

## Relationships Among Perceived Self-Efficacy, Vocabulary and Grammar Knowledge, and L2 Reading Proficiency

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The present study investigated which facets of perceived self-efficacy (PSE) in L2 reading are significantly related to L2 reading proficiency (L2RP), which type of linguistic knowledge feeds into PSE, and how they are related to L2RP when considered together. Participants ( $n = 95$ ) were college students from two universities in Seoul. Four subcomponents of PSE were identified for investigation: text-based PSE, general PSE, PSE in linguistic knowledge, and PSE in authentic reading. The result of stepwise multiple regression analysis showed that the general PSE whose items reflect dimensions of *social comparative influences* and *perceived controllability over environments* was the only significant predictor of L2RP ( $R^2 = 17.7\%$ ). For the relationships between linguistic knowledge and PSE, vocabulary knowledge (VK) was shown to be the only significant predictor of PSE when considered together with grammar knowledge (GK) and L2RP ( $R^2 = 22.9\%$ ), while VK and GK were significant predictors of L2RP ( $R^2 = 69.4\%$ ). PSE was not found to make an independent contribution to L2RP when considered with linguistic knowledge.

**Key words:** L2 reading perceived self-efficacy, L2 reading proficiency, vocabulary knowledge, grammar knowledge, second language acquisition

### 1. INTRODUCTION

No one would argue against a claim that a constant feed of comprehensible linguistic input is one of the necessary conditions that enable L2 learners to develop their second language successfully. The greatest challenge that English language learners (hereafter, ELLs) in an EFL setting face may well be the lack of opportunities for being immersed in comprehensible linguistic input and interacting in the language, whether presented in an auditory or written form. In order for ELLs in such a setting to reach an advanced level of

English proficiency, it is crucial to have the determination to seek exposure to comprehensible English input and to interact in the language meaningfully. In this sense, learners' motivation and ability to manage their own learning processes become more prominent in this particular English learning context (Kormos & Csizér, 2014).

One of the linguistic resources most accessible to ELLs in an EFL setting is reading materials. With various forms of technology available, especially smartphones, ELLs today enjoy free access to a limitless amount of written linguistic input; although auditory linguistic input is also readily available, its ephemeral nature, thus offering little room for revisiting the input, makes it difficult for ELLs to comprehend available auditory linguistic resources. It is highly likely that those who develop independent reading habits end up being more fluent users of English, and it is thus of great value to identify factors that are conducive to becoming independent L2 readers.

Factors contributing to reading comprehension have been extensively investigated in recent years since the component-skills approach (Carr & Levy, 1990; Koda, 2005, 2007) was introduced in research on reading (Jeon & Yamashita, 2014). When sets of reading-related variables were entered together in the analyses, Carr and Levy (1990) explained that it becomes possible to understand what reading ability consists of, how it changes developmentally, and what brings about individual differences among readers. Following this research approach in L1 reading, several studies (van Gelderen et al., 2004; van Gelderen, Schoonen, Stoel, de Gloppe, & Hulstijn, 2007) were conducted in L2 reading as well, and led to a deeper understanding of the relative effects of various predictors for L2 reading comprehension.

Building on the findings of the previous research, the present study attempts to focus on one important construct of L2 reading, perceived self-efficacy (henceforward, PSE), which is generally known as self-efficacy. PSE, one's own perception of one's competence in a given task (Bandura, 1986), is a construct that has extensively been studied in the past decades and shown to be a significant predictor of general academic achievement, self-regulation, and motivation (e.g., Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Bouffard-Bouchard, 1990; Bouffard-Bouchard, Parent, & Larivee, 1991; Pajares, 1996a, 2003; Pajares & Graham, 1999; Schunk, 1991; Schunk & Miller, 2002; Shell, Colvin, & Brunning, 1995; Zimmerman, 2000; Zimmerman & Bandura, 1994). This construct has also been investigated in second/foreign language learning contexts and has been shown to be related to successful second language learning (e.g., Alishahi & Dolmaci, 2013; Busse & Walter, 2013; Eler & Macaro, 2011; Graham & Macaro, 2008; Ham, 2002; Hetthong & Teo, 2013; Hsieh & Kang, 2010; Hsieh & Schallert, 2008; Kim, 2015; Lee & Lee, 2012; Li & Wang, 2010; Magogwe & Oliver, 2007; Mills, Pajares, & Herron, 2006; Tilfarlioglu & Cinkara, 2009; Woodrow, 2006). These findings are especially pertinent to the current study, in that it is meant to be placed within a global framework of independent reading in

a self-regulated learning context and achievement in second language acquisition. Nurturing independent reading habits of L2 readers necessarily involves a considerable amount of effort from learners over a long period of time and thus presupposes their willingness to engage in the target activity on a regular basis for their effective management of learning. With this macro-approach to L2 reading and SLA in mind—reading as a constant source of comprehensible linguistic input and reading as a source of SLA—it will be informative to approach this line of investigation by determining which aspects of PSE exert more influence on L2 reading and which sources of knowledge are related to PSE, which are the primary purposes of the current study.

## **2. THEORETICAL BACKGROUND**

### **2.1. Perceived Self-Efficacy**

Perceived self-efficacy is “beliefs in one’s capabilities to organize and execute the course of action required to produce given attainments” (Bandura, 1997, p. 3). It is not rarely observed that those with required knowledge and skills for a given task often produce products of varying quality. This is because people differ in their “aspirations, choice of behavioral courses, mobilization and maintenance of effort and affective reactions” (p. 4), all of which are regulated by self-efficacy beliefs. Bouffard-Bouchard (1990) empirically confirmed this common intuition. In a study of how college students’ PSE was related to their performance in verbal concept-formation tasks, the students of equivalent knowledge and experiences in the tested domains differed in the number of problems completed, the efficiency of problem-solving strategies, and the accuracy of self-evaluation responses. That is, those with high PSE completed more problems, used problem solving strategies more efficiently, and were more accurate in their self-evaluation than those with low PSE. Meta-analyses (Multon, Brown, & Lent, 1991) also confirmed the overall positive effects of PSE on academic performance and persistence outcomes across various subjects, experimental designs, and assessment methods.

Bandura (1993, 1997) summed up the specifics of his theory concerning the effects of PSE on human functioning. There are four major processes through which PSE influences human functioning: cognitive, motivational, affective, and selection processes. Several factors through which PSE mediates cognitive processes are identified: conception of ability, social comparison influences, framing of feedback, and perceived controllability over environments. Wood and Bandura (1989) found that graduate students with different conceptions of ability performed differently in simulated organization management experiments. Those who perceived ability as a fixed attribute saw their performance as

diagnostic of their inherent intellectual capacities and decreased in PSE and the quality of complex decision making. On the other hand, those who regarded ability as acquirable skills not only sustained their PSE but also coped successfully with challenging goals and used analytic strategies effectively because they viewed their competencies as a result of personal efforts and improvement. In terms of social comparison, people with higher PSE performed better in managerial decision making tasks than those with lower PSE (Bandura & Jourden, 1991). In a separate study, Jourden (1991) found the individuals informed about their performances in the form of positive feedback outperformed those given a negative feedback in their levels of PSE, aspirations, efficient analytic thinking, self-satisfaction, and performance accomplishments. The impact of perceived controllability of the environment was also confirmed in a simulated organization management study by Wood and Bandura (1989): The participants who were trained to view group behavior as easily influenced excelled in their PSE, developed enhanced aspirations, and improved in their group performance.

Bandura (1993, 1997) also elaborated the relationships between PSE and motivational processes in his reviews. According to him, individuals conceive anticipatory cognitive motivators based on their forethoughts about perceived goals and outcome expectancies and their retrospective causal reasoning as to success and failure in their prior attainments. These anticipatory cognitive motivators in turn influenced the quality of performance directly. As for the role of PSE in these processes, PSE was explained as influencing motivational processes by helping people determine their goals, the amount of effort to be invested, the extent of perseverance under difficulties, and their resilience to failures. Those with higher PSE tended to set higher goals, put more effort into a given task, and persevered with various forms of adversities because they had confidence about themselves in successfully completing the task in the end. In support of his arguments, Bandura cited Schunk's (1984) studies on children's academic learning through self-regulated instruction. In a path analysis of mathematics related variables, PSE was shown to contribute to mathematical skills directly ( $\beta = .46$ ) and indirectly via persistence ( $\beta$  from PSE to persistence =  $.30$ ;  $\beta$  from persistence to skill =  $.30$ ); note that the direct contribution of instructional treatment to the skills was noticeably smaller ( $\beta = .18$ ) than those of the other two constructs.

The third type of process that Bandura (1993, 1997) introduced as an influence channel of PSE was affective. Stress and depression that learners undergo during threatening situations were explained as emotional mediators of PSE. In particular, anxiety and avoidant behaviors are two constructs that affect the quality of final products via PSE in a given task. When those with lower PSE for coping ability were placed in difficult situations, they suffered increased levels of stress, blood pressure, and stress-related hormones, resulting in declined immune functioning (Bandura, 1988). By providing guided

mastery experiences, Bandura explained that those with lower PSE should be trained in their coping efficacy so that their anxiety and avoidance behavior would become controllable. Another factor for effective affective management was explained as thought control efficacy. Based on the results of an empirical study (Kent & Gibbons, 1987), the perceived inability to turn off disturbing thoughts was identified as the major source of distress rather than their mere frequency.

The last influence channel for PSE introduced in Bandura's model (1993, 1997) was selection processes. He explained that PSE can shape people's life courses by influencing the activities and environments they select in life. The choices that they make in turn influence the types of competences, interests, and social networks to be developed. It is the perceived self-efficacy determination of their choice that guides their life paths and underlies their career choices and development (Lent & Hackett, 1987), Bandura explained. Table 1 summarizes the four efficacy-activated processes along with specific factors underlying each process.

**TABLE 1**  
**A Summary of Efficacy-Activated Processes**

Efficacy-Activated Processes	Specific Factors
Cognitive processes	Conception of ability Social comparison influences Framing of feedback Perceived controllability over environment
Motivational processes	Forethoughts of cognized goals and outcome expectancies Retrospective reasoning for perceived causes of success and failure (causal attributions)
Affective processes	Achievement anxiety Avoidance behavior
Selection processes	Types of activities and environments selected as part of people's lives

This foundational work of Bandura and his colleagues on the effects of PSE paved the way for much research in various academic fields. Positive effects of PSE have been observed in various subject areas such as mathematics, science, reading and writing, and its motivational and self-regulative mechanisms, e.g.: academic functioning (Bandura et al., 1996), mathematics (Chen & Zimmerman, 2007; Jain & Dowson, 2009; Pajares, 1996a; Pajares & Graham, 1999; Usher & Pajares, 2009), science (Chen & Usher, 2013; Jansen, Scherer, & Schroeders, 2015; Pajares, Britner, & Valiante, 2000), reading and writing (Guthrie, Wigfield, & You, 2012; Pajares, 2003; Shell et al., 1995; Zimmerman & Bandura, 1994), and self-regulation and motivation (Eshel & Kohavi, 2003; Schunk & Miller, 2002; Schunk & Zimmerman, 2012; Zimmerman, 2000) to list a few.

## 2.2. Perceived Self-Efficacy in Second Language Learning and Reading

The field of second language education has also started to pay attention to this construct of PSE as well, on which extensive research has been conducted in recent years. Like educational researchers in the other fields, researchers in second language education have focused on the effects of PSE as a component of motivational constructs in various forms of second language learning achievements (Busse & Walter, 2013). For example, one of the latest studies, Courtney, Graham, Tonkyn, & Marinis (2015) followed 254 children over a two-year period and collected data on their attitudes toward learning French and PSE as motivational variables, their L1 literacy attainment, and their French proficiency measured with two oral production tasks, a sentence repetition task and a photo description task. For individual differences in PSE for French writing, L1 literacy was found to be the strongest predictor of PSE throughout the years, and at the end of the study it explained 50 % of variance in PSE. For the role of PSE in the oral production tasks, PSE had significant explanatory power for both the outcome variables when entered together into multiple regression analyses along with L1 literacy, a school-related factor, language learning attitudes, and gender. Interestingly, when PSE was analyzed together with L1 literacy, it still had a significant independent contribution to the oral production tasks, while attitudes had no significant impact on explaining variances in the participants' oral production performances.

Many other motivation related studies have shed more light on PSE in second language learning: attribution (Bong, 2004; Graham, 2006; Hsieh & Kang, 2010), anxiety (Mills, Pajares, & Herron, 2007; Tseng & Schmit, 2008), and self-regulation (Bown, 2009; Ghonsooly & Ghanizadeh, 2013; Kim, Ahn, Wang, & Bong, 2015; Kormos & Csizér, 2014; Ziegler, 2014). Various aspects of motivational processes and strategy use have also been investigated in relation to reading (Ham, 2002; Li & Wang, 2010; Matsumoto, Hiromori, & Nakayama, 2013; Mills et al., 2006; Mori, 2002; Zhang, 2010), listening (Graham & Macaro, 2008; Mills et al., 2006; Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006), speaking (Courtney et al., 2015; Woodrow, 2006), writing (Csizér & Tanko, 2015; Reugg, 2014), grammar (Lin, 2015), and vocabulary (Mizumoto, 2013; Ziegler, 2015). Furthermore, the scope of the research on PSE effects has been expanded into areas of novice-expert language learners (Gan, Humphreys & Hamp-Lyons, 2004), out-of-class learning (Lai, Zhu, & Gong, 2015; Matthews, 2010; Sundqvist, 2011), group dynamics (Chang, 2010), willingness to communicate (Denies, Yashima & Janssen, 2015; Yashima, Zenuk-Nishide & Shimizu, 2004), and teacher education (Brannan & Bleistein, 2012; Faez & Valeo, 2012; Ghonsooly & Ghanizadeh, 2013; Nishino, 2012). The long list of topics investigated in the previous studies on the effects of PSE indicates that they are indeed pervasive in various aspects of second language learning processes.

Since the current study focuses on L2 reading PSE, the details of these effects on L2 reading will be reviewed in the following section. The earliest study of PSE in reading was Ham (2002). The questions investigated included the effects of past performance on PSE and how PSE predicts college students' goal setting and their use of learning strategies, which were analyzed to predict L2 reading comprehension; PSE was not hypothesized to predict L2 reading directly. Out of the two measures of past performance, only scholastic aptitude test scores served as a significant predictor for PSE; a regression coefficient for grades from the previous reading courses was not significant. For goal setting and strategy use, PSE significantly predicted both constructs, explaining 13.7% of the variance in strategy use and 4.6% in goal setting.

This result is consistent with findings of qualitative research by Zhang (2010) that analyzed 20 Chinese college students' interview data concerning metacognition in their L2 reading. It was found that reading PSE was often mentioned by the participants as a component of personal knowledge in metacognition, and successful and less successful readers were observed to differ in this construct. Li and Wang (2010) also validated the relationship between PSE and reading strategies quantitatively. A correlation analysis of 139 college students indicated that PSE was significantly related to metacognitive strategy use ( $r = 0.31, p < 0.01$ ), cognitive strategy use ( $r = 0.35, p < 0.01$ ), and social/affective strategy use ( $r = 0.26, p < 0.01$ ). In further analyses of differences in strategy use between high PSE and low PSE groups, the high PSE group used reading strategies significantly more than the low PSE group. In a MANOVA analysis, students with higher PSE used significantly more strategies in all the three strategy subcategories.

A more recent study, Matsumoto et al. (2013), delineated the relationships between reading strategy use, motivation, and learner beliefs using various statistical analyses. A latent construct of motivation was accounted for by extrinsic motivation (68%), intrinsic motivation (40.3%) and PSE (43%), which was termed as reading efficacy. They also investigated the effect of strategy instruction on these three constructs and found the medium effects on PSE ( $r = 0.366$ ), indicating that strategy instruction influenced the increase of PSE. Interestingly, they presented not only zero-order correlations of PSE with other variables but also its partial correlations with the tested variables. PSE was significantly correlated with strategy use (main idea, adjusting and reading), motivation (extrinsic and intrinsic), and learner beliefs (strategy, environment, and effort). However, in the partial correlation analyses, PSE was significantly correlated only with the other two motivation constructs and one of the learner beliefs (environment). This indicates that there are some shared variances among the tested variables. In making theory parsimonious, it would be worth investigating which variables have the most explanatory power for individual differences in L2 learning.

The results on these aforementioned effects are more meaningful when PSE has

independent explanatory power for L2 reading. Mills et al. (2006) investigated a direct effect of college students' PSE on L2 reading comprehension (French). When L2 reading was regressed on reading PSE, reading anxiety, gender, and an interaction variable of gender with PSE, reading PSE was found to be the only significant predictor of L2 reading ( $\beta = 0.309$ ). Another study on the direct effects of PSE also confirmed its independent contribution to L2 reading. Kim (2015) tested causal relations among PSE, motivation, strategies, L2 listening, and L2 reading, using a structural equation modeling analysis. L2 reading motivation was operationalized as intrinsic and extrinsic motivation, strategy use, as main idea, monitoring, adjusting, and reasoning, and L2 listening and L2 reading competence, as college scholastic aptitude test scores, self-evaluation scores. All the path coefficients to L2 reading were significant except motivation: PSE ( $\beta = 0.41$ ), strategies ( $\beta = 0.39$ ), and L2 listening ( $\beta = 0.49$ ). It appears that extrinsic and intrinsic motivation has significant shared variances with PSE, as shown in Matsumoto et al.'s (2013) study, and it is PSE rather than the other motivation variables that still holds significant explanatory power for individual differences in L2 reading when they were considered together. Kim's empirical support for the effects of PSE on reading is noteworthy, in that the linguistic variable (L2 listening) was included as a predictor as well as motivation and strategy variables, and PSE still had a significant contribution to L2 reading, the magnitude of which is equivalent to those of strategy and L2 listening.

### 2.3. Linguistic Knowledge in L2 Reading

Even though reading comprehension is a complex, multi-componential process (Bernhardt, 2011; Carr & Levy, 1990; Grabe, 2009; Koda, 2005, 2007; Stanovich, 2000), successful reading comprehension in any language presupposes a certain level of understanding of words and relationships among them. It is not surprising that vocabulary knowledge and grammar knowledge are among the most extensively researched variables in L2 reading. In the latest meta-analysis of L2 reading component variables, Jeon and Yamashita (2014) classified L2 vocabulary knowledge and L2 grammar knowledge as a high evidence correlate group because they were among the most frequently studied variables. Based on the analysis of thirty-one independent studies that investigated vocabulary knowledge, the mean correlation between vocabulary knowledge and L2 reading was reported to be 0.79, 95% CI [0.69-0.86]. As for the mean correlation between grammar knowledge and L2 reading, they reported a slightly higher value of 0.89, 95% CI [0.58-0.95]; the number of studies that investigated grammar knowledge was eighteen.

Among the studies on the effects of linguistic knowledge on L2 reading, those using a structural equation modeling analysis are of particular interest because they make it possible to see relative contributions of important variables altogether in one model free of



measurement errors. For example, in van Gelderen et al. (2004) study, linguistic knowledge (vocabulary and grammar knowledge), metacognitive knowledge, and processing speed were set up as independent variables to explain L2 reading, and the tested model, using SEM, explained 83% of L2 reading. Although the simple correlations of all the tested variables with L2 reading were significant, regression coefficients of significant weights were found only for vocabulary and metacognition: vocabulary ( $\beta = 0.26$ ), metacognition ( $\beta = 0.70$ ), and grammar ( $\beta = 0.06$ ). This finding is consistent with Oh's (2016) study that found no unique contribution of vocabulary, grammar, and processing efficiency to L2 reading when their shared variances were controlled for, even though their simple correlations were significant, ranging from 0.525 to 0.600; note that hierarchical multiple regression analyses rather than SEM were used in the study. 48.8 % of L2 reading was reportedly explained by vocabulary and grammar knowledge together.

Van Gelderen et al. (2007) later reported findings of an SEM analysis of the same Dutch participants' data from the 2004 study over three time points (8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> grades). The effects of each area of linguistic knowledge at these time points were analyzed in a separate model. The first-year analyses showed that regression coefficient weights were 0.33 ( $p < 0.01$ ) for vocabulary and 0.49 ( $p < 0.01$ ) for grammar above and beyond the effects of metacognition. However, when metacognitive knowledge and the scores of each linguistic knowledge variable at the first year were controlled for in the following years, none of the weights were significant. This indicates that the explanatory power of each variable did not change significantly over the three years, meaning that the relative importance of vocabulary and grammar knowledge has not changed.

## 2.4. Present Study

These findings ascertain that vocabulary and grammar knowledge is indeed crucial in successful L2 reading comprehension. However, no study has been conducted thus far of how these linguistic knowledge variables play a role in helping student build their PSE, to this author's knowledge. As Bandura (1997) explained, mastery experiences are one of the influential sources for building efficacy, in that success feeds positive beliefs in one's personal efficacy. Since successful comprehension in L2 reading necessitates a sizable amount of linguistic knowledge, it is worth investigating the effects of linguistic knowledge and L2 reading proficiency on PSE as sources of better PSE. Based on the aforementioned rationale, the present study attempts to first confirm the effects of PSE on L2 reading, and to identify which aspects of PSE contribute to L2 reading if at all. In addition, assuming that PSE and L2 reading proficiency operate as *reciprocal determinants* (Bandura, 1997) to build each other up, two research questions were set up to investigate relationships among the tested variables in terms of L2 reading proficiency and PSE. The

research questions are as follows:

- 1) Which of the following PSE subcomponents have a significant impact on L2 reading proficiency: (1) text-based PSE, (2) PSE in comparative evaluation and the use of resources, (3) PSE in linguistic knowledge, and/or (4) PSE in authentic reading tasks?
- 2) What are the relationships among vocabulary knowledge, grammar knowledge, and L2 reading proficiency in predicting PSE?
- 3) What are relationships among PSE, vocabulary knowledge, and grammar knowledge in predicting L2 reading proficiency?

The first research question is to be analyzed via step-wise multiple regression. According to Cohen, Cohen, West, and Aiken (2003), in a stepwise program, a variable is selected from a group of predictor variables that makes the largest contribution to  $R^2$  until no more significant contribution is detected in the predictor variables. To answer the research questions two and three, multiple regression was used first to examine relative contributions of each independent variables to the prediction of PSE and L2RP, respectively. Since the unique contribution of each independent variable is not identified in a multiple regression analysis, hierarchical multiple regression analysis was then used.

### **3. RESEARCH DESIGN**

#### **3.1. Participants**

College students from two universities in Seoul participated in the study: Forty-eight students who were taking a general English course as a requirement at A university and fifty-nine students who were taking an English writing class in the field of advertising and public relations at B university. The total of 107 participants' test scores were initially collected. However, there were twelve participants whose scores exceeded two standard deviations and were thus excluded in the final analysis. The total of 95 participants' scores was analyzed: 21 females and 15 males from A university (four from nursing, twelve from social welfare, nine from theology, five from early child education and six from information science; seventeen freshmen, six sophomores, four juniors, and nine seniors from two classes), and 33 females and 26 males from B university (department of advertising and public relations). Overall, the level of English proficiency of the participants in University A was lower than that in University B; those from University A were from Level 2 classes out of a four-level system and were using *English in Common 2* as a textbook, which is linked with CEFR (Common European Framework of Reference

for English Language Teachers, 2013) level A2 (basic user). A guide to CEFR describes students at the A2 level as those who “(1) can understand sentences and frequently used expressions related to areas of most immediate relevance, (2) can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters, and (3) can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need” (CEFR for English Language Teachers, 2013, p. 5). The average reading test score was 14 out of 25 at A university and 21 at B university.

## 3.2. Materials

### 3.2.1. L2 Reading proficiency test

A twenty-five item reading comprehension test was developed to measure L2 reading proficiency. Four reading passages were extracted from *English in Common 2*, which was to be used as a textbook for the participants from A university. As noted, the textbook is in line with CEFR level A2. The number of words in the four passages was 228, 178, 211, and 183 words, respectively. There were eight inferential items in the form of multiple choice questions and seventeen literal questions of a true/false type. For example, one sentence contained a blank in the tested passage such as *After she won the money, hundreds of people called and told Mr. Lowry that (a) \_\_\_\_\_*. An inferential question asked the reader to infer what information should follow in the blank (a) and choose one correct statement out of four choices: *the ticket was too cheap; the ticket was theirs; the ticket was too old; and the ticket was the lottery*. The Cronbach’s alpha reliability of the test was 0.834.

### 3.2.2. Grammar test

Two types of grammar test were developed: an error-correction (20 items) and a sentence completion (18 items). To match proficiency levels, sentences for the grammar test were extracted from grammar reference books for middle school and high school students. For words that may be unfamiliar to the participants (e.g., *show off, in person, and frankly*), Korean translations were provided at the bottom of the test. In the error-correction test, there were four questions on subject-verb agreement, two on voice, three on tense, four on determiners, two on pronouns, two on contractions, and three on word forms. In the sentence completion type, there were three questions on infinitives and gerunds, one on coordinate conjunctions, one on parallel structure, three on independent clauses, three on adverb clauses, three on noun clauses, and three on adjective clauses. The Cronbach’s

alpha reliability of the test was 0.855.

### 3.2.3. Vocabulary test

To measure vocabulary knowledge, the present study used passage sight vocabulary, vocabulary associated with the texts (Pulido, 2007). Words for the test were extracted from the four reading test passages. The researcher first sorted out all the contents words from each passage. For example, 91 content words were extracted from the first passage of 228 words. Words appearing more than twice were eliminated, which resulted in 79 words from the first passage. Then words deemed to be basic such as *year*, *work*, *see*, or *pocket* were excluded. The number of words for the first passage, for instance, ended up being 42 words. The same procedure was conducted for the other three passages. The number of words tested for each passage was 42, 31, 39, and 25. The number of words in the vocabulary test totaled 137 words. In the scoring process, the correct provision of a Korean translation for each word received 1 point; grammatical class of a given word was not considered, so as long as the Korean translation matched the tested English word semantically, 1 point was given, and otherwise, 0 points. The Cronbach's alpha reliability of the test was 0.835.

### 3.2.4. Reading perceived self-efficacy questionnaire

The questionnaire was developed based on Mills et al. (2006) French reading PSE items. They arranged items to be in line with proficiency tasks for their participants. Likewise, important aspects of reading for the participants in the current study were considered in the development of the reading PSE questionnaire. For example, *read and understand the main ideas of a short article from a French magazine* was modified into *read and understand the main ideas of passages in English textbooks*. The survey included four subcomponents: (1) confidence in understanding passages from textbooks and class activities (six items), (2) confidence in general reading competence—comparative evaluation with peers and use of available resources such as dictionary (two items), (3) confidence in linguistic knowledge—grammar and vocabulary knowledge (two items), and (4) confidence in authentic reading such as web search, travel brochures, and emails (five items). Levels of confidence for each item was measured on an 8-point Likert scale, with 0 indicating no confidence at all and 7, 100% confidence. The survey's reliability (Cronbach's alpha) was 0.973. In addition, a confirmatory factor analysis was conducted to validate the four constructs of L2 reading PSE, using LISREL 8.80. With two error variances for authentic reading confidence items being allowed to correlate, the model fit indices suggested acceptable to good fit values: RMSEA (0.098), CFI (0.98), and SRMR (0.048). The list of questionnaire items is found in Table 2.

### 3.3. Procedures

The whole tests were administered on the first day of the courses as diagnostic tests in both universities. Responses were entered directly by the participants in an online system, *www.formsite.com*, which automatically shows the test results except for the vocabulary test, which required human scoring, which was done by the researcher. The order of the tests was (1) L2 reading PSE (5 minutes), (2) vocabulary test (15 minutes), (3) reading comprehension (20 minutes), and (4) grammar test (20 minutes). The implementation of the whole tests took 60 minutes. The PSE questionnaire was presented in Korean.

## 4. RESULTS

The descriptive statistics for PSE is provided in Table 2.

**TABLE 2**  
**Descriptive Statistics of PSE Questionnaire (*n* =95)**

Components	Items	<i>M</i>	<i>SD</i>
Text-based	1. I can read and understand the main ideas of textbook passages from general English classes.	4.64	1.33
	2. I can read and understand the details of textbook passages from general English classes.	4.25	1.27
	3. I can connect different chunks of ideas in textbook passages and understand coherently.	4.18	1.27
	4. I can figure out what I understand and don't understand about given textbook passages from general English classes.	5.06	1.20
	5. I can utilize my background knowledge relevant to given textbook passages from general English classes to promote comprehension.	4.62	1.23
	6. I have not had difficulties in comprehending textbook passages from general English classes.	3.96	1.42
General	7. I'm a better English reader than my peers.	3.58	1.32
	8. I can successfully complete a given reading task when allowed to use dictionaries and other reference materials.	4.92	1.32
Linguistic	9. I have enough grammar knowledge required to comprehend a given reading text.	3.54	1.34
	10. I have enough vocabulary knowledge required to comprehend a given reading text.	3.40	1.30
Authentic Reading	11. I can understand the details of short stories.	4.67	1.24
	12. I can figure out the main ideas of English materials that I search on the Internet.	4.17	1.24
	13. I can read and understand the details of paragraphs from English pen pal friends.	4.75	1.25
	14. I can read and understand the details of travel brochures about various tourist spots.	4.36	1.42
	15. I can read and figure out the main ideas of articles from English newspapers.	3.79	2.45
Total		4.26	1.04

The PSE item with the highest score was one of the text-based PSE items, “*I can figure out what I understand and don’t understand about given textbook passages from general English classes,*” with an average of 5.06. The item with the lowest score, on the other hand, was one of the linguistic PSE items, “*I have enough vocabulary knowledge required to comprehend a given reading text,*” with an average of 3.40. The average for all PSE items was 4.26, indicating that overall PSE responses were positive; recall that the participants were asked to rate their level of confidence from 0 (not confident at all) to 7 (100% confident) in each item.

In order to see overall patterns of relations among the tested variables, zero-order correlations were calculated along with means and standard deviations and presented in Table 3. When interpreted following Cohen’s (1988) rules of thumb (correlations above 0.30 as medium, correlations above 0.50 as high), correlations for PSE and L2 reading proficiency (hereafter, L2RP) were medium for PSE-TextB ( $r = 0.368$ ) and PSE-Gen ( $r = 0.420$ ), low for PSE-Authen ( $r = 0.218$ ), and not significant for PSE-Ling ( $r = 0.192$ ). Correlations for linguistic knowledge and L2RP were high as expected: grammar knowledge (hereafter, GK) ( $r = 0.816$ ) and vocabulary knowledge (hereafter, VK) ( $r = 0.790$ ). It was also found that linguistic knowledge was significantly correlated with PSE to a moderate degree: GK ( $r = 0.422$ ) and VK ( $r = 0.477$ ). All the tested variables correlated significantly with each other except for PSE-Ling. Even though it correlated significantly with the other PSE variables ranging from 0.656 to 0.728, and linguistic knowledge variables (0.308 with GK, 0.293 with VK), its correlation with L2RP was not significant ( $r = 0.192, p > 0.05$ ).

#### 4.1. Sub-Components of Significant Effects on L2 Reading Proficiency

The purpose of the first research question is to determine specific aspects of PSE that make a significant contribution to L2 reading. In order to answer the question, stepwise multiple regression was conducted. At Step 1 of the analysis, PSE-Gen was entered into the regression equation and was significantly related to L2 reading proficiency,  $F(1, 93) = 19.952, p < 0.001$ . The multiple regression coefficient was 0.420, indicating that approximately 17.7% of the variance in L2RP could be explained by PSE-Gen. The other three variables did not enter into the equation at Step 2 of the analysis:  $t = 0.201, p > 0.05$  (PSE-TextB);  $t = -1.230, p > 0.05$  (PSE-Ling); and  $t = -1.646, p > 0.05$  (PSE-Authen). This indicates that even though all of the PSE sub-components were significantly correlated to L2RP, it was PSE-Gen that still had a significant explanatory power when the shared variances were considered.

## 4.2. Contributions of Linguistic Knowledge and L2RP to PSE

Multiple regression was used to test if VK, GK, and L2RP significantly predicted L2 reading PSE. Multicollinearity among the independent variables was examined via SPSS 21. The two diagnostic statistics, tolerance and VIF (variance inflation factor) indicated no such problem. The results of the regression indicated that the three predictors explained a significant portion of the variance in PSE ( $R^2 = 0.229$ ,  $F(3,91) = 8.99$ ,  $p < 0.001$ ). It was found that VK significantly predicted PSE ( $\beta = 0.458$ ,  $t = 2.395$ ,  $p < 0.05$ ), but GK and L2RP did not (GK:  $\beta = 0.056$ ,  $t = 0.273$ ,  $p = 0.785$  and L2RP:  $\beta = -0.037$ ,  $t = -0.219$ ,  $p = 0.827$ ).

**TABLE 3**  
Means, Standard Deviations, and Correlations of PSE, L2RP, GK, and VK ( $n = 95$ )

	1	2	3	4	5	6	7	8
1. PSE	1.000							
2. PSE-TextB	.964**	1.000						
3. PSE-Gen	.939**	.853**	1.000					
4. PSE-Ling	.799**	.728**	.663*	1.000				
5. PSE-Authen	.870**	.819**	.758**	.656**	1.000			
6. L2RP	.371**	.368**	.420**	.192ns	.218*	1.000		
7. GK	.422**	.408**	.453**	.308**	.249*	.816**	1.000	
8. VK	.477**	.486**	.507**	.293**	.290**	.790**	.865**	1.000
<i>M</i>	4.26	4.45	4.35	3.47	4.25	18.36	27.65	104.35
<i>SD</i>	1.04	1.07	1.16	1.21	1.15	4.35	8.42	20.68

Note. PSE = an average of all PSE items; PSE-TextB = PSE in textbook; PSE-Gen = PSE in general items; PSE-Ling = PSE in linguistic items; PSE-Authen = PSE in authentic reading; GK = grammar knowledge; VK = vocabulary knowledge

\*  $p < 0.05$ , \*\*  $p < 0.01$

**TABLE 4**  
Hierarchical Multiple Regression Analyses Predicting PSE From VK, GK, and P2RP

Predictor	L2 Reading PSE					
	Model 1		Model 2		Model 3	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1	.180**		.228**		.228**	
Control variables						
Step 2	.048*		.001		.000	
VK (Model 1)		.458*				
GK (Model 2)				0.056		
L2RP (Model 3)						-.037
Total $R^2$	.229**		.229**		.229**	

Note.  $N = 95$

\*  $p < 0.05$ , \*\*  $p < 0.01$

Even though all of the three predictors were significantly correlated to L2 reading PSE as displayed in Table 3, it was VK that significantly predicted PSE when they were

considered together. Since this result does not provide information about unique variances accounted for by each predictor variable, hierarchical multiple regression was conducted to answer the question in three different models. The control variables were GK and L2RP in Model 1, VK and L2RP in Model 2, and VK and GK in Model 3. As shown in Table 4, the control variables (GK and L2RP) in Model 1 together explained 18.0% of the variance in PSE, and VK's unique contribution was 4.8%, which was significant ( $p < 0.05$ ). However, in Model2 and Model3, the unique variances explained by GK and L2RP were not significant ( $p > 0.05$ ), and incremental  $R^2$  was minimal or almost nonexistent: 0.1% (GK) and 0.0% (L2RP). This indicates that VK was the primary source of PSE for L2RP.

#### 4.3. Contributions of Linguistic Knowledge and PSE to L2RP

The relative contributions of PSE, VK, and GK to L2RP were investigated via multiple regression analysis, with L2RP as a dependent variable. As noted earlier in Table 3, the correlations among all of the tested variables were significant; a multicollinearity problem was not detected in this model either. Results of the multiple regression analysis showed that the tested model explained 69.4% of the variance in L2RP  $F(3,91)=69.876, p < 0.001$ . The predictors of significant impact were GK ( $\beta = 0.526, t = 4.554, p < 0.001$ ) and VK ( $\beta = 0.342, t = 2.874, p < 0.01$ ). PSE, however, did not significantly predict L2RP when considered with the other two linguistic variables ( $\beta = -0.015, t = -0.220, p = 0.862$ ).

In order to check the unique contributions made by each variable, the same procedure of hierarchical multiple regression analyses was conducted.

**TABLE 5**  
**Hierarchical Multiple Regression Analyses Predicting L2RP From PSE, VK, and GK**

Predictor	L2RP					
	Model 1		Model 2		Model 3	
	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$
Step 1 Control variables	.666**		.625**		.694**	
Step 2 VK (Model 1)	.028**	.342**	.070**		.000	
GK (Model 2)				.526**		
PSE (Model 3)						-.014
Total $R^2$	.694**		.694**		.694**	

Note.  $N = 95$

\*  $p < 0.05$ , \*\*  $p < 0.01$

Table 5 shows that GK and PSE together explained 66.6% of the variance in L2RP, and VK still added its significant unique contribution of 2.8% to L2RP ( $p < 0.01$ ). In Model 2, GK also added 7% of significant unique contribution to L2RP above and beyond VK and



PSE, which accounted for 62.5% of L2RP. However, when VK and GK were controlled for in Model 3, PSE was found to add no contribution to L2RP at all. This indicates that the individual differences observed in levels of PSE can be accounted for by those in VK and GK. PSE made no independent

## 5. DISCUSSION

Before going into the discussion, the global framework within which the study was conducted ought to be reviewed. Reading texts, thanks to their ubiquitous availability and learners' controllability over the input, have been emphasized as a source of constant comprehensible linguistic input for second language development in an EFL context. Being constantly involved in demanding tasks such as L2 reading necessarily entails ELLs' determination to do so and requires them to make much effort and effectively exercise control over their own learning processes over a relatively long period of time. In this sense, the importance of PSE needs to be viewed holistically rather than as localized to specific language skills. However, the predictive power of PSE increases as the specificity of PSE assessment corresponds to criterial tasks (Bandura, 1997; Pajares, 1996b), and the core task of this envisioned learning process is reading. Thus, before investigating the long-term effects of PSE on constant reading behaviors as habits that involve not only linguistic knowledge but also many other facets of learner competences and external conditions, it is helpful to start by investigating the effects of PSE on reading as a one-time event and identify specific sources of PSE that play an important role in L2 reading comprehension in a cross-sectional research design.

The first research question concerned identifying important facets of PSE in relation to L2 reading comprehension. Out of the four subcomponents set up for the investigation that included (1) text-based PSE, (2) PSE in comparative evaluation and the use of available resources, termed PSE-Gen, (3) PSE in linguistic knowledge and (4) PSE in authentic reading tasks, PSE-Gen was found to be the only significant predictor of L2 reading proficiency, explaining 17.7% of L2RP when all of the subcomponents were considered together. That is, those who evaluated themselves as better at L2 reading than their peers and those who were confident in their ability to use external tools such as dictionaries and other related materials tended to have higher L2RP. This finding is interesting in that these two items reflect the two factors of *social comparison influences* and *perceived controllability over environments* under cognitive processes, presented as one of the efficacy-activated processes by Bandura (1993, 1997); see Table 1. The finding from the present study is consistent with his theorization on PSE.

The other three subcomponents weakly overlap with the factors under the four efficacy-

activated processes in their categorization. However, text-based PSE was one of the PSE subcomponents that was deemed to play an important role in predicting L2RP because the more specific PSE assessment tools are to criterial tasks, the stronger the predictive power (Bandura, 1997; Pajares, 1996b), and the items in PSE-TextB were most closely aligned with the target task; they included confidence in specific reading skills such as how to ascertain and understand main ideas and details of reading passages used in general English classes. This was not the case in the present study; note that PSE-TextB was significantly correlated with L2RP but lost its predictive power when considered together with the other subcomponents. Since no previous studies have investigated the specificity effect of L2 reading PSE in relation to specific efficacy-activated mechanisms, the finding is not conclusive. However, it certainly highlights a prominent role for process-oriented mechanisms of PSE as opposed to a fine grain size in the specificity of PSE assessment tools.

The second research question attempted to identify how different kinds of linguistic knowledge are related to L2 reading PSE. This question needs to be interpreted under *enactive mastery experience* that Bandura identified as the most influential source of efficacy information. Simply put, the more successes learners experience, the more robust their personal efficacy becomes. Theoretically, it is obvious that ELL's prior knowledge of vocabulary and grammar and their actual L2 reading proficiency are important factors in their mastery L2 reading experiences. Which factor is in fact translated into higher PSE is a different question, which was investigated in the current study. Among the previous studies, Ham (2002) found that Korean college students' college scholastic aptitude test scores for English reading comprehension significantly predicted their PSE, but their grades in a previous reading class did not. What was found in the present study is that VK was the only significant predictor that made a unique contribution to PSE when GK and L2RP were considered together despite their significant zero-order correlations with PSE. Interestingly, individual differences in actual L2 reading performance did not add any significant explanatory power when VK and GK were controlled for.

The finding of the current study suggests that L2 readers of the lower proficiency level evaluated their PSE based on the size of their vocabulary knowledge. In some sense, this finding may not be surprising, in that each predictor construct differs in its representational nature. As mentioned, L2RP is a multi-componential construct, which makes it difficult for L2 readers to perceive the entity of L2 reading. In a similar vein, grammar knowledge is also a type of knowledge that requires a comprehensive understanding if it is to serve as a source of control over L2 reading. Incomplete grammar knowledge is not likely to promote L2 readers' PSE because there still exists confusion in their knowledge system. Unlike these two constructs, vocabulary knowledge is a type of construct that becomes most tangible for beginning L2 readers as they expand their knowledge. It is not clear whether

vocabulary knowledge still continues to be the only predictor for PSE as L2 proficiency increases. Grammar knowledge, when learned or acquired in a comprehensive manner, may take over the effect of vocabulary knowledge, because grammar knowledge can be conducive to analytical processes of reading texts, which may be perceived as tangible for L2 readers. These questions deserve further investigation.

The third question was investigated with Bandura's *reciprocal determinism* in mind. L2 reading PSE and actual L2RP are assumed to influence each other reciprocally in learning processes, in that those with better L2RP are likely to develop higher PSE, which in turn leads to better L2RP. With the findings from the second research question available now—VK as the only predictor with a significant unique contribution to PSE—it is interesting to see any changes in significant predictors of L2RP despite the absence of a time lag between measurements in the present study; in order for L2RP, VK, GK, and PSE to influence each other reciprocally, some time lag is assumed to exist in the processes of acquiring such knowledge and developing PSE. As already shown in the zero-order correlations, PSE, VK, GK, and L2RP were significantly correlated. When PSE, VK, and GK were regressed on L2RP, both of the linguistic variables had significant regression weights, but PSE did not. Hierarchical multiple regression analyses confirmed the prominent roles of VK and GK, because each made a significant contribution to L2RP after the other variables were controlled for; VK added 2.8% of unique contribution, while GK added 7%. This indicates that PSE had no direct independent effect on but was related to L2RP indirectly via VK, given that VK was the only significant predictor of PSE with a unique contribution, and PSE lost its predictive power when considered together with VK and GK. This finding indicates that PSE for L2RP is dominated by individual differences in VK only, while actual L2RP is co-determined by VK and GK, and slightly more by GK.

This result of no independent contribution of PSE differs from Kim's (2015) that found an independent effect of PSE on L2 reading when motivation, strategy use, and L2 listening were considered together. This difference probably comes from a different specification of linguistic knowledge; in the present study, passage sight vocabulary in the reading text and grammar knowledge were used to measure linguistic knowledge, whereas L2 listening was used in Kim's. In addition, the target population of the present study is college students of beginning L2 proficiency, while high school students with varying proficiency levels were targeted in Kim's. Another study that found a significant effect of PSE on L2 reading was Mills, et al. (2006). However, they did not include any linguistic knowledge related variables as predictors. They showed that the effects of anxiety disappeared when PSE was considered together to explain variances in L2 reading. Thus, further studies seem necessary to confirm or disconfirm the independent effects of PSE on L2 reading in order to understand the exact nature of PSE's influence on ELL's actual L2 proficiency.

## 6. CONCLUSION

The construct of PSE has drawn much attention in the field of second language education in recent years and has been investigated in relation to various aspects of SLA. Considering the nature of SLA as immensely time consuming processes that require learners' strong determination to keep learning, and their effective management of such processes, it appears that PSE is likely to gain more attention from researchers as well as teachers. One caution about interpretation on the current finding needs to be noted. The participants were recruited from two universities, the participants of which differed slightly in their proficiency. This may have weakened the explanatory power. The present study is still of value, in that the relationships between PSE and specific linguistic knowledge were analyzed in a fine grain size, and vocabulary knowledge was found to be a primary source for building positive PSE.

Out of many possible pedagogical activities for students of beginning L2 proficiency, vocabulary building activities need to be encouraged not only as class activities but also out-of-class activities because they help ELLs develop their L2 reading proficiency and are likely to boost their PSE as well. Although the exact causal relationship needs to be confirmed by an experimental study, L2 readers can benefit from self-regulated vocabulary learning to a great degree when explicitly taught and trained about how to adopt this approach in class. In addition, the effects of this explicit approach are expected to be reinforced when L2 readers are encouraged to engage in extensive reading so that incidental as well as explicit vocabulary learning takes place.

A deeper and more comprehensive understanding on the effects of PSE can be made possible through longitudinal research by tracking changes in important variables such as aspects of ELLs' PSE that include social comparison influences and controllability over external environments, their linguistic knowledge, and other possible pedagogical treatments conducive to building positive PSE. Possible treatments may include mastery learning programs designed to help ELLs experience success in challenging reading tasks, various forms of verbal persuasion from teachers and peers, and activities tailored to help integrate efficacy information, as Bandura (1997) suggested. How PSE fits in effective extensive reading programs is also a topic suitable for further investigation.

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