How Are Reading Strategies Used in Different Reading Stages?

Unkyoung Maeng

(Ajou University)

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The purpose of this study is to verify what reading strategies Korean students use in L2 reading at different reading stages. The study was conducted on 112 Korean undergraduate students in Korea. Reading Strategy Questionnaire was used. The results of this study showed that students actually showed different reading behaviors according to the reading stages. They used more compensatory reading strategies such as guessing intelligently, using organization and style of the text, reviewing main ideas or the text to verify the answer, and using background knowledge to fine the answer at the before-reading stage and after-reading stage. They used more cognitive reading strategies such as looking for main ideas, connecting ideas together to understand the entire text, inferring, guessing the meaning of unfamiliar words, summarizing, and predicting the content of an upcoming section of text at the while-reading stage. It also revealed that there was an interaction between students' proficiency level and reading behavior. The high level participants used more strategies than participants assessed at any other level at all three stages. Lastly gender difference affected the use of reading strategies at the before-reading stage.

I. INTRODUCTION

Many researchers have investigated the importance of the cognitive strategies students use while reading (Cohen, 1983; Hansen, 1980; Linden & Wittrock, 1981). These strategies are found to be effective in improving students' reading comprehension (Baker & Brown, 1984; Palinscar & Brown, 1985). However, most of these studies have been conducted with first language learners.

Since the 1970s, many L2 learning theories advocating teaching students to use a variety of reading strategies have been introduced to help students read better. Much research indicates that good readers use multiple reading strategies, and these strategies increase their reading comprehension (Baker & Brown, 1984; Palinscar & Brown, 1984, 1985; VanElsacker, 2002). Good readers use reading strategies such as finding information relevant to reading goals,

making predictions about what the author would say, paraphrasing, explaining and interpreting the text, and constructing summaries and conclusions (Pressley & Afflerbach, 1995; Pressely, M., Brown, R., El-Dinary, P. B. and Afflerbach, P., 1995; Wyatt, D., Pressley, M., El-Dinary, P., Stein, S., Evans, P. and Brown, R., 1993). Some studies reveal that poor readers have difficulty in using strategies that contribute to reading comprehension (Brown & Palincsar, 1982; Ryan, 1981). Another study (Carrell, 1989) reveals that local reading strategies (focusing on grammatical structures, sound letter, word-meaning, and text details) and global reading strategies (using background knowledge, text gist and textual organization) are used effectively by L2 readers according to their reading levels. Some studies also indicate that L1 reading ability/strategies transfer to L2 reading (Anderson, 2000; Hardin, 2001; Sarig, 1987; Yamashita, 1999).

As we can see from the various studies, reading strategies are important factors in helping L2 learners to become better readers. It is essential for teachers to know what strategies their students use and do not use in their reading process in order to help in building reading strategies by explicit and implicit reading instruction. Most of reading instruction is carried in three stages (before-reading such as the warming up stage, while-reading such as the actual reading stage and after-reading such as the follow up stage) in a class. Comparison of reading strategies in L1 and L2 gives better perspective on L2 reading process for teachers to administer their explicit reading instruction. The previous comparative study between L1 and L2 reading strategies (Maeng, 2005) showed that many of the strategies Korean participants used in the L2 reading are the ones that successful native English readers use. They also showed different behaviors in using different types of reading strategies in L2 reading depending on the stage of reading. However, a small number of participants were participated in the study, and gender and level difference were not focused in this study. More in-depth qualitative study is needed to provide a more complete picture of reading strategies of Korean students.

Therefore, the purpose of this study is to provide a more complete picture of L2 reading strategies of Korean students. To be more precise this study aims to provide in-depth information about different behaviors in using different types of reading strategies depending on the stage of reading (before-reading, while-reading, and after-reading). The study was conducted on 112 Korean students by using a reading strategies questionnaire, and the research questions are the following:

Q1: What strategies do Korean learners use in L2 reading? Do they actually show different behaviors in using different types of reading strategies in L2 reading depending on the stage of reading?

Q2: Is there any interaction between the proficiency level of L2 and the use of reading strategies at each reading stage? Do the students who are at the high proficiency

level of L2 use more reading strategies than those who are at the low proficiency level at each reading stage?

Q3: Is there any interaction between the gender difference and the use of reading strategies at each reading stage?

II.   LITERATURE REVIEW

1. Reading Process

Much research has been conducted in L1 reading based on the analysis of cognitive processes involved in reading comprehension. Many of the insights gained from L1 research have been helpful, and even essential to forming a concept of the L2 reading process. Based on various research (Rumelhart, 1985; Stanovich, 1980), reading theorists have proposed many different views of the L1 reading act through L1 reading models: bottom-up, top-down and interactive models. Bottom-up or data-driven models depend primarily on the information presented by the text. Readers using this approach usually analyze text in small pieces and build meaning from these units. Therefore, the information is processed from letter features to letters to words to meaning, which is typically known as a lower-level reading process.

In contrast to bottom-up models, top-down models are diametrically opposed to these lower-level processes (Stanovich, 1980). In top-down models or reader-based models, readers make guesses about the content of a passage. The readers actively engage in hypothesis testing as they proceed through a text by integrating the textual information with the prior knowledge, linking words with their co-referents, integrating prepositional units across sentences, and generating and updating a schema or representation of the text as a whole (Segalowitz, Poulsen & Komdoa, 1991). This theory suggests that comprehension is facilitated when a reader's background knowledge is activated (Eskey, 1986).

Interactive models are currently accepted as the most comprehensive description of the reading process. This type of model combines elements of both bottom-up and top-down models. It assumes that a pattern is synthesized based on information provided simultaneously from several knowledge sources (Stanovich, 1980). Reading is considered as a complex task of simultaneously combining text and reader-based strategies. Processes at any level can compensate for deficiencies at any other level (Anderson, 1999). Therefore, good readers of L1 and L2 are seen to be those who can efficiently integrate the bottom-up processes with top-down processes (Liontas, 1999; Patricial, 1989; Sarig, 1987).

2. Reading Strategies

Research shows that both L1 and L2 readers use a variety of reading strategies to read better. These strategies range from the traditionally recognized reading skills of skimming, scanning, contextual guessing, skipping unknown words, tolerating ambiguity, reading for meaning, critical reading and making inferences to more recently recognized strategies such as building and activating appropriate background knowledge or schema, and recognizing text structure. Moreover, good readers use multiple reading strategies in a purposeful manner such as setting reading goals, varying reading style according to the relevance of the text to reading goals, jumping forward and backward in the text to find information relevant to reading goals, making predictions about what the author would say, paraphrasing, explaining and interpreting the text, and constructing summaries and conclusion (Pressley & Afflerbach, 1995; Pressley et al., 1995; Wallace, 2001; Wyatt et al., 1993). Good readers often self-correct, improve, or modify their hypothesis in order to achieve comprehension. They tend to use more global or top-down strategies. Poor readers often rely on local or bottom-up strategies to comprehend their texts. They are often unaware of the structure of a story and of clues that signal that structure (Block, 1992). Low L2 proficiency restricts a reader's ability to interact with an L2 text (Carrell, 1988b; Lee & Schallert 1997) and Anderson (1984) also mentioned that L2 proficiency affects reading ability in L2. Song (1999) also showed the linear relationship between reading strategies and L2 proficiency. Other research mentioned that L2 proficiency, especially oral proficiency, is a critical factor in developing both L1 and L2 reading comprehension (Droop & Verhoeven , 2003; Van Elsacker, 2002). Hardin (2001), however, said L2 oral proficiency plays a less important role than strategic behaviors of L1.

Increasing numbers of researchers, curriculum designers and teachers consider reading skills or strategies as a way to develop L2 reading proficiency. One widely recommended method of improving learners' ability to comprehend L2 text is explicit instruction in reading comprehension strategies. According to the research (Brown, Pressley, Van Meter & Schuder, 1996; Dickson, Simmons & Kameenui, 1995; Hosenfeld, 1977; Padron, 1992), reading strategy training had a strong positive effect on L2 readers' comprehension. In particular, subjects who had the greatest difficulty reading L2 texts appeared to benefit the most from reading strategy instruction. Barnett (1988) indicated that participants who were taught strategy use understood passages better. Song (1999) argued that reading strategy training should be given in the L2 reading class since reading strategies played the most important role in successful L2 reading than any other variables. Carrell, Pharis and Liberto (1989) and Liontas (1999) suggested practical ideas about metacognitive strategy training for ESL and second and foreign language readers. According to Muniz-Swicegood (1994), metacognitive reading strategy training for a six-week period improved students'

reading in both L1 and L2. Tang and Moore (1992) and Zhicheng (1992) reported training effectiveness in cognitive and metacognitive strategies for improving comprehension. Tang and Moore (1992) also suggested that only the metacognitive training showed long-term benefits.

According to Anderson (1991, 1999) not all readers use the same strategies while reading but those who use more strategies comprehend better. The background knowledge that each reader brings to the reading setting makes the orchestration of strategies and it is important for readers to learn this. Based on his research, Anderson (1991) suggested common reading strategies that a teacher should consider teaching in a class to help readers to read better. There are 24 strategies in the list of common reading strategies which are mentioned in many strategy related studies and they are broken into three different groups: cognitive reading strategies, metacognitive reading strategies, and compensatory reading strategies.

L2 learners who are good L1 readers tend to use many of the same strategies that successful native target language readers do, when reading L2 texts (Drucker, 2003). Hardin's study (2001) showed that strategic behaviors in L1 affects L2 reading behaviors and that the level of L2 proficiency affects L2 strategic reading less than the level of strategy use in L1. Maeng's study (2005) indicated that participants showed different behaviors in using different types of reading strategies in the L1 and L2 reading depending on the stage of reading. Some research showed that no significant gender difference in the mean use of global verses local strategies (Young & Oxford, 1997). Other research showed that males and females use almost the same number of global and local strategies but there is a gender-related difference in reading comprehension. However, there is no gender-related difference in strategic behavior (Brantmeier, 2000). Schueller (1999) reported that every female group comprehended better than the males regardless of strategic training.

Much research is focused on studying the relationship among local and global strategies and L2 proficiency level. Maeng's study (2005) showed that Korean advanced L2 learners showed different behaviors in using different types of reading strategies in the before, while and after reading stages. They used global strategies dominantly in their before-reading stage, global, local and supporting (compensatory) strategies in their while-reading stage and global and supporting strategies dominantly in their after-reading stage. According to Anderson, reading strategies can be divided into three categories (cognitive, metacognitive and compensatory strategies) and there are both global and local types of strategies in each category. Therefore, verifying different use of reading strategies focused on these three categories at each reading stage will give a more complete picture of strategic behaviors of Korean students for the better reading strategy instruction. Especially this study will be helpful for teachers to make a decision on what strategies to teach and when to teach certain types of strategies.

III. METHOD

1. Participants

The participants in the present study were 112 juniors ranging from 21 to 22 years of age in Korea.[1] They attended one of three different universities in Korea: K University, S University, and A University. All of them had experience in learning English over 9 years. They started to learn English when they were at middle school. They were divided into three groups according to their L2 proficiency Level: High, Middle and Low level according to their TOEFL scores (See Table 1).

TABLE 1
Participants' Information

University	H(TOEFL Score 590↑)			M(TOEFL Score 450-540)			L (TOEFL Score 450↓)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
KU (43)	2	26	28	4	11	15	-		
SU (25)	2	2	4	8	7	15	3	3	6
AU (44)	9	4	13	14	3	17	13	1	14
Total (112)	13	32	(45)	26	21	(47)	16	4	(20)

There were 45 high proficiency level students, 47 intermediate level students and 20 low level students in this study. 55 male students and 57 female students participated in this study. Most of the students mentioned that they had not been taught reading strategies. 10 female and 6 male participants mentioned that they learned about reading strategies. However, most of these participants except two mentioned that they did not remember what kinds of reading strategies had been taught. Two students mentioned that skimming and scanning were the ones that had been introduced to them as reading strategies.

2. Materials and Procedure

Students were administered an open-ended question form and a reading strategy questionnaire (RSQ). The open-ended questions were conducted to gather participants' background information such as gender, age, learning experience and TOEFL scores. The RSQ required students to respond to questions using a Likert-type scale (See Appendix A). The questionnaire was based on the comprehensive descriptions of strategy use developed by Pressley and colleagues (Pressley & Afflerbach, 1995; Pressley et al., 1995; Wyatt et al.,

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[1] Actually the questionnaire was given to 160 students from three different universities at first. However the data of 48 students were excluded from this study because they could not provide their TOEFL score.

1993) and the list of 24 strategies of cognitive, metacognitive and compensatory reading strategies developed by Anderson (1991, 1999). It is the same questionnaire as the one used in the previous case study of Maeng (2005).

Questions were organized into three sections: before reading, while reading and after reading (while doing the comprehension exercise). There were 7 questions for the before-reading section, 21 questions for the while-reading section and 9 questions for the after-reading section. There were two questions (2, 5) of cognitive strategies, two questions (1, 7) of metagcognitive strategies and three questions (3, 4, 6) of compensatory strategies in the before-reading section. There were seven (8, 10, 15, 18, 19, 24, 27) questions of cognitive strategies, six questions (12, 20, 21, 25, 26) of metacognitive strategies and nine questions (9, 11, 13, 14, 16, 17, 22, 23, 28) of compensatory strategies in the while-reading section. There were four questions (30, 31, 36, 37) of cognitive strategies, one question (34) of metacognitive strategies and four questions (29, 32, 33, 35) of compensatory strategies in the after-reading section.

The open-ended question form and RSQ were administered very near the end of the school year, just before the students had taken their final exam. The participants completed the open-ended question form and RSQ in their regular classrooms. The directions and questions were given in Korean by a native Korean speaker. The students were given 50 minutes to complete the questions. The participants were first asked to complete the open-ended questions and then to complete the RAQ. Participants were to indicate on the questionnaire to what extent they used the strategy described. Five scales were used: (1) Never to (5) Always. A mean score of five indicated that the participants perceived using the strategy all of the time, whereas a mean score of one indicated that the participants perceived using the strategy none of the time. The survey session for all three schools was conducted on the same day.

The 37 strategies which were divided into three different categories (metacognitive, cognitive, and compensatory) were used as the dependent variables in an analysis of variance (ANOVA) with level and gender as factors. Ducan Multiple Range Post hoc analysis was used for the reading strategies group to show that they could be comparable though their size was not same.

IV. RESULTS AND DISCUSSION

Table 2 reports the overall means and standard deviations of the reading strategies at the before-reading stage (BRS). Both male and female participants used more metacognitive and cognitive strategies than those at the low level. Only female participants of high and middle level used more compensatory reading strategies than those of the low level.

Overall high and low level participants used more compensatory reading strategies than the other two. Male participants of middle level used more metacognitive reading strategies than the other two but female participants of middle level used compensatory reading strategies more. It should be pointed out that the mean values for the most part indicate that participants use the strategies only some of the time. On the other hand, the standard deviations are quite large, indicating a great deal of variance in the ways participants responded.

TABLE 2
Means and Standard Deviations for Korean Students' L2 Reading Strategies at BRS (n= 112)

		Cognitive S		Metacognitive S.		Compensatory S.	
		M	SD	M	SD	M	SD
Male	H	3.57	.85	3.50	1.02	3.74	.90
	M	3.26	.91	3.38	1.19	3.05	1.22
	L	.75	.50	2.21	.79	3.06	.69
	Total	3.27	.92	3.20	1.31	3.21	1.20
Female	H	3.40	1.04	3.12	1.27	3.50	1.16
	M	3.13	1.14	3.26	1.21	3.45	1.18
	L	2.62	.74	2.12	.64	2.66	1.49
	Total	3.25	1.08	3.10	1.24	3.42	1.20

Though high level participants used compensatory strategies the most, the frequency of using cognitive and metacognitive strategies nearly matched that of using compensatory strategies. Middle level participants also used these reading strategies quite evenly. Most of the high and middle level participants responded that they often used metacognitive strategies such as paying attention to the title and the author and self-evaluating the difficulty of the text, cognitive strategies such as skimming the text and comprehension questions, and compensatory strategies such as guessing intelligently and using organization and style of the text. Both high and middle level participants used a strategy the most such as thinking or guessing what the text is about. However, low level participants put more emphasis on using compensatory strategies. Thinking or guessing the difficulty of the text was used the most by low level participants. Unlike the strategic behaviors of high and middle level participants, low level participants did not consider the organization or style of the text.

Female participants of middle level used more compensatory strategies such as thinking what the text is about and using the style and organization of the text more. Male participants of middle level, however, paid more attention to the title and the author and the evaluation of the text difficulty. Female participants of low level used a strategy of skimming the text or the comprehension questions more than male participants of low level did.

The ANOVA results (Table 3) showed an overall significant effect for level (F= 13.20.

df=2, sig= .000) and gender (F=4.13, df=1, sig=.042) as stated above. There was no significant interaction between gender and level (F=.51, df=4, sig=.724). These results showed that high level participants used more reading strategies and they used compensatory reading strategies more at this reading stage. The results also showed that female participants used more reading strategies than male participants at this stage. However the different behaviors in using reading strategies between males and females of different levels were not statistically significant.

TABLE 3
The Results of ANOVA for L2 Reading Strategies at BRS   (p < .05)

	Sum of Squares	df	Mean Square	F	Sig
Level (H, M, L)	35.334	2	17.667	13.204	.000
Gender	5.537	1	5.537	4.138	.042
Gender and Level	5.081	2	2.541	1.899	.150

Table 4 reports the overall means and standard deviations of the reading strategies at the while-reading stage (WRS). All of the participants used more cognitive reading strategies in this stage regardless of their level of English proficiency. More specifically, high level participants used more cognitive strategies than middle and low level participants and low level participants used cognitive strategies the least. Unlike the strategic behaviors in the before-reading stage, female participants used less strategies than male participants. Like the results of table 2, the mean values in table 4 for the most parts indicate that participants used the strategies only some of the time. On the other hand, the standard deviations are large indicating a great deal of variance in the ways participants responded.

TABLE 4
Means and Standard Deviations for Korean Students' L2 Reading Strategies at WRS (n= 112)

		Cognitive S.		Metacognitive S.		Compensatory S.	
		M	SD	M	SD	M	SD
Male	H	3.80	.92	3.30	.95	3.57	.87
	M	3.68	1.12	3.52	3.84	3.43	1.00
	L	3.79	1.02	3.03	1.14	3.52	1.01
	Total	3.74	1.04	3.33	2.75	3.49	.97
Female	H	3.89	1.00	3.28	1.16	3.63	1.57
	M	3.63	1.07	2.97	1.14	3.36	1.02
	L	3.60	1.13	2.85	1.04	3.19	1.09
	Total	3.78	1.04	3.14	1.19	3.50	1.37

Though all of the participants used cognitive strategies the most, high level participants also used metacognitive and compensatory strategies a lot. High level participants used cognitive

strategies the most such as looking for important ideas (main ideas and supporting ideas), connecting ideas together to understand the entire text, inferring, guessing the meaning of unfamiliar words using context clues, summarizing, and predicting the content of an upcoming section of text. The second most used strategies were compensatory strategies such as paying attention to important ideas, various tones and author's ideas, using background knowledge, revising one's prior knowledge, making notes and visualizing the descriptions. The third most used ones by this group were metacognitive strategies such as self-questioning, underlining or organizing the important information, self-monitoring, and self-evaluating. Among these strategies both male and female participants of high level used a summarizing strategy the most.

Middle level participants showed similar patterns in using reading strategies but male participants used more metacognitive strategies than compensatory strategies. Female participants used relatively less metacognitive strategies in this stage than in the before-reading stage. Female participants of middle level rarely used a self-questioning strategy and male participants of middle level rarely used a self-monitoring strategy. However, both male and female participants of middle level used a summarizing strategy the most. The order of priority in using three different strategies (cognitive, compensatory and metacognitive strategies) at the low level was the same as that at the high level. However, low level participants rarely used metacognitive strategies such as self-questioning and self-monitoring. Unlike the high and middle level participants, male participants of low level used a strategy of paying attention to important information the most and female participants of low level used a strategy of guessing the meaning of unfamiliar words the most.

The ANOVA results (Table 5) revealed an overall significant effect for level (F=3.71, df=2, sig=.025) as mentioned above. However, there was no significant interaction between gender and level (F=2.059, df=2, sig=.128). Though different strategic behaviors between male and female participants were not supported statistically at the conventional $p < .05$, this strategic behavior difference could be statistically supported at the $p < .10$. Therefore, there was an approached significance for gender difference in strategy use as mentioned above. These results revealed that the high level participants used strategies evenly and the most. The low level participants used strategies unevenly and the least. It also showed that all of the participants used more cognitive strategies than the other two strategies at this stage. Gender difference affected less on strategic behaviors at this reading stage than at the before- reading stage.

TABLE 5
The Results of ANOVA for L2 Reading Strategies at WRS (p < .05)

	Sum of Squares	df	Mean Square	F	Sig
Level (H, M, L)	15.067	2	7.533	3.711	.025
Gender	6.605	1	6.605	3.254	.071
Gender and Level	8.359	2	4.180	2.059	.128

Table 6 reports the overall means and standard deviations of the reading strategies at the after-reading stage (ARS). Like the other two stages, participants in the high level group used reading strategies the most and the lower level participants used reading strategies the least. More specifically, high and low level participants used more compensatory reading strategies but male participants of middle level used more metacoginitive strategies. There were more participants who used compensatory reading strategies than any other reading strategies at this reading stage. Like the results of table 2 and 4, the mean values in table 6 for the most part indicate that participants use the strategies only some of the time. On the other hand, the standard deviations are quite large indicating a great deal of variance in the ways participants responded.

TABLE 6
Means and Standard Deviations for Korean Students' L2 Reading Strategies at ARS (n= 112)

		Cognitive S.		Metacognitive S.		Compensatory S.	
		M	SD	M	SD	M	SD
Male	H	3.57	.85	3.50	1.02	3.74	.90
	M	3.26	.91	3.38	1.19	3.05	1.22
	L	2.75	.50	2.21	.79	3.06	.69
	Total	3.19	.85	3.07	1.17	3.21	1.05
Female	H	3.40	1.04	3.12	1.27	3.50	1.16
	M	3.13	1.14	3.16	1.14	3.45	1.18
	L	2.75	.46	2.25	.70	3.00	.85
	Total	3.26	1.06	3.07	1.21	3.44	1.15

Though high level participants used compensatory strategies the most, they also used cognitive and metacognitive strategies a lot. They used compensatory strategies such as reviewing main ideas and facts to verify the answer, reviewing the text to find the answer and using background knowledge to find the answer the most. Then they used cognitive strategies such as summarizing, interpreting, and scanning. The third most used ones by this group were metacognitive strategies such as distinguishing old information from new information. Among these various strategies they used the followings the most: reviewing main ideas and facts and scanning. Unlike female participants, male participants of high level rarely used a summarizing strategy in this stage. Low level participants showed a similar order of priority in using strategies but they used compensatory strategies more heavily than the other two types of strategies. They used two strategies mainly: reviewing the text to find the answer and interpreting. Male participants of low level rarely used a summarizing strategy and female participants of low level rarely used a strategy of reviewing main ideas and facts.

However, middle level participants showed a different order of priority in using reading

strategies even though they used three types of reading strategies quite evenly. Female participants used compensatory strategies the most and cognitive strategies the least but male participants used metacognitive strategies the most and compensatory strategies the least. Both male and female participants used two strategies the most: reviewing the text to find the answer and scanning. Female participants rarely used a summarizing strategy in this stage.

The ANOVA results (Table 7) showed an overall significant effect for level (F= 18.39. df=2, sig= .000) as mentioned above. There was no significant interaction between gender and level (F=1.97, df=4, sig=.276). Unlike the previous reading stages, there was no significant effect on gender difference in strategic behaviors at this stage (F=.773, df=1, sig=.379). These results also showed that the high level participants used strategies the most, and the low level participants used strategies the least. Most of the participants used more compensatory strategies than the other two strategies at this stage. Unlike the other two stages, there was no effect on gender difference in strategic behaviors at this stage.

TABLE 7
The Results of ANOVA for L2 Reading Strategies at ARS (p < .05)

	Sum of Squares	df	Mean Square	F	Sig
Level (H, M, L)	41.529	2	20.765	10.395	.000
Gender	.873	1	.873	.773	.379
Gender and level	2.913	2	1.457	1.290	.276

V. CONCLUSION

The results of the present study indicate that most participants used all three types of reading strategies (cognitive, metacognitive, and compensatory) at the BRS, WRS and ARS. However, they tended to use more compensatory reading strategies at the BRS and ARS and they used more cognitive reading strategies at the WRS. More specifically, compensatory reading strategies such as guessing intelligently, using organization and style of the text, reviewing main ideas and facts to verify the answer, reviewing the text to find the answer and using background knowledge to find the answer were used more at the BRS and ARS. Cognitive strategies such as looking for important ideas (main ideas and supporting ideas), connecting ideas together to understand the entire text, inferring, guessing the meaning of unfamiliar words using context clues, summarizing, and predicting the content of an upcoming section of text were used more at the WRS.

These results indirectly reveal that participants lack in the use of metacognitive strategies such as paying attention to the title and the author, self-evaluating the difficulty of the text, self-questioning, underlining or organizing the important information, self-monitoring, and

distinguishing old information from new information. Therefore, we can conclude that Korean students actually showed different behaviors in using different types of reading strategies. These results implicate that participants need to increase their reading strategy use in reading L2 as it affects their reading comprehension. Some studies (Carrell, Pharis & Liberto, 1989; Muniz-Swicegood, 1994; Tang & Moore, 1992; Zhicheng, 1992) revealed that metacognitive strategy instruction improved students' reading both in L1 and L2 as well as other types of reading strategies. Tang and Moore (1992) also suggested that only the metacognitive training showed long-term benefits. Therefore, Korean students need to practice using different kinds of reading strategies, especially metacognitive strategies, at each reading stage.

This study also indicates that there is some interaction between participants' proficiency level and the use of various kinds of reading strategies. Different level participants showed somewhat different frequency in using reading strategies. High level participants tended to use reading strategies more frequently than low level participants. Like many other studies, this study revealed that the high level participants used three types of reading strategies more frequently and evenly at all three reading stages than participants assessed at any other level. The low level participants used three types of strategies unevenly and the least in all three reading stages. For example, they rarely used a strategy of using organization and style of the text at the BRS and they rarely used strategies such as self-questioning and self-monitoring at the WRS. Male participants of this group rarely used a summarizing strategy at the ARS and female participants of this group rarely used a strategy of reviewing main ideas and facts at the ARS. These results indirectly reconfirm the results of previous study; L2 proficiency affects reading ability in L2. Therefore, this study implies that teachers should consider reading strategies as a way to develop L2 reading proficiency and instruct all types of reading strategies at each reading stage. Especially this instruction should be given to low level students.

Unlike the previous research (Brantmeier, 2000; Schueller, 1999), the results of gender effect on using reading strategies were not consistent depending on the reading stages. There were gender-related differences in using reading strategies at the BRS. For example, at the middle level female participants used more compensatory strategies such as thinking what the text is about and using the style and organization of the text more but male participants paid more attention to the title and the author and the evaluation of the text difficulty. Female participants of low level used a strategy of skimming the text or the comprehension questions more than male participants of low level did.

It seemed that there were gender-related differences in the strategic behaviors of participants at the WRS. For example, female participants seemed to use less strategy than male participants at the WRS. At the middle level male participants used more metacognitive strategies than female participants. Female participants rarely used a self-questioning strategy

and male participants rarely used a self-monitoring strategy. At the low level male participants used a strategy of paying attention to important information the most and female participants used a strategy of guessing the meaning of unfamiliar words the most. However, this effect was not statistically significant at the $p<.05$ but statistically significant at the $p<.10$ at the WRS.

There seemed to be gender-related differences in the strategic behaviors of participants at the ARS. For example, male participants of high level rarely used a summarizing strategy. At the middle level female participants used compensatory strategies the most and cognitive strategies the least but male participants used metacognitive strategies the most and compensatory strategies the least. At the low level male participants rarely used a summarizing strategy and female participants rarely used a strategy of reviewing main ideas and facts. However, this gender effect was not statistically significant at all at the ARS. This implies that teachers might consider gender difference in instructing strategies at the before-reading and while –reading stages.

All of the above results imply that readers need to know what the reading strategies are and how and when to use them appropriately at each reading stage in their L2 reading to comprehend their reading better. However, the results show that participants used various kinds of reading strategies all the time at each reading stage but low level participants used some of reading strategies only some of time at each reading stage. Therefore, it is essential for ESL/EFL teachers to teach all three types of reading strategies to their students, especially to the low level students and make their students practice in using these reading strategies in their classroom so that students can benefit from the instruction. Since most reading instruction is carried in three steps (before-reading such as the warming up stage, while-reading such as the actual reading stage and after-reading such as the follow up stage) in a class and this study showed different reading behaviors of Korean participants at each reading stage, teachers should consider these results in their instruction. When instructing strategies, teachers also need to consider students' proficiency level as shown in this study and provide students with an understanding of how and when to use certain reading strategies at each reading stage. According to Pressley and Harris (1990), teaching modeling of reading strategies is essential in the strategy instruction. Therefore, instruction should include not only what strategy to employ but also when and why to use strategy at each reading stage.

This study didn't analyze the questions in the perspective of global and local strategies which belong to each category of reading strategies in the RSQ. Not only the strategic behavior in three categories but also the strategic behavior in the perspective of both global and local strategies in each category should be considered and compared in the future. However, this study is helpful for ESL/EFL teachers to know what strategies their students use at each reading stage in the L2 reading process by presenting more in-depth

quantitative results on Korean students' reading behavior. It helps teachers to prepare what and when to teach in the strategy instruction at each reading stage.

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APPENDIX
Likert-type Ratings for Strategies
(Based on Anderson, 1991,1999 and Pressley et al., 1995)

Please read each item carefully and circle a number (1-5) using 5 scales below, which indicates the degree to which you use the following strategies when you read a given text.

Likert Scale

Never Use	Rarely Use	Sometimes Use	Often Use	Always Use
1	2	3	4	5

Before I read	**Never**				**Always**
1. I pay attention to the title and author	1	2	3	4	5
2. I briefly skim the text.	1	2	3	4	5
3. I pay attention to the organization of the text.	1	2	3	4	5
4. I pay attention to the style of the text	1	2	3	4	5
5. I briefly skim the comprehension questions.	1	2	3	4	5
6. I try to think what the text is about	1	2	3	4	5
7. I note how hard or easy the text is to read.	1	2	3	4	5

While I am reading	**Never**				**Always**
8. I look for important information.	1	2	3	4	5
9. I pay more attention to important information than other information.	1	2	3	4	5
10. I try to relate the important points in the text to one another in an attempt to understand the entire text.	1	2	3	4	5
11. I use my background knowledge of the subject to help me understand what I am reading.	1	2	3	4	5
12. I ask myself questions about the text content.	1	2	3	4	5
13. I reconsider and revise my prior questions about the text based on the text's content.	1	2	3	4	5
14. I reconsider and revise my background knowledge about the subject based on the text's content.	1	2	3	4	5
15. I try to look for main ideas and supporting idea.	1	2	3	4	5
16. I pay attention to various tones.	1	2	3	4	5
17. I try to infer author's tones and ideas.	1	2	3	4	5
18. When information is not directly stated in the text, I try to infer that information from the text.	1	2	3	4	5

19. I try to determine the meaning of unknown words using context clues.	1	2	3	4	5
20. I underline the important information.	1	2	3	4	5
21. I read material more than once when I don't understand.	1	2	3	4	5
22. I make notes.	1	2	3	4	5
23. I try to visualize the descriptions in the text.	1	2	3	4	5
24. I summarize/paraphrase the materials	1	2	3	4	5
25. When I don't understand the text, I slow down and reread the text.	1	2	3	4	5
26. I evaluate the text to determine whether it contributes to my knowledge/understanding of the subjects and whether it is against my belief or my cultural norms.	1	2	3	4	5
27. I am able to anticipate what will come next in the text.	1	2	3	4	5
28. I try to find what author is trying to say.	1	2	3	4	5

When I try to do the comprehension exercise/ After reading	**Never**				**Always**
29. I go back to the text to verify my answers.	1	2	3	4	5
30. I summarize it.	1	2	3	4	5
31. I try to interpret what I have read.	1	2	3	4	5
32. I go back to the text to look for the answer.	1	2	3	4	5
33. I use my background knowledge to find the answer.	1	2	3	4	5
34. While I am reading I distinguish between information that I already know and new information.	1	2	3	4	5
35. While I am reading, I jump forward between information that I already know and new information.	1	2	3	4	5
36. I try to construct an overall summary.	1	2	3	4	5
37. I scan the text to find information related to the question.	1	2	3	4	5

Unkyoung Maeng
Graduate School of Education
Ajou Universtiy
San 5 Wondchung-dong, Youngton-gu
Swon, Kyoungi-do 443-749, Korea
Tel: (031)219-1883
Email: my5329@ajou.ac.kr