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Metacognitive Awareness of Reading Strategies among Korean College Students

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This paper explores Korean EFL college students' metacognitive awareness of reading strategies in reference to factors that may facilitate strategy use, such as L2 proficiency, L1 reading experience and academic L2 reading experience. A survey questionnaire adapted from the Survey of Reading Strategies (Mokhtari & Sheorey, 2002) with three subscales (i.e. global reading, problem solving, and support reading strategies) was administered to 96 students, 50 upper-class English majors and 46 freshmen. The data analysis revealed the following: 1) The students' overall strategy use was at the upper moderate frequency level, concurring with the results of previous studies in L2 reading (Kweon, 2009; Malcolm, 2009; Zhang & Wu, 2009). 2) Of the three variables, the extent of L1 reading experience had main effects on the use of the overall strategies, the global reading and the support reading strategies, with L2 proficiency exerting a limited effect. 3) L1 translation was a strategy favored by the students with low L2 proficiency but extensive L1 reading experience. The reliance on L1 as the medium of cognitive processes was obvious among the upper-class students, possibly due to their positive experience of utilizing L1 as the language of thought in dealing with academic texts.

[metacognitve awareness/L2 reading strategies/L2 proficiency/L1 reading]

I. INTRODUCTION

Reading in a second language (L2) is a complex cognitive process involving interactions of various components such as knowledge of an L2 at multiple linguistic levels (i.e. phonological, morphological, syntactic, and discourse level), background knowledge or schema, L1 literacy, and reading strategies. Of these sub-components of reading skills, the ability to utilize various strategies in accordance with text types, reading contexts or reading goals has been recognized as a critical skill facilitating reading comprehension,

which has led to a substantial amount of research on reading strategies in L2 (Bernhardt, 2005; Grabe, 2009; Hudson, 2007; Koda, 2005; Yang, 2010; Yong, 2009). The strategies relied on by learners were assessed in various ways such as think-aloud protocols, interviews, or questionnaires, through which L2 readers' conscious awareness (i.e. metacognition) of the inventory of strategies they draw on while engaged in reading was revealed (Chin, 2011; Choi, 2010; Paris & Winograd, 1990; Pressley & Afflerbach, 1995; Sheorey & Mokhtari, 2001).

Interest in metacognition of L2 readers has grown in conjunction with the attention given to the role of metacognition in general learning theory (Hudson, 2007). Flavell (1979) and Wenden (1998) state that metacognition is a crucial element in learning, assisting people to recognize their strengths or weaknesses as learners, to select the best strategies that fit the goal(s), significance, and difficulty of tasks, and to evaluate the effectiveness of strategies implemented. Metacognition enables a learner to act on the belief that "I (compared to my sister) have to use strategy A (not B) when I perform task X (differently from when I perform task Y)" (Flavell, 1979, p. 907). In other words, metacognition plays a concrete and crucial role in learning by guiding the learner to choose, modify, and relinquish, if necessary, strategies and goals in view of the task at hand and her own interest.

Applied to L2 reading, metacognition refers to a reader's conscious awareness of strategic reading, monitoring of one's reading behavior, and adjustment of strategies to optimize reading comprehension (Carrell, Gajdusek, &Wise, 1998; Sheorey & Mokhtari, 2001; Zhang, 2001). Hence, L2 readers with a high level of metacognitive knowledge of reading strategies are assumed to be capable of understanding reading tasks in light of contexts, and selecting reading strategies in consideration of reading goals, task demands, and their cognitive style (Hudson, 2007; Pressley & Afflerbach, 1995; Zhang & Wu, 2009).

Supportive evidence for the facilitative role of metacognition in L2 reading has been accumulated, with the observation that successful and skilled L2 readers tend to display higher degrees of metacognitive awareness of the strategies they utilize during reading than unsuccessful and less skilled readers (Anderson, 1999; Carrell, 1989a, 1989b; Kweon, 2009; Schoonen, Hulstijn, & Bossers, 1998; Sheorey & Mokhtari, 2001; Zhang, 2001; Zhang & Wu, 2009). The main focus of most of these studies was the interaction of L2 reading proficiency and metacognitive awareness of reading strategies, while other relevant variables such as L1 reading experience and the extent of academic reading experience in L2 have mostly been left unexplored. Building upon previous research, this study intends to fill this gap by reporting on how L1 reading and academic L2 reading experience interact with L2 proficiency in L2 readers' metacognitive awareness of reading strategies.

The acquisition of reading strategies in L1 does not happen instantaneously but 'evolves in progressive stages' (Koda, 2005, p. 211), possibly through an extended exposure to

reading tasks and practices. Moreover, reading strategies acquired in L1 have been observed to transfer to reading in L2 (Block, 1986; Sheorey & Mokhtari, 2001). Thus, it is assumed that the extent of reading experience in L1 may be positively related with the use of strategies in L2 reading tasks. The same prediction may be applied to the use of reading strategies in academic contexts; the extent of exposure to academic texts in L2 will have a positive relation with the extent to which a reader utilizes reading strategies in reading academic materials. Applied to the Korean collegiate context, in which reading academic texts in English is a must for most students, years of instruction can be hypothesized to be positively related with reading strategy use, upper-class students implementing more diverse strategies with a higher frequency than lower-class students.

Recognizing L1 reading and academic L2 reading experience as plausible variables interacting with reported use of reading strategies, we set out to explore the following questions in this study:

1) What is the general pattern of reading strategy use reported by Korean university students?
2) How do readers' L2 proficiency, experience with L2 academic texts, and extent of L1 reading experience interact with the reported use of reading strategies by Korean university students?

II. PREVIOUS RESEARCH

Of various questionnaires developed to measure reading strategy use, the data collection instrument we selected for this study is the Survey of Reading Strategies (SORS) by Mokhtari and Sheorey (2002), which was originally developed to measure metacognitive awareness of reading strategy use by adolescent and adult ESL learners while they were engaged in reading academic materials in L2 English. The SORS consists of three subscales: the global reading strategy, problem solving strategy, and support reading strategy. Before reporting on the results of our study, let us first review some representative studies of metacognitive awareness of reading strategies conducted with the SORS.

A comparison of reading strategy use by ESL and L1 readers of English is found in Sheorey and Mokhtari (2001). A total of 152 ESL and 150 L1 readers were divided into two proficiency groups based on their self-assessment of L2 and L1 proficiency, respectively. An analysis of their responses on the SORS revealed that the preference order of the three subscales was the same between the two groups: the problem solving strategy, followed by the global and support reading strategy. With regard to the frequency of strategy use, however, the ESL group reported using the strategies more frequently than the

L1 group, showing a significant difference in the overall strategy use and the support reading strategy. High proficiency readers in both groups reported using the strategies significantly more than the low proficiency readers. Sheorey and Mokhtari (2001), based on the data, suggested that language proficiency, either L1 or L2, had a close relationship with perceived use of reading strategies and that employment of diverse strategies with a higher frequency may be one of the features that distinguished skilled readers from less skilled ones in actual reading tasks. However, the finding that the L1 readers employed the reading strategies to a less extent than the ESL readers is rather unexpected since the L1 group was definitely more proficient in English than the learner group. Language proficiency may not be so closely related with reading strategy use contrary to Sheorey and Mokhtari's (2001) suggestion.

Malcolm (2009) is another study in which L2 proficiency was shown not to exert much influence on the perceived use of reading strategies. Two variables, L2 English proficiency and academic L2 reading experience operationalized as years of instruction, were examined in relation with metacognitive awareness of reading strategies by first and fourth year medical university students in Bahrain. The fourth year students' overall awareness of the strategies was higher than that of the first year students, a significant difference being observed in the global strategy. However, the low and high L2 proficiency students within each group did not differ much in their reported strategy use, which Malcolm (2009) attributed to the possibility that all the medical students were above the threshold level in their L2 English, thus being able to utilize the strategies with similar frequencies. One notable difference between the high and low L2 proficiency learners in the first and fourth year group was that the low proficiency learners preferred the 'translation into L1' strategy significantly more than the high level learners.

Zhang and Wu (2009), in their study of 270 Chinese high school students, found that the students were on the whole high strategy users, preferring the problem solving strategy the most (3.78), followed by the global reading strategy (3.63) and the support reading strategy (3.06). The high proficiency group reported employing the global reading strategy significantly more frequently than the middle and low level groups, while no statistical difference was found among the three groups in the use of the problem solving and support reading strategies. However, as in Malcolm's study, one of the support reading strategies, translation into L1, was preferred by the low level students significantly more than by the high level students.

Kweon (2009), conducted in the Korean collegiate context, set out to explore the relevance of L2 readers' field of study in the perceived use of reading strategies. The SORS was administered to 50 English majors and 58 engineering majors in a Korean university. According to the data analysis, it was the problem solving strategy that was preferred by both groups in general, the global and support reading strategies following

behind. A difference between the two groups was shown in the use of the problem solving and support reading strategies, with the English majors relying on these two more frequently compared to the engineering majors. The diverging pattern between the two groups, however, appears to be apparent than real; a failure to control intervening variables–the learners' English proficiency and their gender–renders it difficult to concur with the author's observation. The L2 proficiency of the English majors as measured by the TOEFL scores was significantly higher than that of the engineering majors, and the majority of the English majors were female (82%), while the majority were male (93%) among the engineering students. Research with a careful control of the three variables should reveal the relevance of the field of study as a potential variable interacting with reading strategy use.

Choi (2010) administered the SORS to 481 Korean students in the 6th-9th and 11th grades to explore possible developmental patterns in the reported use of reading strategies. While the frequency of the students' overall strategy use was in the moderate range (between 2.7-3.0), it increased gradually in proportion to the students' grade levels, except for the temporary drop in the 7th grade, which was attributed by the author to the fact that the 7th graders, who had to cope with demanding reading tasks in middle school, might have been constrained by their limited cognitive resources.

A similar developmental pattern in reading strategy use was observed in Schoonen et al.'s (1998) study involving 488 students in grades 6, 8, and 10 in the Netherlands. The 8th and 10th graders employed more of the strategies than the 6th graders, which, according to the researchers, was an outcome resulting from self-directed extensive reading activities promoting unintentional and subconscious problem solving processes rather than from conscious and intentional reading activities in classroom instruction. That is, reading in L1 over an extended period of time was shown to contribute to the readers' metacognitive awareness of effective reading strategies.

Building upon previous research, this study incorporates the three variables−L2 proficiency, L1 reading experience, and experience of academic reading in L2, which have separately been examined in previous research, and examines their interaction with reading strategy use, hoping to shed some light on their relative role in promoting strategy use in L2 reading.

Sheorey and Mokhtari (2001) pointed out two capacities that distinguish good readers from poor readers: conscious awareness of strategies (knowing that) and the actual use of strategies (knowing how). According to Wenden (1998), the former rather than the latter is what is assessed by strategy questionnaires or interviews. Likewise, the current study attempts to measure the 'knowing that' of learner strategies by asking the L2 readers to bring to the conscious level the strategies they subconsciously employ in actual reading of academic texts. Knowledge of reading strategies does not necessarily mean a successful

application of these strategies, but it is a prerequisite for their successful implementation. It is our goal to examine the factors that interact with knowledge of reading strategies in L2.

III. METHODS

1. Participants

Ninety six students in a Korean university participated in the study: 46 freshmen who just started their first semester in college and 50 upper-class students in their fourth semester or above. All the students were either English majors or double majors, 27 of whom were males. The freshmen and upper-class group's responses on the SORS were compared to examine the interaction of academic L2 reading experience and their perceived use of reading strategies. The hypothesis was that the advanced students with four to eight semesters' academic L2 reading experience in college may utilize the reading strategies in a pattern different from the freshmen, who were novice readers when it comes to reading for academic purposes.

The participants' English proficiency was measured by a general English proficiency test constructed by the researcher based on simulated TOEIC tests. It consisted of listening (50 items), reading (25 items), and language structure (25 items) sections. The average score of the students was 54.8 out of 100 total points with a range of 21 to 91. The students were divided into three groups based on the test scores: 27 high proficiency students with an average score of 73.7 (range: 61-91), 36 middle proficiency students with an average of 54.7 (range: 45-60) and 33 low proficiency students with an average of 39.6 (range: 21-44). The three proficiency groups were compared to observe a possible interaction of the readers' L2 proficiency and their ability to draw on reading strategies while reading in L2.

The extent to which the students were exposed to reading materials in L1 Korean and their L1 reading comprehension ability were self-assessed through four items on the questionnaire (details in the next section), based on which the students were divided into two groups: one with extensive reading experience in L1 and the other with limited experience. The two groups' response patterns were to reveal the influence of L1 reading experience on the strategy use in L2 reading.

2. Instrument and procedures

As mentioned above, the SORS developed by Mokhtari and Sheorey (2002) was used with a minor adaptation to estimate the reading strategies preferred by the Korean university students. The SORS consists of 30 items grouped into three subcategories of

reading strategies, each of which has the following features according to Mokhtari and Sheorey (2002, p. 4).

1. Global Reading Strategies (GLOB): intentional and carefully planned techniques by which learners monitor or manage their reading (e.g. having a purpose in mind, previewing the text as to its length and organization, or using typographical aids and tables) (13 items)
2. Problem Solving Strategies (PROB): actions and procedures that readers employ while working directly with the text. Localized and focused techniques utilized when problems develop in understanding textual information (e.g. adjusting one's speed of reading when the material becomes difficult, guessing the meaning of unknown words, or rereading the text to improve comprehension) (8 items)
3. Support Reading Strategies (SUP): basic support mechanisms intended to aid the reader in comprehending the text (e.g. using a dictionary, taking notes, underlining or highlighting textual information) (9 items)

The questionnaire was administered in Korean in order to assist the students' comprehension of the questionnaire items. Some adjustments were made in the Korean version: Two similar items in the GLOB were combined into one, one item in the PROB was deleted since it was judged to overlap with another item in the GLOB, and one item was added in the SUP to reflect the widespread use of the internet as an educational tool among the younger generation ("I search the internet for information to assist understanding of the text I read"). In order to ensure that the students' responses were based on their strategy use when they were engaged in reading in L2, the phrase "when I read in English" was inserted in each of the 29 items. The revised questionnaire was composed of 29 items pertaining to reading strategies (12 GLOB, 7 PROB, and 10 SUP) and four items measuring the students' L1 reading experience as shown below.

Q1) I have been reading Korean daily newspapers since elementary school.
Q2) I have been reading Korean books of various genres (e.g. novels, magazines, or essays) since elementary school.
Q3) The degree at which I understand the Korean textbooks/reading materials assigned in the courses I am taking is estimated as _____.
① 0-20% ② 21-40% ③ 41-60% ④ 61-80% ⑤ 81-100%
Q4) The average amount of time I spend on reading printed materials in Korean is _____ per week.
① 0- 30 minutes ② 30 -60 minutes ③ 1 hour- 2 hours
④ 2- 3 hours ⑤ more than 3 hours

The responses for the 29 SORS items and the two questions on L1 reading experience (Q1 & Q2) were on the Likert scale ranging from 1 ("I never or almost never do this") to 5 ("I always or almost always do this"). The students were asked to read each statement and check the rank that applied to them. Three levels of strategy use were identified following Sheorey and Mokhtari's (2001) guideline: high (a mean of 3.50 or higher), moderate (a mean of 2.50 to 3.49), and low (a mean of 2.49 or lower). The responses on the four items related to L1 reading experience were totaled (20 as the maximum score), based on which the students were divided into high (49 students) and low (47 students) L1 reading experience group.

The questionnaire was administered to the freshmen at the beginning of the spring semester and to the upper-class students at the end of the fall semester in 2012.[1] The reliability of the overall scale measured by Cronbach's alpha was .89 for the original SORS (Sheorey &Mokhtari, 2001) and .80 for the current study, confirming that the questionnaire is an appropriate tool to measure L2 students' awareness and perceived use of reading strategies.

IV. RESULTS AND DISCUSSION

1. An overall pattern of perceived reading strategy use

The mean score of the overall strategy use reported by the 96 students was 3.42, indicating that the students used the strategies in the (upper) moderate frequency level. Of the three subcategories, the PROB showed the highest frequency with an average of 3.73, followed by the GLOB (3.43) and SUP (3.11). The rankings of the strategies are provided in Table 1 in a descending order from the highest to the lowest frequency.

As shown in the table, the majority of the 29 strategies showed a moderate to high frequency range: 15 high and 11 moderate frequencies. There were only three strategies with a frequency of 2.49 or lower, one GLOB and two SUB strategies. Of the 15 strategies in the high frequency level, six (out of 12) belonged to the GLOB, six (out of seven) to the PROB, and three (out of ten) to the SUB. Only one of the seven strategies in the PROB (P16: visualizing information) was used with a moderate frequency of 3.19. The relative high frequency of the PROB reflects the students' preference of the more direct and

[1] The questionnaire was administered to the two groups at different periods in order to maximize the gap between the freshmen and the upper class students in their experience with academic English.

localized techniques as a way to enhance understanding of textual information in L2 reading.

TABLE 1

Rankings of the Strategies

Number	Items	Mean
P17	Re-reading difficult text	4.3
S23	Using a dictionary	4.17
G8	Using context clues	4.07
P19	Trying to stay focused	3.96
G7	Using text features (tables & figures)	3.94
G9	Using typographical features (bold, italics, underlined parts)	3.81
P18	Guessing meaning of difficult words	3.74
P13	Reading slowly and carefully	3.73
P14	Adjusting reading rate according to text difficulty	3.71
G6	Using prior knowledge (background/grammar)	3.70
G10	Resolving conflict between old and new information	3.70
S21	Underlining or circling information	3.66
P15	Pausing & thinking about reading	3.61
G3	Skimming to note text characteristics	3.57
S26	Going back and forth in text	3.56
S24	Using reference materials on the web	3.45
G1	Setting purpose for reading	3.4
G11	Confirming predictions	3.35
S29	Thinking in Korean	3.33
S28	Translating into Korean	3.29
G5	Predicting or guessing text meaning	3.21
P16	Visualizing information read	3.19
G4	Deciding what and how to read	3.02
G2	Checking how text content fits reading purpose	2.94
S20	Taking notes while reading	2.92
S22	Reading aloud for better understanding	2.80
G12	Critically evaluating what is read	2.45
S25	Paraphrasing for better understanding	2.32
S27	Asking oneself questions about text	1.57

To help interpret the students' strategy use, their responses were compared with those observed in previous studies on Korean students: the perceived strategy use of the English and engineering majors in Kweon (2009) and the 11th graders in Choi (2010).

TABLE 2

Comparison of Korean Students' Reading Strategy Use

	Kweon (English)	Kweon (Engineering)	Choi (11^{th})	current study
GLOB	3.25	3.20	3.04	3.43
PROB	3.76	3.55	2.93	3.73
SUP	3.11	2.73	2.84	3.12
Total	3.37	3.16	3.07	3.42

More or less similar responses were given by the English majors in Kweon (2009) and the students in the current study, a not unexpected result since both groups were English majors and supposed to be more proficient in English than engineering majors. The engineering students and the 11^{th} graders displayed lower awareness of the reading strategies. The strategy most favored by the university students both in Kweon and the current study was the PROB, while it was the GLOB that was preferred by the 11^{th} graders in Choi (2010), though the gap between the GLOB and PROB was slight .[2]

2. L2 proficiency, academic L2 reading experience, L1 reading experience and perceived use of reading strategies

In order to examine the interaction of reading strategy use with such factors as L2 proficiency, exposure to academic reading in L2, and the extent of L1 reading experience, a 3x2x2 factorial ANOVA was conducted with L2 proficiency (high, middle, low), academic L2 reading experience (high, low), and L1 reading experience (high, low) as independent variables and the perceived reading strategy use as a dependent variable.

Of the three factors, a main effect was observed only with the L1 reading experience ($F_{1, 84}$=9.565, p=.003, partial η^2=.102). The group with extensive experience of reading in L1 reported using the reading strategies more (n=49, mean=3.55, SD=.37) than the group with L1 reading experience to a less extent (n=47, mean=3.29, SD=.42). The effect size shows that L1 reading experience accounted for R^2=10.2% of the variance in the use of the overall reading strategies by the learners, which is a rather small effect. The main effects of L2 proficiency and the duration of exposure to academic L2 texts were not statistical. The full model accounted for R^2=17.3% of the variance in reading strategy use.

The effects that the three independent variables may have on the use of each of the three subscales were examined, the result of which is summarized in Table 3.

[2] The Chinese high school students studied in Zhang and Wu (2009) reported using the PROB more than the GLOB, concurring with the patterns in Kweon and the current study. Hence, the preference of the GLOB over the PROB by the 11^{th} graders in Choi (2010) does not seem to be due to their age. A further investigation is needed to account for the diverging pattern.

TABLE 3

Effects of the Three Variables on GLOB, PROB & SUB

		Type II SS	df	Mean square	F	Sig.	Partial η^2	Observed power
GLOB	L1 reading	1.497	1	1.497	6.96	.010	.077	.741
	L1 reading * L2 proficiency	2.718	2	1.359	6.32	.003	.131	.888
SUP	L1 reading	2.016	1	2.016	6.58	.012	.073	.717

For the GLOB, a main effect of L1 reading experience ($F_{1, 84}$ =6.96, p=.01, partial η^2=.077) and an interaction of L2 proficiency and L1 reading experience ($F_{2.84}$= 6.32, p=.003, partial η^2=.131) were observed. The full model explained R^2=29.3% of the variance in the use of the GLOB. In the low and mid L2 proficiency groups, the learners with more extensive L1 reading experience reported using the strategies more frequently than their counterparts (L:3.21 vs. 3.39; M:3.06 vs. 3.72), but in the high L2 proficiency group, the opposite pattern was observed (H:3.58 vs. 3.39). The question of why high L2 proficiency learners with more extensive L1 reading experience relied less on reading strategies needs further investigation.

A main effect of L1 reading experience was observed with the SUP ($F_{1,84}$=.6.58, p=.012, partial η^2=.073), with L2 proficiency or experience of academic reading in L2 having no significant effect. The group with extensive reading experience in L1 perceived that they relied on the SUP more frequently (n=49, mean=3.26, SD=.47) than their counterpart (n=47, mean=2.95, SD=.61).

No main effect of the independent variables was observed for the PROB, indicating that L2 proficiency, L1 reading habits, and academic L2 reading experience were not closely related with the utilization of the PROB. Overall, L1 reading experience was shown to be a factor closely interacting with the use of the reading strategies across the three subscales as well as the strategies as a whole, L2 proficiency playing a minor role.

The effects of the three independent variables on the use of each of the 29 strategies were examined. First, a main effect of L1 reading experience was shown for six of the 29 strategies: four in the GLOB and two in the SUP. Extensive exposure to L1 reading materials and tasks appears to promote a gradual acquisition of the intentional and carefully planned techniques to monitor or manage their reading processes (e.g. setting purpose for reading, skimming, and deciding what to read), which may transfer to the process of L2 reading. Critical text reading does not seem to be a favorite of both groups, as shown by the low mean frequency. Native English speaking students in Sheorey and Mokhtari (2001) also did not prefer to read texts critically with an average of 2.7, a frequency similar to that of the high L1 reading experience group in our study. We conjecture that university students may approach academic reading as a process of

information transmission and acquisition rather than a process involving critical evaluation of knowledge, resulting in infrequent employment of critical reading as an effective strategy in both L1 and L2 reading.

TABLE 4

L1 Reading Experience and Reading Strategy Use

	mean	F	Sig	Partial η^2	Observed power
G1. Setting purpose for reading	L: 3.19 H: 3.59	4.832	.031	.054	.584
G3. Skimming to note text characteristics	L: 3.28 H: 3.86	6.246	.012	.073	.722
G4. Deciding what and how to read	L: 2.74 H: 3.29	6.275	.022	.061	.633
G12. Critically evaluating what is read	L: 2.23 H: 2.65	4.743	.036	.052	.560
S23. Using a dictionary	L:3.94 H:4.39	4.795	.032	.054	.578
S28. Translating into Korean	L:2.91 H:3.65	7.645	.007	.083	.780

The students with extensive L1 reading experience reported relying more frequently on dictionaries and L1 translation than those with limited experience, a rather unexpected result. The use of dictionaries or reliance on L1 translation was observed to have a negative correlation with L2 proficiency (Malcolm, 2009), a pattern corroborated by the results in our study, as will be discussed below. However, when the L2 proficiency was controlled, that is, when two groups with different L1 reading experience did not differ in their L2 proficiency (mean= 56.4 vs. 53.5, t=.944, p=.347), the readers' L1 experience positively correlated with the use of dictionaries or L1 translation. More frequent interaction with L1 texts seems to have led the students to rely more on L1 and reference materials at this level of L2 proficiency.

A main effect of L2 proficiency was observed with five strategies, as shown in Table 5. Compared to the strategies interacting with L1 reading experience, most of which were related to the GLOB with macro management and control of reading processes, those related with L2 proficiency involved more focused and local strategies: one in the GLOB, two in the PROB, and two in the SUB category. The positive relation between reliance on prior knowledge (G6) and L2 proficiency leads us to infer that an attainment of certain level of L2 proficiency may be a prerequisite to have an active access to top-down knowledge to enhance reading comprehension in L2.

TABLE 5

L2 Proficiency and Reading Strategy Use

	mean	F	Sig.	Partial η^2	Observed power
G6. Using prior knowledge (background/grammar)	L:3.39 M:3.78 H:3.96	6.457	.048	.070	.590
P13. Reading slowly and carefully	L:4.12 M:3.50 H:3.56	4.109	.020	.089	.713
P17. Re-reading difficult text	L:4.39 M:4.47 H:3.96	3.400	.038	.075	.625
S21. Underlining, circling information	L:3.24 M:4.19 H:3.44	5.761	.001	.152	.936
S28. Translating into Korean	L:3.7 M:3.33 H:2.74	3.652	.030	.080	.659

In tackling difficult texts, the low L2 proficiency students tended to slow down and read carefully (P13), while the mid to high L2 proficiency students relied on this strategy to a less extent. Instead, the higher proficiency students seemed to adjust reading speed in accordance with the difficulty of the text, as shown by their response to P14: Adjusting reading rate according to text difficulty (3.49(L), 3.81(M), and 3.96(H)), though the difference was not statistically significant. Repeated reading was a strategy favored by the students in general in dealing with difficult texts, with average ratings of 3.96-4.47. Underlining or circling important information was a strategy highly preferred by the mid L2 proficiency group (4.19) as opposed to the moderate frequency for the low and high proficiency learners. The effect size of this strategy was R^2=15.2%, a relatively big effect compared to the other four strategies with effect sizes of R^2 = 7-8.9%.

Reliance on L1 translation, a strategy that showed a positive relation with the extent of L1 reading experience, had a negative relation with L2 proficiency; the low L2 proficiency group used this strategy significantly more frequently than the high L2 proficiency group, a result consistent with what was observed in previous studies (Malcolm, 2009; Zhang & Wu, 2009).

The main effect of academic L2 reading experience was statistical with two items only, as shown in Table 6.

TABLE 6

Academic L2 Reading Experience and Reading Strategy Use

	mean	F	Sig.	Partial η^2	Observed power
G9. Using typographical features (bold, italics, underlined parts)	L:3.54 H:4.06	5.781	.010	.076	.740
S29. Thinking in Korean	L:3.02 H:3.62	10.647	.002	.110	.890

Though the upper-class students' L2 proficiency was higher than the freshmen (mean=51 vs. 58.4, t=-2.453, p=.016), the pattern of strategy use did not differ much between the two groups. Exposure to reading for academic purposes did not seem to have much influence on the Korean students' reading strategy use. The upper-class students reported paying a close attention to typographical features to facilitate reading comprehension and relying more on L1 as the language of thought while processing L2 texts. Higher L2 proficiency and longer experience with L2 academic texts were supposed to help L2 readers reduce reliance on L1 as a language of thought, which is not supported by the students' responses in our study. It may be the case that the upper-class students, who had had extensive experience of tackling difficult texts in their major field, may have found the facilitative role of L1 in processing complex information presented in L2 (Cohen & Brooks-Carson, 2001; Kern, 1994), while the freshmen, who just started college, had not yet had such experience, and thus lacked awareness of the effectiveness of L1 as a medium of cognitive processes.

V. SUMMARY AND CONCLUSION

Previous research has shown that L2 readers' metacognitive awareness of reading strategies, a prerequisite for a successful application of the strategies in actual reading, is closely related with skilled reading. Building upon previous research, this study set out, via a survey questionnaire, to explore factors that may be conducive to L2 readers' awareness of reading strategies, focusing on L2 proficiency, the extent of reading experience in L1, and the duration of exposure to reading for academic purposes in L2.

The data analysis showed that the learners' overall use of the strategies was in the upper moderate level, with the PROB most favored (3.73), followed by the GLOB (3.43) and SUP (3.11). A factorial ANOVA revealed that of the three variables, the extent of L1 reading experience was the only factor that had a positive interaction with the reported use of the overall strategies, the GLOB, and the SUP. The PROB did not interact with any of the three factors. It can be said then that through gradual and extended interactions with

reading materials in L1, readers subconsciously acquire effective strategies that may facilitate their comprehension of L1 texts, which may later be transferred to reading activities in L2, as was also proposed by Schoonen et al. (1998).

The finding that L2 proficiency had a very limited interaction with the reported use of reading strategies is in accord with what was observed by previous research. The Arabic medical students studied by Malcolm (2009) did not exhibit any difference in their use of reading strategies according to their English proficiency, while L2 proficiency had an influence only on the GLOB in the case of the Chinese high school students in Zhang and Wu (2009). We can infer then that the GLOB may develop or be transferred from L1 to L2 slowly and gradually, lagging behind the PROB and SUP, resulting in the visible gap between the high and low L2 proficiency groups.[3]

The upper-class students were not superior to the freshmen in their reported use of reading strategies except for the use of L1 as a language of thought. This result diverges from Malcolm (2009), in which the fourth year Arabic medical students were shown to utilize the reading strategies more frequently than the first year students. The wider range of the years of instruction in our study (i.e. 4^{th} – 8^{th} semester students) compared to that of Malcolm (i.e. 7-8^{th} semester students), and the different types of reading materials associated with the fields of study, that is, the soft vs. hard science, may have resulted in the different pattern. Future research comparing students in various fields of study and years of instruction should help clarifying the issue.

The role of L1 has been a locus of interest in L2 reading research. Kern (1994) observed that mental translation, a cognitive strategy facilitating semantic and syntactic processing, was utilized more frequently by lower level readers to promote accurate comprehension of L2 texts. On the other hand, Yau (2010) reported that Taiwanese high school students with higher L2 proficiency relied on L1 translation more frequently than their lower performing counterparts, especially when the text they had to cope with were perceived to be challenging. The students' responses in our study were rather complicated: L2 proficiency was shown to be negatively related with reliance on L1 translation, while L1 reading experience positively. The two groups with extensive and less extensive L1 experience did not differ significantly in their L2 proficiency (56.4 vs. 53.5, t=.944, p=.347). Thus, it appears that when L2 proficiency was controlled, the extent of L1 reading experience facilitated the use of translation strategy in L2 reading, possibly due to the confidence and

[3] Guan, Roehrig, Mason, and Meng (2011) obtained a similar result from L1 readers; differences in strategy use between skilled and less skilled English L1 college students were observed only with the GLOB, based on which they questioned the validity of the SORS as an instrument to measure reading strategy use of advanced readers. The question of why the L2 readers, who were not as advanced as the L1 readers, showed a similar pattern needs further investigation.

easiness the students felt toward employing L1, which may have built up though their extended and positive experience with reading materials in L1.

Related to the frequent use of L1 translation by the high L1 experience group is the reliance on L1 as the language of thought by the upper-class students. The upper class students with more interaction with academic reading materials in L2 may have experienced the efficiency of L1 as a medium to facilitate complex cognitive processes in contrast to the freshmen who did not face such a challenge yet.

In sum, while the results of the current study are consistent, to a certain extent, with the findings of previous studies, the addition of new interacting factors produced a more complex picture of strategy use in L2 reading. The most notable finding was the significant effect of L1 reading experience on reading strategy use as opposed to the limited role of L2 proficiency. If reading strategy use is closely related with skilled reading in L2, as has been pointed out in previous studies, then our results indicate that extensive L1 reading experience may be a crucial factor in enhancing success in L2 reading more than other factors. This suggests that building good reading habits in L1 should precede exposure to reading in L2. This observation, however, should be taken as suggestive rather than definitive until support from further research with diverse groups of L2 readers is available.

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Examples in: English
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Applicable Levels: College

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