Shin, 2008). In other words, the fundamental reading sub-skills that are prerequisite for successful reading comprehension, such as decoding abilities and reading fluency, are seemingly expected to have somehow developed by the time students attend secondary schools. However, contrary to this assumption, some high school learners may still have difficulty in reading at the word-level (Chall, Jacobs, & Baldwin, 1991). Thus, there is a great need for research focused on these fundamental but largely overlooked reading sub-skills, and for investigating how they may relate to the reading abilities of Korean secondary school students who may not have had sufficient exposure and practice in developing automaticity in these fundamental skills at earlier stages.

In general, it has been demonstrated that decoding skills play a relatively greater role in younger, or less-proficient readers’ reading comprehension, unlike reading fluency, which gradually takes over the role of decoding skills and plays a bigger role in older and more proficient readers’ reading comprehension (Adlof, Catts, & Little, 2006). Then the question still remains as to whether this general assumption is also applicable to Korean English as a foreign language (EFL) students who have received little formal instruction in these two sets of skills at school and who have little language and literacy input outside school, unlike those in second language contexts. Thus, it is worth reconsidering whether the basic reading skills such as decoding abilities and reading fluency are still significant contributors to Korean secondary school students’ reading comprehension, and what role they each play with respect to each other. This study attempts to explore the role of decoding skills and reading fluency in accounting for reading comprehension abilities of Korean high school EFL learners, and also to confirm which of the two fundamental skills plays a relatively stronger role for this particular population, who is relatively older but less
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proficient in the target language compared to those in previous studies (Garcia & Cain, 2014; Gough, Hoover, & Peterson, 1996; Keenan, Betjemann, & Olson, 2008; Kendeou, van den Broek, White, & Lynch, 2009; Rupley & Wilson, 1997).

2. RELEVANT LITERATURE

2.1. Decoding Skills in Reading Comprehension

Decoding skill is the ability to transform printed words into phonetic codes and to read them accurately (Perfetti, 1985; Stanovich, 1986). Given that accurate word reading is crucial for accurate comprehension, the effects of readers’ decoding skills on their reading comprehension have been the focus of research in both first language (L1) and second language (L2) contexts.

In L1 contexts, there is a consensus that decoding skills make a larger contribution to reading comprehension for younger or less-skilled readers, compared to older or skilled readers (Bell & Perfetti, 1994; Curtis, 1980). Thus, researchers have indicated that decoding ability is a significant predictor of reading comprehension for those in lower grade levels, whose language and literacy abilities have supposedly developed relatively less than those in upper grades. Gough et al. (1996) performed a meta-analysis of 17 previous studies and categorized them into four groups according to the participants’ age: grades 1-2 (Group 1), grades 3-4 (Group 2), grades 5-6 (Group 3), and college (Group 4). The findings of this meta-analysis revealed that significant between-group effects did exist. Although the average correlations between decoding skills and reading comprehension abilities were significantly positive for all four groups, the strength of the relationship decreased with increasing age. In a similar vein, Rupley and Wilson (1997) examined the relationships between word recognition skills and reading comprehension abilities of 8-12 year-old English monolingual children, and showed that the degree to which decoding skills contribute to reading comprehension abilities decreased as children grew older. In addition to the aforementioned studies revealing the importance of decoding skills among younger readers, other studies have shown that decoding skills make a bigger contribution to less-skilled readers’ performance in reading comprehension compared to skilled ones (Bell & Perfetti, 1994; Curtis, 1980). For example, Curtis (1980) examined reading comprehension abilities of both skilled and less-skilled English monolingual readers in second, third, and fifth grades. The findings indicated that decoding skills accounted for more variance in the less-skilled readers’ reading comprehension than for the skilled readers. In short, the majority of the studies of relationships between decoding skills and reading comprehension abilities in L1 contexts have suggested that decoding skills are a
strong contributor to reading comprehension, especially for younger and less-skilled readers who have not yet developed automaticity in word reading skills.

In L2 contexts, on the other hand, little research has been conducted on the effects of decoding skills on reading comprehension abilities, and thus there exists little agreement on the primary role that decoding skills may play specifically in the reading comprehension of lower level L2 learners. While some studies indicated decoding skills as a significant predictor in the reading comprehension of younger students in L2 contexts, as in the case of L1 speakers (Nakamoto, Lindsey, & Manis, 2007), others support the efficacy of decoding skills in older L2 learners’ reading performance (Pasquarella, Gottardo, & Grant, 2012; Rydland, Aukrust, & Fulland, 2012). For example, Nakamoto et al. (2007) studied the growth pattern of decoding skills and reading comprehension with 261 Spanish-speaking English language learners from first to sixth grade longitudinally. They showed that in first and second grade, both decoding skills and reading abilities made remarkable progresses, while in third grade, their reading comprehension began to lag behind that of native English speakers, despite the similarity between the decoding scores of the two groups. Their study also provided evidence that higher-level reading skills rather than decoding skills were required for L2 learners for successful reading comprehension, as for L1 learners, and that L2 reading comprehension was dependent upon decoding skills only at very young age. Pasquarella et al. (2012), on the other hand, showed that decoding skills were a significant predictor for adolescent L2 learners’ reading comprehension, whereas neither vocabulary knowledge nor decoding skills was a significant predictor for L1 adolescent students’ reading comprehension. Similarly, Jeon (2011) demonstrated that a significant role of decoding skills was observed in explaining Korean high school EFL learners’ reading comprehension, accounting for as much as 12% of the unique variance in their reading abilities. This indicates decoding skills as an important contributor to reading comprehension of L2 learners in foreign language contexts as well.

Given the complexity of language and literacy development in L2 contexts itself, age may not be the only major factor in determining the efficacy of decoding skills in reading comprehension of L2 learners. Thus, unlike research conducted in L1 contexts, decoding skills may turn out to be an important predictor of L2 learners’ reading comprehension, irrespective of their age. That is, there may be more than the “age” factor that relates to the changing role of decoding skills in L2 learners’ reading comprehension abilities. One possible explanation might be that L2 learners generally have relatively poor English abilities than L1 learners of the same age. The ability to read written words accurately and efficiently may thus play a significant role in even older L2 learners’ reading comprehension, compensating for its relative weakness in oral language abilities including vocabulary knowledge. However, further research is needed to gain a clearer and more accurate picture of the role decoding skills play in L2 learners’ reading abilities, especially
in foreign language (FL) contexts, since the majority of the research with L2 learners has been conducted in second language (SL) contexts.

2.2. Reading Fluency in Reading Comprehension

Reading fluency has been defined in various ways. While some simply regard reading fluency as rapid reading of words or a passage with accuracy (Jenkins, Fuchs, van den Broek, Espin, & Deno, 2003; Kim, Park, & Wagner, 2014), others expand the concept of reading fluency to include the ability to read the text rapidly, accurately, and with prosody or simultaneous comprehension (Grabe, 2010; Rasinski, Samuels, Hiebert, Petscher, & Feller, 2011). According to the latter perspective, reading quickly and accurately without understanding the read materials is meaningless. Most studies on reading fluency in both L1 and L2 contexts, however, have adopted a limited view of reading fluency and have used reading fluency measures that assess only speed and accuracy of oral reading, and have not considered the comprehension element. As Kang (2011) argues that “reading fluency is more than reading with speed and accuracy, as it also includes the ‘comprehension’ component at the word- and sentence-level, albeit not at the discourse level” (p. 88), the expanded definition of reading fluency including reading accuracy, speed, and comprehension is adopted in this study. In addition, the present study focuses on reading fluency at the text level as opposed to the word level, in order to consider reading fluency that is distinct and independent from decoding skills as much as possible.

In general, reading fluency has been identified as one of prerequisite skills for successful reading comprehension of L1 readers of many different languages, including English (Jenkins et al., 2003; Kim et al., 2014; Klauda & Guthrie, 2008; Paleologos & Brabham, 2011; Spear-Swerling, 2006). Klauda and Guthrie (2008), for example, demonstrated that reading fluency had significant predictive power in reading comprehension of English-speaking fifth graders. In an attempt to conduct a comprehensive examination of the role of reading fluency, they assessed reading fluency at three different levels: word, syntactic, and passage. The measure of reading fluency at the passage level also assessed the students’ ability to read with appropriate prosody. Their results illustrated that each fluency measure was significantly correlated to reading comprehension, implying a close relationship between overall reading fluency, measured from various perspectives, and reading comprehension. Among studies conducted with speakers of languages other than English, Kim et al. (2014) investigated to what extent L1 Korean kindergartners’ Korean text reading fluency was interrelated with their reading comprehension, and identified a unique contribution of text reading fluency to reading comprehension in Korean as well. Interestingly, they accounted for language-specific properties of Korean and measured reading fluency at both word- and syllable-level, and obtained identical results.
Although relatively less research attention has been paid to the role of reading fluency in reading comprehension in L2 contexts, the few available studies have commonly identified reading fluency as a major contributor to L2 reading comprehension as well (Gorsuch & Taguchi, 2010; Jeon, 2012; Jiang, Sawaki, & Sabatini, 2012; Kieffer, Biancarosa, & Mancilla-Martinez, 2013; Saiegh-Haddad, 2003; Taguchi, Gorsuch, & Sasamoto, 2006; van Gelderen, Schoonen, Stoel, de Glopper, & Hulstijn, 2007). For instance, Kieffer et al. (2013) found a strong correlation between passage reading fluency and reading comprehension in an experiment with kindergarten to eighth grade Spanish-speaking English L2 (English as a second language: ESL) learners in the US. In a foreign language context, in contrast to second language learning contexts, van Gelderen et al. (2007) conducted a study with Dutch students from eighth to tenth grade, exploring both L1 (Dutch) and L2 (EFL) reading comprehension, and showed that L2 reading fluency as measured by sentence verification task, significantly accounted for L2 reading comprehension. Similarly, Jeon (2012) investigated the role of reading fluency with Korean high school EFL learners, and demonstrated that their oral passage reading fluency contributed significantly to reading comprehension in English. However, given the paucity of research on the relationship between reading fluency and reading comprehension with L2 learners in general, and Korean EFL learners in particular (Jiang et al., 2012; Taguchi et al., 2006), further studies are needed in order to gain more insights into the potential facilitative role reading fluency plays in the reading development of L2 learners.

2.3. Decoding Skills vs. Reading Fluency in Reading Comprehension

Although both decoding skills and reading fluency are considered necessary for successful reading comprehension, there exists little consensus on the relative importance between the two. Some studies have shown that decoding skill is a relatively stronger predictor of reading comprehension (Adlof et al., 2006; Goldberg, Eason, Ryan, & Cutting, 2010; Padeliadu & Antoniou, 2014). For instance, Adlof et al. (2006) showed that decoding skill was the strongest contributor to reading comprehension of English-speaking students in lower grade levels while its predictive power gradually became weaker as students moved to higher grades. Reading fluency, on the other hand, remained a weaker predictor compared to decoding skills regardless of the students’ grades. Similarly, Padeliadu and Antoniou (2014) demonstrated that decoding skills had stronger predictive power than reading fluency in lower grade levels in explaining reading comprehension of Greek monolingual students, but showed discrepant findings, in that this pattern changed from the fifth grade. That is, reading fluency gradually became a relatively stronger contributor to reading comprehension in the upper grades. On the other hand, several other studies have shown that reading fluency outperforms decoding skills in its predictive power for reading
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comprehension (Jenkins et al., 2003; Shinn, Good, Knutson, Tilly, & Collins, 1992) or explained additional variance in reading comprehension beyond the effects of decoding skills (Tilstra, McMaster, van den Broek, Kendeou, & Rapp, 2009). For example, Tilstra et al. (2009) revealed that reading fluency contributed additional unique variance in English L1 fourth, seventh, and ninth graders’ reading comprehension after controlling for the effects of decoding skills, listening comprehension, and verbal proficiency.

As such, previous studies have yielded inconclusive results regarding the relative importance of decoding skills and reading fluency in relation to reading comprehension abilities, leading to various hypotheses about these discrepancies in different studies. One such hypothesis is that the discrepancies are related to learners’ age or language proficiency (Crosson & Lesaux, 2010; Riedel, 2007; Wiley & Deno, 2005). That is, as learners grow older and develop their language proficiency, reading fluency comes to play a more significant role in reading comprehension, whereas the role of decoding skills gradually decreases. However, some studies do not support this explanation (Adlof et al., 2006; Tilstra et al., 2009), as only age or language proficiency does not seem to fully explain this divergence. These differences in research findings, though, could be accounted for by a number of methodological differences in the previous studies. In fact, researchers have contended that readers’ performance varies depending on how reading comprehension is measured (Cutting & Scarborough, 2006; Nation & Snowling, 1997; Spear-Swerling, 2004). For example, Cutting and Scarborough (2006) explained that decoding skill was more strongly related to a cloze-type reading comprehension test than to a multiple-choice type of test, while reading fluency showed a weaker unique contribution to a cloze-type test than to a multiple-choice comprehension test. Most studies in L1 contexts have administered multiple-choice tests in assessing learners’ comprehension, except for Adlof et al. (2006), who adopted both types of tests.

Most previous studies on the relative predictive power between decoding skills and reading fluency for reading comprehension have focused on L1 readers, and relatively less research attention has been paid to L2 readers. Some studies in L2 contexts, albeit limited, have demonstrated that reading fluency is a stronger predictor of reading comprehension than decoding skills (Crosson & Lesaux, 2010; Geva & Farnia, 2012; Jiang et al., 2012; Kim, 2012). For instance, Crosson and Lesaux (2010), in their study with Spanish-speaking ESL fifth graders, showed that reading fluency remained as a significant contributor to reading comprehension, even when the effects of word decoding skill were controlled for. Similar patterns have been observed with EFL learners in China (Jiang et al., 2012) and Korea (Kim, 2012). Kim (2012), for instance, demonstrated that decoding skill was not a statistically significant contributor to English reading comprehension abilities of Korean EFL learners, while oral reading fluency was. On the other hand, Proctor, Carlo, August, and Snow (2005) showed that decoding skill affected reading comprehension of
Spanish-speaking fourth grade ESL students, while reading fluency did not. However, reading fluency, in their study, was measured only at the discrete word level. Thus, there is not sufficient research evidence for the relative importance of decoding skills and sentence- or text- level fluency in L2 reading comprehension.

In general, further studies regarding the relationship among decoding skills, reading fluency, and reading comprehension of L2 learners, especially those in foreign language contexts and in upper grades, are in great need in order to develop a more conclusive picture of reading development in L2. Thus, this study aims to investigate the relationship among (1) decoding skills; (2) reading fluency, considering not only reading speed and accuracy at text-level but also simultaneous comprehension of read material; and (3) reading comprehension among Korean high school EFL students. In doing so, the relative role decoding skills and reading fluency play in their English reading comprehension will also be examined. More specifically, this study focuses on the following research questions:

1. How do English decoding skills and reading fluency relate to reading comprehension abilities of Korean high school EFL students?
2. Between English decoding skills and reading fluency, which is a stronger predictor of Korean high school EFL students’ reading comprehension?

3. METHODOLOGY

3.1. Participants

Two hundred twenty two Korean EFL learners in their second year of high school (11th grade) participated in the study. Data were gathered from two different school sites. Of the 222 participants, 129 students were enrolled in a boys’ high school located in Kyeonggi-do, and the other 93 students were attending a girls’ high school in Gwangju, Jeollanam-do. Although all participants were in the same grade and had been learning English for three hours per week in their respective schools, there was a great difference in their English proficiency according to the schools they attended. The Preliminary Korean Scholastic Aptitude Test (PKSAT) scores of the participants from the boys’ high school ranged from the top 4th percentile to the 96th percentile, while those from the girls’ high school ranged from the top 4th percentile to the 17th percentile. There was also a large gap in the mean PKSAT raw scores between the two schools: 44.91 and 88.29 for the boys’ and girls’ high school, respectively. However, since this study does not aim to investigate group differences between different schools, areas, or genders, but rather, to detect a general trend
in the reading comprehension of EFL learners in Korea, the diversity and variance in the participants’ English language proficiency ensured sufficient variation in the reading measures, which in turn enabled a comprehensive analysis of their reading abilities.

3.2. Measures

3.2.1. Reading fluency test

English reading fluency was measured with the Reading Fluency subtest of the standardized *Woodcock-Johnson III Diagnostic Reading Battery* (WJIII, Woodcock, Mather, & Schrank, 2004). On this test, students were asked to read given sentences quickly and accurately and to verify the veracity of the sentences by circling “yes” or “no.” For example, for the sentence, “A mouse can fly,” the correct answer is “no.” The sentences were ordered in terms of increasing complexity and length. There were 98 test items in total with a three-minute time constraint. Total scores were calculated by counting the number of correct answers. The test-retest reliability of .88 was reported by Woodcock, Mather, and Schrank (2004).

3.2.2. Decoding test

The Word Decoding subtest of the standardized *Gates-MacGinitie Reading Test* (GMRT; MacGinitie, MacGinitie, Maria, & Dreyer, 2000) was utilized to measure the decoding ability of the students. There were 43 test items on the test and each correct answer received one point, with a possible range of score from zero to 43. Students were told to choose one correct word that matches the picture from four answer choices, e.g., for a picture of a peach, the students were to select one correct answer among four choices of “perch,” “peace,” “peak,” and “peach.” The reliability coefficient (Kuder-Richardson) was reported as .94 (MacGinitie et al., 2000).

3.2.3. Reading comprehension test

In order to measure the students’ general reading comprehension abilities, the Reading Comprehension subtest of the standardized *Woodcock Reading Mastery Test-Revised* (WRMT-R, Woodcock, 1998) was administered. Fifty-three questions were administered in total, and one point was credited for each correct answer, and a possible score range from zero to 53. The test employed a form of a cloze test, and the students were instructed to read a sentence or a passage and write the proper words in the blank to complete the unfinished sentences. The reported split-half reliability (Woodcock, 1998) was .92.
3.2.4. PKSAT (Preliminary Korean Scholastic Aptitude Test)

In measuring the students’ general reading proficiency in English, the Preliminary Korean Scholastic Aptitude Test (PKSAT) was used. The raw score of the participants’ PKSAT was taken into account as a control variable in this study, in controlling for their general reading proficiency.

3.2.5. Oral comprehension test

A test of the participants’ general oral language abilities in English was included to serve as a control variable. General oral comprehension abilities are considered one of the primary components of reading, and its strong contribution to L1 and L2 reading has been widely acknowledged (Adlof et al., 2006; Gough & Tunmer, 1986; Hoover & Gough, 1990; Proctor et al., 2005). Thus, in order to examine the unique predictive role decoding skills and reading fluency play in explaining reading comprehension beyond the effects of oral comprehension abilities, this variable was included in the present study as a control variable along with the aforementioned PKSAT score. The Oral Comprehension subtest of the standardized Woodcock-Johnson III Diagnostic Reading Battery (WJIII, Woodcock et al., 2004) was used to assess students’ oral comprehension. On this test, the students listened to tape-recorded passages in order of increasing difficulty. Each passage had one missing word, and the students were asked to provide an appropriate response. For instance, for the cloze, “Candy tastes ______,” the correct answer is “good” or “sweet.” The total number of questions was 34, and each correct response scored one point. The reported test-retest reliability is .88 (Woodcock et al., 2004).

3.3. Procedures

Each of the tests was administered during regular class times under the teachers’ supervision. Before each test, the teachers provided full explanations as to how it would proceed, with a couple of practice items. Students were required to complete all tests within given time limits. The testing time ranged from 10 to 20 minutes, depending on the requirements outlined by each test publisher.
4. RESULTS

The means and standard deviations for scores on each measure (reading comprehension, decoding, reading fluency, Preliminary Korean Scholastic Aptitude Test, and oral comprehension) are reported in Table 1. The average score on the reading proportion of the PKSAT is 63.08. The students correctly answered 26 items out of 53 questions, on average, on the reading comprehension test, correctly answered 35.59 out of 43 questions on average on the decoding test, and scored 61 out of the possible 98, on average, on the reading fluency test. There was a large variation ($SD = 26.03$) in the reading fluency test. That is, unlike the measures of reading comprehension and decoding skills on which most of the participants seemed to do uniformly well, a relatively large distribution in the reading fluency scores was detected.

| TABLE 1 |
| Descriptive Statistics for the Variables Examined |
|----------|----------|----------|----------|
| Min. | Max. | M  | SD  |
| Reading Comprehension | 0 | 47 | 26.00 | 7.64 |
| Decoding | 14 | 43 | 35.59 | 5.90 |
| Reading Fluency | 13 | 98 | 61.11 | 26.03 |
| PKSAT | 2 | 100 | 63.08 | 26.17 |
| Oral Comprehension | 0 | 17 | 6.94 | 3.89 |
| Note. $N = 222$. PKSAT = Preliminary Korean Scholastic Aptitude Test. |

In order to discern any potential relationships among the variables, correlation analyses were conducted. As can be seen in Table 2, all variables (oral comprehension, decoding, reading fluency, and the PKSAT scores) were significantly and positively correlated to reading comprehension. Among them, the two variables, oral comprehension and PKSAT, were more strongly correlated to reading comprehension than the others ($r = .54$ and .52, respectively). The correlations of the two remaining variables, English decoding skill and reading fluency, to reading comprehension were comparable, ($r = .46$ and .47, respectively). In addition, it is worth noting that all the variables were significantly and positively correlated with one another, suggesting that all English skills measured in the present study were closely interrelated.
In examining the relative predictive power of decoding skills and reading fluency on reading comprehension, when controlling for the participants’ general English proficiency and oral comprehension abilities, two sets of hierarchical regression analyses were conducted. As seen in Table 3, PKSAT and oral comprehension test scores were entered in the first step, as control variables. When decoding skills and reading fluency were entered in Step 2 and 3, respectively, decoding skills accounted for an additional 1.8% ($p < 0.01$) of reading comprehension. On the other hand, reading fluency ($p = .240$) was not a significant predictor of reading comprehension, when controlling for decoding skills as well as their general English proficiency. In other words, reading fluency did not contribute any additional unique variance to reading comprehension once the effects of decoding skills were accounted for.

Then, in order to examine whether decoding abilities account for any additional variance in reading comprehension on top of reading fluency, another hierarchical regression analysis was conducted with the order of entry at Step 2 and 3 reversed (see the bottom panel of Table 3). The result indicates that decoding skills still make a unique contribution, explaining an additional 1.7% ($p < 0.05$) of the variance in reading comprehension, beyond the effects of reading fluency. The contribution of reading fluency ($p = .189$) was not statistically significant even when the effects of decoding skills were not controlled for. In other words, reading fluency did not turn out to be a significant predictor of the Korean high school EFL students’ reading comprehension, irrespective of their decoding skills.

In short, about 34% of the variance in reading comprehension was explained by PKSAT scores, oral comprehension abilities, decoding skills, and reading fluency in English. Both English decoding skills and reading fluency were significantly correlated to reading comprehension, and reading fluency seemed to have stronger correlations to reading comprehension, compared to decoding skills. However, only decoding skills turned out to be a significant predictor of Korean high school EFL learners’ reading comprehension, when their general English proficiency was controlled for, whereas reading fluency did not. This indicates that English decoding skill is a better predictor of successful reading comprehension than reading fluency for Korean high school EFL learners. Thus, in general,
those who were good decoders of English words, for example, were more likely to perform better on reading comprehension in English.

**TABLE 3**

<table>
<thead>
<tr>
<th>Steps</th>
<th>Variables</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>$\Delta F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>PKSAT &amp; Oral Comprehension</td>
<td>.410</td>
<td>.410</td>
<td>76.172***</td>
<td>.000</td>
</tr>
<tr>
<td>2</td>
<td>Decoding</td>
<td>.428</td>
<td>.018</td>
<td>6.754**</td>
<td>.009</td>
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<tr>
<td>3</td>
<td>Reading Fluency</td>
<td>.432</td>
<td>.004</td>
<td>1.388</td>
<td>.240</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.735</td>
<td>.189</td>
</tr>
<tr>
<td>2</td>
<td>Reading Fluency</td>
<td>.415</td>
<td>.005</td>
<td>1.735</td>
<td>.189</td>
</tr>
<tr>
<td>3</td>
<td>Decoding</td>
<td>.432</td>
<td>.017</td>
<td>6.376*</td>
<td>.012</td>
</tr>
</tbody>
</table>

*Note. PKSAT = Preliminary Korean Scholastic Aptitude Test. *$p < .05$. **$p < .01$. ***$p < .001$.*

5. **DISCUSSION & CONCLUSION**

This study was designed to investigate the relationship among the key sub-components of reading abilities, namely decoding skills, reading fluency, and reading comprehension of Korean high school EFL students, and to discern the relative importance of decoding skills and reading fluency, in predicting their reading comprehension abilities when their general English proficiency is taken into consideration. The findings from this study indicated that decoding skills and reading fluency both significantly correlated with the students’ performance on reading comprehension. Yet, with respect to the second research question, decoding skill was identified as having more significant predictive power than reading fluency in explaining their reading comprehension outcomes.

The significant relationship found for both decoding skills and reading fluency with reading comprehension is in a similar vein with previous research findings with both L1 and L2 readers (Jeon, 2012; Kieffer et al., 2013; Padeliadu & Antoniou, 2014; Quirk & Beem, 2012; Silverman, Speece, Harring, & Ritchey, 2013). However, the relatively greater significant role of decoding skills compared to reading fluency in predicting reading comprehension abilities of the Korean EFL learners is not in accordance with most of the previous studies conducted with either L1 or L2 readers (Crosson & Lesaux, 2010; Geva & Farnia, 2012; Jenkins et al., 2003; Jiang et al., 2012; Kim, 2012; Shinn et al, 1992). While other previous studies have mostly identified the prominent contribution of reading fluency to reading comprehension for students in higher grades or for relatively advanced readers’, the present study with Korean high school EFL students, who are relatively older and less proficient in English compared to the participants in the previous studies, showed that it was decoding skills that played a more prominent role in their reading comprehension performance in English.
This particular finding, then, could be in accordance with another body of previous research which has attributed L2 readers’ overreliance on decoding skills to their relatively less developed English proficiency (Nakamoto et al., 2007; Pasquarella et al., 2012). According to this perspective, L2 readers with under-developed language proficiency, compared to L1 readers who have supposedly developed their language skills from infancy, tend to rely more on word reading skills, since they do not have sufficient oral language resources to support spontaneous comprehension of the read materials, or because they have not yet developed automaticity in decoding skill to the extent that it does not interfere with their reading process. For instance, Pasquarella et al. (2012) compared L1 adolescents’ reading comprehension to that of L2 adolescent learners’, and showed that it was decoding skills that explained individual differences in L2 readers’ reading comprehension, while this was not the case for L1 readers. The researchers explained this group difference in terms of the degree to which each group of readers had developed decoding skills. For the L2 learners in their study, their decoding skills were neither as accurate nor as fluent as for the L1 readers. Thus, unlike L1 readers, a greater role for decoding skills was required in L2 readers’ reading comprehension to compensate both for their relatively limited English language proficiency and for their relatively less accurate and efficient word reading abilities. This hypothesis may apply to the similar results found in the present study with Korean high school EFL learners whose English proficiency may not have sufficiently developed to the extent that it ensures efficient reading comprehension.

On the other hand, the present study also indicated that even upper-level L2 readers, who have supposedly already acquired basic L2 reading skills, were largely dependent on decoding skills in their reading comprehension, when reading comprehension was measured with a cloze-type test. Since previous studies have shown that the relationship between readers’ performance on various reading sub-skills and reading comprehension is dependent upon the types of reading comprehension tests (Cutting & Scarborough, 2006; Nation & Snowling, 1997; Spear-Swerling, 2004), further studies are warranted in order to arrive at a firm conclusion regarding L2 readers’ reliance on particular reading skills, such as decoding skills as in the case of present study.

In addition, another methodological difference in this study, compared to others, is the reading fluency measurement. Most previous studies measured reading fluency only in terms of reading speed and accuracy, and did not consider simultaneous comprehension of efficiently read materials, or prosody, while this study did. This difference in the fluency measurement might have led to these differences in the research findings. Generally speaking, reading fluency refers to the ability to read texts quickly and accurately. However, if a reader can read rapidly and accurately, but fails to comprehend the meaning of the texts s/he reads at the same time, s/he cannot be regarded as a fluent reader, but is simply a
“word caller” (Hamilton & Shinn, 2003). Thus, this study further highlights the importance of capturing the full meaning of reading fluency in assessing its role in the readers’ overall reading comprehension processes.

The discrepancies found between the present study and the previous research, which can be largely explained by the language proficiency of the readers and the differences in the measurement of relevant reading sub-skills, point to the need of further studies in order to reach a more precise understanding of the patterns of L2 learners’ reading comprehension development. Moreover, in order to examine not only the direct effects of reading sub-skills on reading comprehension, but also their indirect effects, further studies using other analytic approaches such as a structural equation modeling seem to be in need (Silverman et al., 2013). Nonetheless, this study has provided important information regarding the role of decoding skills and reading fluency in the reading comprehension of even older L2 learners in foreign language contexts, and further highlights the need to develop both their decoding skills to facilitate efficient reading comprehension, and at the same time language proficiency in general to promote reading fluency. In addition, given that the efficiency of decoding instruction was proven in L2 contexts for relatively older learners as well (Dai & Liu, 2012; Fukkink, Hulstijn, & Simis, 2005), the findings of the present study also suggest the need of extensive training on decoding skills for better reading instruction even within secondary EFL curricula in Korea. In other words, it seems that a certain amount of time needs to be set aside to teach decoding skills or to promote reading accuracy for secondary school Korean EFL learners, irrespective of their English proficiency level, especially since the primary focus of high school English classes is on developing students’ reading comprehension abilities. For this purpose, widely implemented practices such as oral language fluency (ORF) training and Curriculum Based Measurement (CBM) at both word- and text-level could be adopted, as is already the case in the US. In doing so, however, considerations for students’ reading proficiency should be taken into account, as decoding accuracy and fluency at different levels (word- vs. text-level) have differential effects on reading comprehension abilities depending on students’ reading abilities (Crosson & Lesaux, 2010; Fuchs, Fuchs, Hosp, & Jenkins, 2001; Jenkins et al., 2003). On the whole, development in decoding skills should not be taken for granted either in elementary or secondary schools in the Korean EFL context in promoting successful reading comprehension abilities, and deserves much instructional and research attention.

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