Developing a Structural Model of EFL Reading Achievement for Korean High School Students*

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The purpose of the study was to investigate the causal relationships among factors affecting L2 reading achievement using a structural equation modeling (SEM) analysis. A total of 327 Korean EFL high school students completed a questionnaire on L2 reading motivation and strategies. The students' L2 listening and reading comprehension abilities were measured by scores on the practice test for Scholastic Aptitude Test (PSAT) and self-assessed listening and reading proficiency. The study results showed that the students' L2 reading efficacy, L2 reading strategy use, and L2 listening skills were significant predictors of their L2 reading achievement, while L2 reading motivation showed no significant relation with reading achievement. The nonsignificant path loading between reading motivation and reading achievement implies that reading motivation alone is not sufficient to promote students' L2 reading proficiency. The final SEM model indicated a relatively strongest contribution of L2 listening ability over L2 reading efficacy and strategy use to L2 reading achievement. Pedagogical implications based on the findings are discussed.

Key words: L2 reading motivation, L2 reading strategies, L2 listening skills, L2 reading achievement

1. INTRODUCTION

In second or foreign language (L2) reading research, it is generally acknowledged that L2 reading comprehension is a complex process, requiring the interplay of multiple factors and skills. Numerous studies have been conducted to identify predictors of reading abilities in L2 learners (Kang, Choi, Lee, & Nam, 2011; Kim, 2012; Nation, 2006; Shin & Kim,

2012; Song, 2001; Sparks, Patton, Ganschow, & Humbach, 2012). Quite a few studies have shown that various first language (L1) and L2 linguistic and cognitive skills such as L2 aptitude, working memory, vocabulary and grammar knowledge, background knowledge, and L1 and L2 reading skills contribute to L2 reading comprehension (e.g., Alptekin & Erçetin, 2009; Gürkan, 2012; Joh, 2004; Kim, 2011; Lee & Schallert, 1997; Mecartty, 2000; Nassaji, 2007; Park, 2004). However, few studies have examined reading comprehension in relation to L2 reading motivation (Kim, 2011; Sparks, Patton, Ganschow, & Humbach, 2011; Takase, 2007). Moreover, these studies have been conducted predominantly with college students (cf., Ahn, 2010). Thus, there is a need to examine the factors that influence the reading comprehension of L2 learners in lower grades such as middle or high school students.

At the same time, L2 learners' strategy use has been regarded as another important and distinct predictor of reading comprehension across multiple studies (Barnett, 1988; Carrell, 1989, 1991; Lin & Yu, 2013; Song, 1999). Research findings on L2 reading strategy use including metacognitive awareness have contributed to both clarifying the complexity of the reading process and improving L2 reading instruction (Matsumoto, Hiromori, & Nakayama, 2013; Stevenson, Schoonen, & de Glopper, 2007). However, strategy-related research has mainly focused on the cognitive process of L2 reading and has been often contrasted with another L2 reading factor that emphasizes the effects of emotions (i.e., reading motivation). While a few studies on L2 learning strategy use and learning motivation have provided suggestions about the potential relationships between L2 reading strategy use and reading motivation (e.g., O'Malley & Chamot, 1990; Oxford & Nyikos, 1989), less attention has been paid to the relationship between the two in terms of L2 reading. Thus, the exact nature of the relationships between L2 reading strategy use and motivation remains unclear.

On the other hand, a few studies have examined L2 reading comprehension in relation to other L2 skills such as listening and writing (Droop & Verhoeven, 2003; Kang et al., 2011; Kim, 2012; Lesaux, Crosson, Kieffer, & Pierce, 2010; Sparks et al., 2011). The authors of these studies found that L2 decoding and oral skills and listening comprehension all positively related or contributed to reading outcomes. However, the research participants of all these aforementioned studies, except for Sparks et al.'s (2011) study of high school students, were elementary school students, thereby prompting researchers to consider more investigations involving various levels of L2 learners. To my knowledge, furthermore, no studies have explored the causal relationship by examining the question of whether L2 reading motivation, L2 strategy use, and L2 listening skills could play a causal role in L2 reading comprehension.

The purpose of the present study was to examine the relations of L2 reading motivation, strategy use, and listening comprehension skills to L2 reading comprehension for a sample

of Korean English as a foreign language (EFL) learners. Specifically, the effects of L2 reading motivation, strategy use, and listening comprehension skills on L2 reading comprehension were investigated using structural equation modeling (SEM).

2. THEORETICAL BACKGROUND

2.1. Relations of L2 Reading Motivation to Reading Comprehension

A number of researchers have speculated that several factors affect learners' development of L2 reading abilities and have also highlighted the multi-faceted nature of L2 reading comprehension. For example, Cummins (1979) developed the linguistic interdependence hypothesis, in which he claimed that L1 skills can be transferred only when L2 learners have attained a threshold of L2 competence. Researchers investigating Cummins' hypothesis have provided evidence for the interdependence of L1 and L2 reading skills and the existence of a threshold level of L2 proficiency in L2 reading (Droop & Verhoeven, 2003; Lee & Schallert, 1997; Song, 2001).

On the other hand, there have been only a few attempts to examine reading comprehension in relation to L2 reading motivation. Mori (2002) investigated Japanese college students' reading motivation and identified four sub-components of L2 reading motivation (intrinsic and extrinsic motivation, importance of reading, and reading efficacy). More recently, Kim (2011) found that L2 learners' perceptions about the goals to be achieved by learning an L2 played a crucial role in motivating them to read in the L2. She interpreted from this finding that the nature of this type of motivation is closely linked to the concepts of Gardner's (1985) instrumental motivation. Kim's (2011) study also demonstrated that intrinsic motivation ($r = .352$) and avoidance ($r = -.270$) were significantly related to L2 reading proficiency for the non-English majors group. It is understandable that students with higher L2 reading proficiency would feel more confident in their L2 reading ability and would thus be less likely to avoid reading challenging L2 texts and more likely to enjoy L2 reading in general. By contrast, students with lower levels of L2 reading proficiency would be more likely to avoid L2 reading activities due to their lack of L2 reading proficiency and sense of efficacy. Although such findings are in line with other research suggestions (Sparks et al., 2011; Takase, 2007) and provide evidence for the relationship between reading motivation and L2 reading achievement, definitive statements about these findings cannot yet be made. These studies examined intercorrelations to assess the strength of the relations between reading motivation and L2 reading achievement without reference to other factors that influence L2 reading proficiency, thereby limiting the generalizability of the findings. More systematic

investigations are necessary in order for us to fully understand a possible causal relationship between reading motivation and L2 reading comprehension.

2.2. Relations of L2 Strategy Use to Reading Comprehension

The relationships between L2 reading strategy use and reading comprehension have been examined in the L2 literature. Studies have shown that L2 learners' use of strategy and perception of their own reading process and strategy use (i.e., metacognitive awareness) are necessary components for successful reading comprehension (Barnett, 1988; Carrell, 1989; Ham, 2002; Song, 1999). It appears that reading strategy use facilitates L2 reading comprehension. However, as Ham mentioned, the contribution of strategy to L2 reading achievement was so little ($\beta = .034$) that the inclusion of strategy in predicting reading achievement made no difference in the R squares. Nonetheless, when strategy alone was analyzed to predict reading achievement, the R square was statistically significant ($R^2 = .174$). Accordingly, it is necessary to accurately assess the relationships between these two related constructs.

It has been shown that differences exist in reading strategy use based on L2 reading proficiency (Lin & Yu, 2013; Stevenson et al., 2007). While some studies have grouped L2 reading strategies into a single dimension for testing a reading model (e.g., Ham, 2002; Song, 1999), Lin and Yu (2013) identified and classified L2 reading strategies into three sub-categories: meta-cognitive, cognitive, and support strategies. Stevenson et al. (2007) used a three-dimensional strategy scheme: orientation of processing (i.e., whether strategies are directed toward content or language), type of processing (i.e., whether strategies involve regulating the reading process), and linguistic domain processing (i.e., whether strategies are directed toward text elements). Learners with low L2 reading skills relied more on bottom-up strategies (i.e., L1 translation strategy, language-oriented strategy), whereas more proficient L2 readers tended to use top-down strategies (i.e., metacognitive strategy, support strategy) and adjusted their reading rates. Although a large body of research has found positive relationships between learning strategy use and L2 achievement, only a few studies have explored the causal relationship between the two constructs by examining whether L2 reading strategy use can have a direct or indirect effect on L2 reading comprehension.

2.3. Relations of L2 Listening Skills to Reading Comprehension

Recent studies in L2 learning have supported the linguistic threshold hypothesis that L2 proficiency is important for L2 reading achievement (Alderson, 2000; Droop & Verhoeven, 2003; Lee & Schallert, 1997; Song, 2001; Sparks et al., 2011). More specifically, Droop

and Verhoeven (2003) examined the contributions of various L2 skills to L2 reading comprehension and found that speed and accuracy of decoding, vocabulary knowledge, and listening comprehension were all significant predictors of L2 reading achievement among language minority students in the Netherlands. Furthermore, similar to the pattern shown in Droop and Verhoeven's (2003) study, oral language skills (i.e., L2 vocabulary and listening comprehension) emerged as a strong, significant predictor of L2 reading comprehension outcomes (Lesaux et al., 2010). Sparks et al. (2011) also found that three factors, namely, self-perceptions of language skills (i.e., L2 affect), phonology and orthography skills (i.e., spelling), and language analysis (i.e., listening comprehension), were significant in predicting L2 reading comprehension. Kim (2012) demonstrated that learners' oral language skill in the L2 was uniquely and directly related to their L2 reading comprehension over and above L2 reading fluency and L1 literacy skills.

FIGURE 1

Hypothesized Path Model of L2 Reading Comprehension
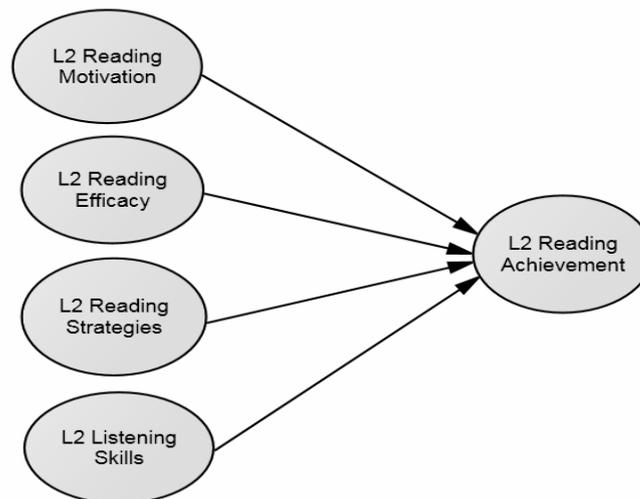
On the other hand, in the Korean EFL context, Kang et al. (2011) hypothesized a model considering not only the role of L2 word decoding and listening comprehension abilities but also L2 learning experiences (i.e., overseas experience) in L2 reading comprehension. The findings demonstrated that L2 decoding skills and listening comprehension and overseas experience all played important roles in predicting L2 reading comprehension. Their research demonstrated that L2 listening comprehension skills ($R^2 = .242$), although a significant predictor, were less predictive of L2 reading comprehension than L2 decoding skills ($R^2 = .352$) when controlling for each other's effects. Such findings are somewhat

different from Droop and Verhoeven's (2003) finding that the contribution of L2 listening skills to reading was the strongest among all factors considered.

Taken together, the findings described in the aforementioned research studies suggest that L2 reading motivation, strategy use, and listening comprehension have predictive power in L2 reading comprehension outcomes. These findings guided the development of the hypotheses and analyses in the present study. The present study extended previous quantitative studies and performed an SEM analysis to build an L2 reading model for Korean EFL high school students.

A path model of L2 reading comprehension was hypothesized based on a review of previous research findings. As shown in Figure 1, the present study hypothesized that L2 reading motivation, reading efficacy, use of reading strategies, and listening comprehension skills would each explain a significant portion of L2 reading comprehension outcome variance when included in a single model. Unlike in several previous studies (e.g., Matsumoto et al., 2013; Mori, 2002; Takase, 2007; Wigfield & Guthrie, 1997), motivation and self-efficacy in this study were considered separate variables, since self-efficacy can affect motivation or vice versa in both positive and negative ways (Kim, 2011). Although interactive relationships among the variables were expected, the arrows in the model were unidirectional, since a path analysis cannot examine reciprocal relationships.

3. RESEARCH DESIGN

3.1. Participants

The participants were 327 Korean high school students who were learning EFL. They had started learning English from the 3rd grade, and thus they had been studying English as a compulsory school subject for at least seven years through their elementary and middle school education. Demographically, about 64% (n = 210) were female, 49% (n = 161) were in 10th grade, and the remaining students were in 11th grade. When asked to rate their own English reading proficiency, 39% (n = 128) reported their level as medium, 35% (n = 113) as not good (n = 96) or very poor (n = 17), and 26% (n = 86) as good (n = 78) or very good (n = 8). Among the total sample, 77% (n = 252) reported that they did not read in English unless it was required as homework. While 84% (n = 276) did not like reading books in English, 41% (n = 135) considered reading skills as the most important ability in learning English. With regard to the willingness to read more English books other than textbooks when they had spare time, 71% (n = 231) of the students did not show an interest.

3.2. Materials

To obtain data for meeting the research aim, a questionnaire consisting of several subsets of items was developed based on previous L2 reading studies (e.g., Kim, 2011; Matsumoto et al., 2013; Sheory & Mokhtari, 2001). The final items in the questionnaire were confirmed by the iterative procedure of item analysis. For example, if an item had a low or negative item discrimination value, it was excluded from the subscale. A total of 30 items were rated on a 5-point Likert scale with values ranging from 1 = "strongly disagree" to 5 = "strongly agree" (See the Appendix). Table 1 presents information about each subset of items.

TABLE 1

Item Subsets and Reference Information

Scale	Indicator	Number of Items	Items	Reference(s)
L2 reading strategy	Main idea	4	1, 11, 12, 13	Matsumoto et al. (2013)
	Monitoring	4	2, 3, 4, 5	
	Adjusting	4	6, 7, 15, 16	
	Reasoning	4	8, 9, 10, 14	
L2 reading motivation	Extrinsic	4	17, 21, 22, 23	Kim (2011);
	Intrinsic	4	18, 19, 20, 27	Matsumoto et al. (2013);
L2 reading efficacy	Efficacy 1	3	24, 26, 28	Wigfield & Guthrie (1997)
	Efficacy 2	3	25, 29, 30	
L2 listening achievement	PSAT listening	22	0~47 points	
	Self-assessed listening	1	5-point Likert	
L2 reading achievement	PSAT reading	23	0~53 points	
	Self-assessed reading	1	5-point Likert	

L2 reading strategies were categorized into four dimensions, as in Matsumoto et al. (2013): *main idea, monitoring, adjusting,* and *reasoning* strategies. L2 reading motivation had two dimensions: *extrinsic* and *intrinsic* motivation. Reading efficacy was divided into two categories: *efficacy 1* and *efficacy 2.* Each indicator variable consisted of four items except for the efficacy scales (3 items). The original English items were translated into Korean and slightly modified to be more relevant to the Korean EFL context.

In order to reduce measurement variability, scores on the practice test for the Scholastic Ability Test (PSAT) were used to measure the participants' listening and reading achievement in English across different classes. Possible scores on the PSAT English ranged from 0 to 100, with subscores reported for listening (ranging from 0 to 47) and reading (ranging from 0 to 53) sections. In addition to the PSAT scores, two questions were also asked to observe the participants' self-assessed English proficiency in listening and reading. The score ranges for the self-assessed English proficiency were 1 = "very poor" to 5 = "very good". The reason for including the self-report listening and reading proficiency

as an indicator variable is that it is otherwise difficult to construct a model with single-indicator latent variables (Kenny, Kashy, & Bolger, 1998). The students' self-assessed listening and reading proficiency correlated significantly with their PSAT listening (r = .73) and PSAT reading (r = .68) scores, thus the self-report measures were included in the model.

3.3. Procedures

Data collection was carried out in a regular English class session by either the class instructor or the investigator in the middle of the Fall semester in 2013. Each participant was told the purpose of the study and asked to complete an informed consent by providing his or her name and student identification number in order to confirm his or her own agreement to participate in the study, to answer the questionnaire, and to release his or her English PSAT score. The students were also given instructions about how to answer the questionnaire. It was emphasized that there were no right or wrong answers and all the information collected would be kept confidential. Relatively high response rates were achieved approaching 99%. The entire data collection process took approximately 20 minutes. The students' English scores were obtained from the class instructors at the end of November. Out of the 327 participants, 298 listening and 300 reading achievement data were collected for the analysis.

3.4. Data Analyses

The structural relationships among the factors affecting L2 reading achievement were examined using the AMOS 18 program via the maximum likelihood estimation procedure. A structural model consists of two parts: the measurement model and the structural model (Byrne, 2001). The measurement model specifies the relationships between latent variables and a set of indicator variables, while the structural model shows the relationships among latent variables. In this study, for example, the L2 reading strategy is a latent variable observed by four indicator variables: *main idea, monitoring, adjusting,* and *reasoning* strategies. The structural relationships among latent variables in the present study were specified theoretically. The proposed SEM model in Figure 1 was tested in order to identify a structural model that best fits the present sample.

The SEM yields several fit statistics, which provide information about how well a given SEM model represents the data. The chi-square and the ratio of chi-square to degrees of freedom (x^2/df) were the most frequently used to test the quality of the structural model's fit. Generally, a ratio of 2.0 or below indicates a good fit. However, because the chi-square statistic requires a sufficient sample size in order for the chi-square approximation to be

valid, other fit indices were also computed. For example, the Comparative Fit Index (CFI; Bentler, 1990), which compares the improved fit of the hypothesized model with a null model, was checked. CFI values equal to .95 or above indicate a well-fitting model (Hu & Bentler, 1999). The Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993), which shows the fit between the implied and the population covariance matrix, is a parsimony-adjusted index. A RMSEA less than .05 signals a good fit to the data, with lower values (i.e., closer to 0) being more desirable.

4. RESULTS AND DISCUSSION

4.1. Descriptive Summary for L2 Reading Achievement Scales

Negative items were recoded before the data analysis. The item-total correlation coefficients of Items 18 (*It is fun to read in English.*) and 28 (*I am good at reading in English.*) were below .40, and consequently, these two items were excluded from all further analyses. Table 2 summarizes the descriptive statistics of latent and indicator variables along with the internal consistency evidence. Each scale score was computed by summing the scores for each item on the variable and then computing the mean. Reliability coefficients of the eight indicator variables represented reasonably good internal consistency, having values greater than .70. All the mean scores of indicator variables except for *intrinsic* ($M = 2.64$) were above the median score of 3.0, indicating that the students used *main idea, monitoring, reasoning,* and *adjusting* strategies, and they had *extrinsic* motivation and *self-efficacy* when they read in English.

The mean values of each item representing L2 reading strategy were relatively consistent, ranging from 3.28 to 3.67, which suggests that most Korean high school students use L2 reading strategies. The mean score for the *adjusting* strategy ($M = 3.67$) was highest, which is in line with the previous research finding with Japanese students (Matsumoto et al., 2013). It is not surprising that the students who were preparing for the College Scholastic Ability Test (CSAT) showed a strong manifestation in such questionnaire items as "I read slowly and carefully when the text is difficult" and "I go back and forth in the text searching for necessary information." The CSAT English is mandatory, and further, it places more emphasis on the reading section than on the listening section.

The mean score for *extrinsic* motivation ($M = 4.06$) was the highest, which suggests that the Korean EFL students were more likely to read English for instrumental reasons than due to intrinsic factors. High extrinsic but relatively low intrinsic motivation toward L2 learning is consistent with the previous findings about motivational patterns in Korean EFL

students' English learning (e.g., Kim, 2004, 2011).

TABLE 2
Descriptive Summary and Internal Consistency Reliability

Latent Variable	Indicator Variable	Alpha	M	SD
L2 reading strategy	Main idea	.805	3.40	.82
	Monitoring	.792	3.28	.82
	Adjusting	.798	3.67	.86
	Reasoning	.876	3.40	.88
L2 reading motivation	Extrinsic	.841	4.06	.84
	Intrinsic	.781	2.64	.98
L2 reading efficacy	Efficacy 1	.712	3.01	1.06
	Efficacy 2	.784	3.71	.95
L2 listening achievement	PSAT listening score ($n = 299$)		33.95	12.93
	Self-assessed listening proficiency		3.06	1.11
L2 reading achievement	PSAT reading score ($n = 299$)		34.26	13.06
	Self-assessed reading proficiency		2.89	.91

Although the PSAT reading scores ($M = 34.26$) were higher than the listening scores ($M = 33.95$), there were no statistically significant differences when these two scores were transformed to standard scores. However, the students' self-assessed listening proficiency ($M = 3.06$) was significantly higher than their own perceptions of reading proficiency ($M = 2.89$).

4.2. SEM Analysis for L2 Reading Achievement

A total of 12 indicators for L2 reading strategies, motivation, and listening and reading achievement variables were entered into subsequent SEM analyses. Table 3 provides the model-data fit statistics of each model tested. Model 1, which tested the relationships among L2 reading achievement, motivation, reading efficacy, strategy, and listening comprehension, produced a chi-square of 48.57 with 24 degrees of freedom. The ratio of the chi-square to degree of freedom (x^2/df) was 2.02. Other fit statistics (CFI = .952, RMSEA = .058) also indicated an acceptable fit. This structural model was confirmed across different dependent measures like willingness to read more, as shown in Models 2 and 4. However, fit indices for Models 2, 3, and 4 resulted in an unsatisfactory fit, whereas Model 1 showed the best fit of the model to the data.

Figure 2 presents the path loadings of Model 1 for close investigation. All the path coefficients except for the path between motivation and L2 reading achievement ($\beta = .09$, $p = .12$) were significant at the alpha level of .001. L2 reading achievement was directly influenced by L2 reading efficacy ($\beta = .41$) and strategies ($\beta = .39$) and L2 listening skills ($\beta = .49$).

TABLE 3
Model-fit Indices for the L2 Reading Achievement Model

| Model	Latent Variables	Dependent Variable	x^2	df	x^2/df	CFI	RMSEA
1	MOT, EFF, STA, LIS	RACH	48.57	24	2.02	.952	.058
2	MOT, EFF, STA, LIS	WTR	87.25	24	3.63	.924	.078
3	EFF, STA, LIS	RACH	123.21	38	3.24	.913	.106
4	EFF, STA, LIS	WTR	148.32	36	4.12	.898	.113

Note. MOT = motivation; EFF = efficacy; STA = strategy; LIS = listening comprehension; RACH = reading achievement; WTR = willingness to read more English books; CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation.

L2 reading efficacy was measured by self-efficacy beliefs in English reading (e.g., *I can read English well if I invest the necessary effort*). It was directly related to L2 reading achievement, thus providing additional evidence for the previous research findings (Ham, 2002; Sparks et al., 2011; Takase, 2007). The same pattern was found for reading strategies, operationally defined as the combination of *main idea*, *monitoring*, *adjusting*, and *reasoning* strategies, thus meaning that students' use of L2 reading strategies directly affects their reading achievement. This is consistent with previous finding about the relationship between L2 reading strategies and reading achievement (Lin & Yu, 2013; Song, 1999; Stevenson et al., 2007). It was also found that L2 listening skills, as measured by the PSAT listening score and self-assessed listening proficiency, were directly related to L2 reading achievement. This finding supports the claim that the students' linguistic comprehension ability (i.e., oral proficiency) is a significant contributor to their reading comprehension (Cummins, 1979; Droop & Verhoeven, 2003; Kang et al., 2011; Lee & Schallert, 1997; Song, 2001; Sparks et al., 2011).

However, L2 reading motivation, as measured by intrinsic and extrinsic motivation, was not directly related to reading achievement. This unexpected finding shows a sharp contrast to the previous findings (Kim, 2004, 2011; Pae, 2008; Pae & Shin, 2011; Sparks et al., 2011; Takase, 2007) reporting the significant relationship between L2 motivation and achievement. Thus, the structural relationship among L2 reading efficacy, strategies, listening skills, and reading achievement without the reading motivation variable was examined, as in Models 3 and 4. As shown in Table 3, model-data fit statistics for Models 3 and 4 signaled an unsatisfactory fit (e.g., RMSEA = .106 and .113, respectively).

There are three possible explanations for this unexpected finding. One possibility involves a mediating variable between motivation and reading achievement. The nonsignificant path loading between motivation and reading achievement implies that reading motivation alone is not sufficient to promote Korean EFL students' reading proficiency.

FIGURE 2

The Final Structural Model of L2 Reading Achievement
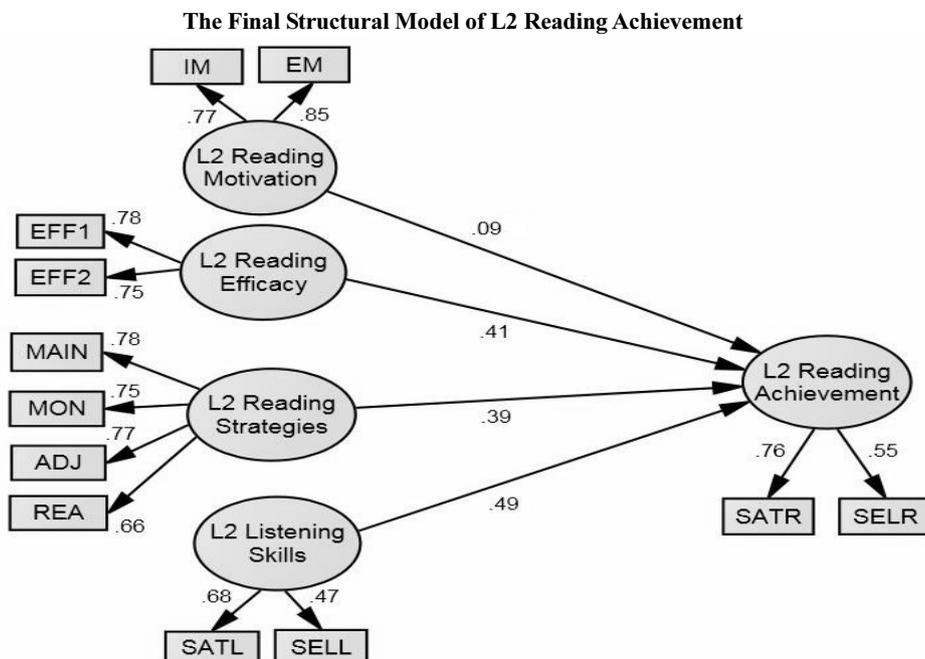
Note. IM = intrinsic; EM = extrinsic; EFF = efficacy; MAIN = main idea; MON = monitoring; ADJ = adjusting; REA = reasoning; SATL = SAT listening score; SELL = self-assessed listening proficiency; SATR = SAT reading score; SELR = self-assessed reading proficiency.

This means that there should be a mediating variable between reading motivation and achievement. For example, the students' reading motivation may lead to higher reading achievement when their motivation is associated with a higher level of self-efficacy, suggesting that reading motivation may be indirectly related to reading achievement through its direct influence on self-efficacy. However, when this structural relationship was examined, the fit indices resulted in a very poor fit (e.g., χ^2/df = 5.09, CFI = .814, RMSEA = .147). Therefore, there is a greater need for further investigation of this mediating effect. To examine this possibility, it would be necessary to add new variables such as self-confidence, anxiety, and/or attitudes to the current SEM model.

Another possible explanation for the nonsignificant causal path between reading motivation and reading achievement is simply the characteristics of the sample. The participants were all high school students who were preparing for college entrance exams and had high motivation toward learning English regardless of their English reading proficiency. One way to check this possibility is to add elementary or middle school student groups to the current SEM model in a further investigation.

The other possibility is the indicator variables used to measure L2 reading motivation.

For the present study, only intrinsic and extrinsic reasons for reading English were observed as indicators of reading motivation. It is apparent that these two indicator variables were meaningfully operative on measuring the latent variable, as indicated by significant associations (β = .77 for intrinsic motivation, β = .85 for extrinsic motivation) with L2 reading motivation. However, it is also possible that a different form of reading motivation such as learning goal-oriented motivation or avoidance of L2 reading may be directly associated with L2 reading motivation, because previous studies with Korean EFL students reported that students' goal-oriented motivation toward L2 reading was stronger than their extrinsically motivated factors (e.g., Kim, 2011). Adding more indicator variables of L2 reading motivation to the current SEM model would be one way to examine this possibility. An investigation of these three possible interpretations is recommended for further studies.

5. CONCLUSION

The present study sought to identify Korean EFL high school students' reading achievement model using SEM. The current SEM model suggests that the students' L2 reading efficacy and strategy and L2 listening abilities were significant predictors of their L2 reading achievement, while L2 reading motivation showed no significant relation with reading achievement. The final model might provide evidence in favor of the threshold hypothesis because L2 listening scores were significantly related to L2 reading achievement. However, there could be a problem associated with accepting a threshold explanation because the students' L1 skills were not observed in the current study. Therefore, further research, particularly studies with more L2 reading factors (e.g., vocabulary, grammar, prior knowledge, L1 skills), would be helpful to suggest a more comprehensive and refined reading achievement model for Korean EFL students. Another limitation of this study is that the results cannot be considered generalizable within the surveyed context since the findings were mainly based on self-assessed measures sampled at one specific data point. Another direction for future research will be to develop a longitudinal design with multiple data points to examine changes in the students' reading behavior and achievement over time.

Several important implications for EFL reading instruction can be drawn from the study results. First, the study indicated a relatively more significant contribution of L2 reading efficacy over reading motivation to L2 reading achievement. Thus, students' L2 reading efficacy should be promoted to bring about advanced L2 reading achievement. A Korean student who has a better perception of his or her L2 reading ability, thinks more positively about English reading, and spends more time reading is likely to promote his or her reading

achievement in English. Encouraging students to be involved in L2 reading with their own effectiveness and enhanced perceptions of L2 reading competence leads to heightened reading achievement.

Second, the present study also suggests the importance of using L2 reading strategies, as demonstrated by the direct path between L2 reading strategies and reading achievement. Acknowledging the benefits of L2 reading strategies holds the potential to identify the students' L2 reading success. Thus, teachers should place more emphasis on modules focusing on successful L2 reading strategies. Third, the finding that the students' L2 listening skills had the strongest causal relationship with L2 reading achievement suggests that improvement of L2 listening skills may require EFL teachers to implement teaching English through English (TETE) or communicative language teaching (CLT). In this regard, EFL listening skills should be promoted in a way conducive to the instructional environment where comprehensible input (Krashen, 2004) is provided via meaningful teacher-student and student-student interactions. Furthermore, EFL teachers are advised to elucidate the rationale and benefits of TETE or CLT in enhancing English proficiency, so that the students can actively participate in L2 listening activities, which can help increase their reading achievement.

Finally but most importantly, along with the significant direct factors in L2 reading achievement (i.e., L2 reading efficacy, L2 reading strategies, L2 listening skills), EFL teachers also need to consider L2 reading motivation. The students' extrinsic motivation showed the highest mean score while their intrinsic motivation had the lowest score, although there was no significant causal relationship between reading motivation and reading achievement. This finding of motivation type is consistent with several previous studies conducted in Korean EFL contexts (e.g., Kim, 2004, 2011). Although L2 motivation is affected by L2 learning contexts (Clément & Kruidenier, 1983), many motivation studies conducted even in EFL environments (e.g., Pae, 2008; Pae & Shin, 2011) suggest the importance of intrinsic motivation in L2 success. Therefore, EFL teachers' efforts are necessary to promote the students' intrinsic motivation through creating a learning context that appeals to the students to satisfy their learning needs and, finally, to accomplish their goals.

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APPENDIX
Questionnaire for L2 Reading Achievement Model

1. I take an overall view of the text content to see what it is all about.

2. I check my overall understanding of the text.

3. I check my understanding when I come across new information.

4. I check to see if my understanding of the text is correct after reading.

5. I check to see if my guesses are right or wrong.

6. I read slowly and carefully when the text is difficult.

7. I read difficult parts carefully again.

8. I predict what is going on in the text.

9. I infer the meaning of difficult parts while I continue reading.

10. I guess the meaning of unfamiliar words.

11. I search for a topic sentence representing the main idea in each paragraph.

12. I read for the purpose of understanding the main idea.

13. I differentiate the main idea from supporting details.

14. I infer the text content based on what I already know.

15. I go back and forth in the text searching for necessary information.

16. I change the speed of reading according to the text level.

17. One of my goals in learning English is to be able to read English well.

18. It is fun to reading in English.

19. To read English is enjoyable.

20. I like challenging books written in English.

21. I would like to be recognized as a proficient reader of English.

22. I would like to gain a higher score than my classmates on reading tests.

23. I would like to gain good scores in the reading sections on the TOEIC or TEPS tests.

24. I can read English proficiently with effort.

25. I will be able to read English in the future because I can read Korean now.

26. Special talent is unnecessary for reading comprehension in English.

27. I tend to get deeply engaged when I read in English.

28. I am good at reading in English.

29. My English reading scores will be improved because I read a lot.

30. I will be able to understand English texts thoroughly.

Applicable levels: Secondary

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