

# What Happens When L2 Readers Recall?

Jeongsoon Joh  
(Konkuk University)

**Joh, Jeongsoon. (2006). What happens when L2 readers recall?. *Language Research* 42(1), 205-238.**

The purpose of this study is to explore how L2 readers perceive, understand, and reconstruct the information in an L2 text, by examining both quantitatively and qualitatively the ways their knowledge, interest, and strategy interact with text characteristics. Thirty EFL learners attending a Korean university participated in the study and performed a recall task after reading expository texts. Three texts different in textual organization and topic were used for the recall task, and the subjects' knowledge of text topic and vocabulary, knowledge of rhetorical organization, and interest in the text topic were measured. The subjects' retrospection protocols were also collected. Findings include the aspects of indirect influence of prior knowledge and topic interest on recall via multiple interactions with other factors, the way textual organization and strategy use interact, and the role of L2 formal schema in strategy choice while reading and recalling, etc. More findings and discussions are presented, along with implications for L2 reading instruction.

**Key words:** L2 reading comprehension, recall, strategy

## 1. Introduction

There is little doubt that skilled reading is a critical component in any L2 learning as in learning of many other subjects. Enormous body of research devoted to reading in educational psychology, language arts and literacy studies reflects such crucial importance of reading ability in the academic context. L2 reading researchers have also looked for ways to help language learners learn from text more effectively by elucidating the nature of process of reading comprehension and the factors intervening in the process.

In the exploration of this process, the recall task has frequently been used probably because it is "the most straightforward assessment of the result of text-reader interaction" (Johnston, 1983, p.54). According to

Johnston (1983), recall protocols provide some clues about the organization of the stored information, the retrieval strategies the reader uses, and about probable long-term recall of the newly-gained information. They also provide valuable information on specific influences of the individual's background knowledge through patterns of intrusions, distortions, and omissions.

For this reason, a body of research on reading either in L1 or in L2 has used the recall task as the measure of reading comprehension (e.g., Afflerbach, 1990; Alexander, Kulikowich, & Schulze, 1994; Baldwin, Peleg-Bruckner, & McClintock, 1985; Bernhardt, 1983; Carrell, 1983, 1984; Connor, 1984; Garner, Alexander, Gillingham, Kulikowich, & Brown, 1991; Garner & Gillingham, 1992; Kendall, Mason, & Hunter, 1980; Kletzien, 1991; Lee, 1986; Lee & Riley, 1990; Osako & Anders, 1983; Schumm, Mangrum, Gordon, & Doucette, 1992; Tyler & Voss, 1982; Wade, 1993).

Several weaknesses inherent in the recall task have also been pointed out, however. For example, Johnston (1983) mentioned that one can say nothing about the comprehension or memory of what is *not* recalled. In addition, a recall task involves a large memory component and problems of retrieval, sometimes placing a large burden on readers. Heavy demands on oral or written production skill are another pitfall. Recall requires expressing ideas and organizing information from memory but these skills may be quite independent of reading comprehension skills. However, Swaffar, Arens, and Byrnes (1991) suggested that it might rather be a strength when protocols for L2 texts are written in the students' native language as they reveal how the readers' logical manipulations (i.e., their predicting, organizing, and inferencing about textual meaning) interact with their recognition of textual vocabulary and syntax.

Instead of being concerned about production, Swaffar et al. (1991) positioned the shortcomings of the recall task in pragmatic matters, such as which (macro-vs. micro-proposition) to be ranked more heavily, and how to weigh and analyze propositions. It is probably because of such pragmatic concerns that L2 reading studies often resort to more economical devices such as multiple-choice, open-ended, or cloze tasks, although recall is a superb tool for reading research that could provide much more in-depth and affluent information about the unseen process of reading than any other task.

As Swaffar et al. (1991) recommended, having the readers recall in their L1 would be a way to counteract the weakness of recall task in L2

reading research. Actually some researchers argued that L2 learners may be at a disadvantage when they have to answer questions in the second language (e.g., Ammon, 1987; Bernhardt, 2000; Garcia, 1991; Lee, 1986). In particular, Lee (1986) found that L2 learners' text recall in the target language deteriorated compared to their recall in L1. More recently, Wolf (1993) and Joh (1998) found that EFL learners' reading comprehension was significantly better when the learners were assessed in their native language regardless of the task format, and whether or not they were allowed to look back at the reading passage while performing the task. This was true for subjects of different proficiency levels in the target language.

In Korea, not more than 10 papers have been published in the major journals over the last 15 years that addressed the issue of reading process or strategy (e.g., Chin, 1997; Kang, 2004; Kim, 1994; Lee, 2002a, 2002b, 2004; Oh, 1999; Song, 1999), and there have been few, virtually no, studies that implemented recall in reading research. It is probably because the majority of reading research in Korean EFL context has focused on the product of reading comprehension using quantitative methods. Practical concerns such as economy of data collection and analysis could have been associated with scarcity of qualitative research. Such unbalance in research methods, however, might narrow down the scope of L2 reading research and therefore probably our understanding of the area, too.

Given this, more studies of L2 reading process, especially qualitative ones, seem necessary in Korean EFL context for at least two reasons: the critical importance of effective reading in general L2 learning; and the need for more indigenous studies toward the establishment of solid EFL reading theory that is supported by empirical evidence. This will ultimately contribute to the establishment of a more comprehensive and explanatory theory of reading in general.

Motivated by this realization of status quo, the present study aims to investigate how L2 readers perceive and understand information in an L2 text, and how they reconstruct their understanding of the text into a written discourse. For this purpose, the present study involves Korean EFL learners performing a recall task, and closely examines both quantitatively and qualitatively how their knowledge, interest, and strategy interact with text characteristics towards the goal of understanding and remembering of textual information. By so doing, the present study in-

tends to describe some of the essential properties of the mental processes involved in L2 reading comprehension.

## **2. Method**

### **2.1. Subjects**

A total of 30 students enrolled in a practical English course at a Korean university participated in the study. Nineteen were female and the rest were male. Twenty were English Language/Literature majors and the rest were from various disciplines including social studies, engineering, history, and German Language/Literature. The majority of them were juniors and the rest were seniors.

There was not much variation among the subjects in terms of general English proficiency, which was partly evidenced by their scores on a 30-item English proficiency test (scores ranging from 18 to 30, with the mean of 24.8 and the standard deviation of 3.5). The subjects participated in the study on voluntary basis, by signing up for an individual appointment with the researcher.

### **2.2. Context of the Study**

The present research is a kind of case study which was basically guided by the question of how L2 readers process expository texts when they have to perform a recall task and what characterizes the product of their reading. For this purpose three different types of data were collected and analyzed: 1) reader characteristics that have been known to affect reading process and product; 2) recall protocols written by the subjects; 3) and the subjects' introspection protocols elicited by means of interview after the completion of the task, which was audio-recorded and transcribed. In the following sections a detailed description of each data source will be presented.

## 2.3. Materials<sup>1)</sup>

### 2.3.1. Texts

Usually, text variables include topic, content, type/genre, difficulty (or readability), and organization, etc. (Alderson, 2000). In this study, however, only organization and difficulty were examined, confining text type/genre to expository texts. It is because the population and sample under investigation are likely to read this type of texts most frequently at the present and in the future.

For the variable of text organization, three different types of organization were outlined for this study,<sup>2)</sup> by referring to relevant previous studies (e.g., Carrell, 1984; Kendall et al., 1980; Kobayashi, 2002; Meyer and Freedle, 1979). They are 'causation' type where causes and effects of an event or a phenomenon are logically presented, 'description' type where facts or phenomena are objectively described or explained, and 'list' type where pieces of information on a specific topic are listed, each of which has almost the same degree of importance.

One text per organization type was used for the present study. The three texts were similar in length (about 390 words) but different in organization and topic. The readability grades for these texts were 8, 10, 11 as measured by SMOG formula (cf. McLaughlin, 1969), in the order of list, causation, and description type text. The topics were gender difference in life expectancy, shaping of American values, and etiquette on cyber world (or 'netiquette') in the order of causation, description, and list type text, respectively. These topics were chosen as they seemed to be likely to interest the population/sample under investigation. All the texts were drawn from books written by native speakers of English and aimed at general readers.

### 2.3.2. Measures of Variables

#### (1) Target Language Proficiency

The subjects' general English proficiency was assessed using a 30 item multiple-choice format test that included 3 subsections (10 items each for vocabulary, grammatical structures, and reading comprehension). The

---

1) Much of the materials in the present study (texts and measures of knowledge and interest, among others) are basically the same as those in Joh (2004a, 2004b, 2006), and several new instruments were added for the purpose of qualitative analysis this study aims at.

2) Different views could exist about this.

items were extracted from existing test preparation materials with confirmed reliability and validity, such as those for TOEFL, TEPS, and Cambridge FCE.

### (2) Prior Knowledge

Based on the results from previous studies (Joh, 2004b, 2006), two types of prior knowledge were examined in the present study: topic knowledge (operationally defined as the knowledge of the information with high degree of importance in the given text); and knowledge of topic vocabulary (operationally defined as the knowledge of vocabulary contained in a text that has important semantic information to understand the text).<sup>3)</sup>

The former was measured using four open-ended items per text that concerned the important messages in the given text. An example is shown in the below.

*Q. What are the factors that influence one's life expectancy?*

Items were written in Korean, the native language of the subjects, because it was thought that topic knowledge should be differentiated from the knowledge of language. The rationale was that it would be the most efficient way to examine whether and how the prior knowledge of the text content independent of target language proficiency contributes to L2 reading comprehension.

Next, the knowledge of topic vocabulary was assessed by asking the subjects to write down the meaning(s) of 10 lexical items in the text (either a word or a phrase) that were considered important to adequately understand the given text.

### (3) Knowledge of Rhetorical Structure

Knowledge of rhetorical structure was defined as the ability to figure out the organizational structure of a given text. This variable was measured by asking the subjects to choose one from five different descriptors that best depicts the organizational structure of the given text after reading it. The alternatives were written in the subjects' native language

---

3) Low correlation around .3 was found between topic knowledge and knowledge of topic vocabulary.

for their clear understanding, and the five descriptors corresponded to 'cause and effect', 'comparison and contrast', 'description', 'list', and 'problem and solution', respectively. For example, the alternative given for list type text organization was '*list of facts or ideas on a topic, with each of the facts or ideas having equivalent importance*'.

#### (4) Topic Interest

Topic interest was defined as the reader's interest in the topic of the text being read, and was measured by having the subjects indicate the degree of their interest in the text topic by means of marking one of the four scale descriptors ranging from 'Not interested at all (1)' to 'Very interested (4)', after they read a given text. The even number scales were used intentionally for clear categorization of all the subjects into either high or low interest group.

#### (5) Self-Perceived Text Difficulty

Self-perceived text difficulty was included as a variable in order to cross-check if the selected texts were appropriate and comparable in difficulty for the subjects on the one hand, and to see if any difference in the research outcomes ascribable to text difficulty could be found, in case the perceived difficulty was different among the three texts. Again the four scale descriptors were used to measure this variable, that ranged from 'Very easy (1)' to 'Very difficult (4)'. The subjects were asked to mark one of the four descriptors after reading the given text.

### 2.3.3. Interview Questions

For the purpose of eliciting introspection data, a semi-structured interview was designed. The key questions for the interview concerned the following themes: 1) the reader's knowledge of rhetorical structure — the criterion of identifying the organization type, whether and how it affected reading and recalling; 2) strategy of reading and recalling; 3) judgement of relative importance of each proposition while reading and creating protocols; 4) the role of interest in reading and recalling the text; 5) and difficulties experienced while performing the recall task.

In conducting the interview key questions were asked of every participant, and then additional questions were asked of individual participants depending on their responses to the key questions and/or on the specific condition(s) each participant belonged to.

## 2.4. Procedure

Each of the subjects met the researcher twice to complete the tasks. For the first session, in which prior knowledge and general English proficiency were measured, two to four subjects met the researcher in the researcher's office at the time of their choice. There was no time limit for this session, and the variation among the subjects in the time spent answering the questions was negligible, ranging from 23 to 27 minutes and reaching the average of 25 minutes.

About a week later the subjects met the researcher again, now one at a time in the researcher's office. For this second session, each subject read a passage of about 390 words, and answered short questions constructed to assess his/her knowledge of rhetorical structure, degree of interest in the topic of the passage, and perceived difficulty of the given text. Then a blank sheet of paper was provided for a written recall protocol, and a semi-structured interview followed the recall task. Based on the empirical evidences from previous research (e.g., Ammon, 1987; Bernhardt, 2000; Garcia, 1991; Joh, 1988; Lee, 1986; Wolf, 1993), recall was performed in Korean, the subjects' native language.

Again there was no intended time limit, but the subjects spent comparable amount of time reading and performing the recall task: 5 to 7 minutes for reading and 10 to 12 minutes for producing recall protocol, respectively. Individual interviews lasted 12 to 15 minutes. While interviewing each participant, the researcher referred to his/her written responses to other instruments (e.g., his/her knowledge of rhetorical structure, target language proficiency score, degree of topic interest, etc.) whenever necessary or relevant. The interview was recorded using a high-quality audio recording equipment.

As it has been reported that text organization might affect reading comprehension (e.g., Joh, 2004a, 2006; Kendall et al., 1980; Kobayashi, 2002; Lee and Riley, 1990), one of the three different types of text was randomly assigned to each participant, in order to examine the potential influence of text organization on processing and/or recall strategy.

## 2.5. Data Analysis

Data analysis was conducted in the following four steps: 1) text analysis of the passages used; 2) grading of recall protocols; 3) qualitative analysis of recall protocols; 4) and analysis of retrospection protocols.

First, the texts were decomposed for the quantitative analysis of recall protocols so that the subjects' protocols written in their mother tongue could easily be mapped onto the original passage. A minimum unit that includes a semantic agent and its predicate (referred to as 'idea unit' in Table 1) was used as the basic unit for grading of recall protocols. Table 1 summarizes the result of text decomposition.

Table 1. Decomposition of Texts

Text	Words	Paragraphs	Sentences	Mean Words per Sentence	Idea Units
Causation	393	4	30	13.1	45
Description	392	5	21	18.7	44
List	392	9	34	11.5	60

A recalled segment was scored as correct if it was recalled verbatim or as a meaning-preserving paraphrase and was scored as incorrect otherwise (cf. Schraw & Bruning, 1996). Two judges (the researcher and a trained doctoral candidate in TEFL) scored the protocols independently and the inter-rater reliability gained by means of correlation coefficient reached .88. Each case of disagreements between the judges was settled in conference.

The number of correctly recalled units was then transformed into percent for comparison across texts, as the three texts were different in the number of idea units. Separate from correct recall, the amount of total recall was also considered for analytical purposes by counting any recalled unit as long as it contained information in the original text even though it partly distorted original message or added new information not mentioned in the text. The cases of distortion and/or addition were also counted for each of the subjects.

After the quantitative analysis was completed, the qualitative aspects of recall protocols were closely examined in order to infer the readers' mental processes while they were reading, recalling, and organizing their recalled information into a written discourse. Recalled segments were

carefully scrutinized in terms of the major variables of interest such as rhetorical structure, prior knowledge (especially topic knowledge), and topic interest. Special attention was paid to the patterns of distortion and/or addition of information, and at the same time the probable relationship between those patterns and the subjects' background knowledge was looked for.

Although most analysis at this phase was conducted manually, simple statistical procedures were also employed where necessary and appropriate as in the case of examining the relationship between topic knowledge or topic interest and the amount of recall.

Last part of the data analysis began with transcribing the retrospection protocols. Eliciting the strategies used in reading and recalling was the focus at this final stage of analysis. In addition, individual subjects' retrospection protocols and their recall protocols were cross-checked, wherever possible, in order to see if the subjects' self-reports matched their actual recall products. Idiosyncratic characteristics of each subject such as his/her knowledge or interest level were also referred to at this stage of data analysis for more qualitative discussion.

### 3. Results and Discussion

#### 3.1. General Picture of the Subjects

Table 2 shows descriptive statistics on the variables among the three text groups.

Table 2. Means and SD's by Text Group

Text	TL Proficiency	Topic Knowledge	Topic Vocabulary	Topic Interest	Text Difficulty	N
Causation	23.2 (2.70)	1.79 (.37)	5.05 (1.34)	2.8 (.63)	2.0 (.47)	10
Description	24.3 (4.11)	1.55 (.83)	6.45 (.72)	2.8 (.42)	2.1 (.31)	10
List	26.8 (2.57)	2.60 (.74)	6.75 (1.78)	3.1 (.32)	2.0 (.00)	10
Total	24.8 (3.45)	1.98 (.80)	6.08 (1.51)	2.9 (.48)	2.03 (.32)	30

Simple statistical analyses indicated that there was not statistically significant difference among three text groups in terms of general proficiency in the target language (2, 3.31,  $p = .052$ ), interest in the topic of

the given text (2, 1.33,  $p = .28$ ), or in the perceived text difficulty (2, .31,  $p = .74$ ). The near-significant difference found in the target language proficiency seems to have resulted from relatively higher mean proficiency score by the subjects who were assigned the list text. However, there was significant difference among the three text groups in their knowledge of text topic (2, 6.62,  $p = .005$ ), and that of topic vocabulary (2, 4.48,  $p = .021$ ).

A post hoc analysis revealed that the subjects who were assigned the list text had significantly more knowledge about the text topic than those who were assigned either the causation ( $p = .012$ ) or the description text ( $p = .002$ ). But the difference between causation and description text groups was not significant. The results also showed that the subjects who were given the causation text had significantly less knowledge of topic vocabulary than those who were given either the descriptive ( $p = .029$ ) or list type text ( $p = .009$ ).

As for the variable of topic interest, most of the subjects responded they had moderate to high interest in the topic of the passage they read, only 5 out of 30 subjects choosing the scale 'Not much interested'. Though a little higher interest was reported for 'Netiquette' passage, it did not reach statistical significance. This result means that the (topics of the) texts used in the present study were interesting enough for the subjects to engage themselves in the given task.

In addition, the experimental texts proved 'relatively easy' to read for 90% of the subjects, 'very easy' to one subject, and 'a little difficult' to two subjects. Overall, the texts seemed quite readable to the subjects, and there was virtually no difference in the degree of perceived difficulty among the three different texts.

Meanwhile, the subjects in the present study turned out not very successful in discerning the way ideas are organized in English expository texts. Only 7 out of 30 chose the expected answer (i.e., the most appropriate description of the organization of the given text), and all the rest were misled by the superficial features of the text. For example, for the passage describing two major causes of women's longer life expectancy than men's and therefore when 'cause and effect' was the expected answer, most subjects chose 'comparison and contrast' as the best description, thinking that the passage 'compares and contrasts' men and women.<sup>4</sup>) Table 3 shows the relevant result.

Table 3. Knowledge of Rhetorical Structure and Patterns of Incorrect Answers

Text Type	Knowledge of Rhetorical Structure		
	Correct	Incorrect	Incorrect Answers Chosen
Cause-Effect	3	7	* Comparison-Contrast: (7)
Description	2	8	* Cause-Effect: (6) * Comparison-Contrast: (2)
List	2	8	* Problem-Solution: (8)
<i>Total</i>	7	23	

Target language proficiency does not seem to be related with this type of knowledge as there was virtually no difference in proficiency score (24.71 vs. 24.78 out of 30) between the two groups. This result seems to indicate that average Korean college EFL learners do not have what is called 'formal schemata' in the target language. In the later sections of this paper will be discussed how this lack of formal schemata is reflected in processing and recalling an L2 text.

## 3.2. Findings and Discussion

### 3.2.1. Content Schema and Recall

It was already found in Joh (2006) that the reader's knowledge about the text topic did not bring about a significant difference in the amount of recall. Topic knowledge did not contribute substantially to Korean EFL learners' reading comprehension measured by multiple-choice or open-ended items, either. These results seem to provide a reliable evidence that topic knowledge (i.e., content schema) may not facilitate the comprehension of a certain group of L2 readers (EFL readers, more specifically) regardless of the criterion measure used to assess the reading comprehension, as much as the schema theory would predict.

Qualitative data sources in the present study provide some new aspects of inner mechanism in L2 reading, which will be discussed in the below. Table 4 presents the descriptive statistics regarding topic knowledge and text recall.

---

4) This information was obtained while interviewing the subjects.

Table 4. Topic Knowledge and Recall (%)

Degree of Knowledge	Correct Recall (SD)	Total Recall (SD)	N
Low <sup>5)</sup>	18.6 (13.5)	30.6 (18.5)	9
High	28.9 (15.3)	43.8 (17.7)	11
Border-liners	22.4 (14.5)	35.7 (11.3)	10
Total	23.9 (14.7)	37.4 (14.9)	30

As predictable from the table, those subjects with more knowledge in the given topic produced significantly longer protocols than those with less knowledge (2, 3.714,  $p = .045$ ), though the higher knowledge group's protocols did not include significantly more units correctly recalled ( $p = .124$ ). This results seemed to imply that the readers possessing relatively more topic knowledge might have added or distorted some information in the course of actively utilizing their background knowledge. However, statistical analyses failed to support this reasoning. That is, there was low and non-significant correlation between topic knowledge and the amount of distortion of textual information or elaborative addition of information not mentioned in the text. Also, no significant main effect of topic knowledge on distortion or on addition was found.

A parallel pattern was observed with regard to the role of topic vocabulary in recall. That is, more knowledge of topic vocabulary seemed to bring about significantly longer protocols (2, 4.410,  $p = .022$ ; significant difference found between low and high group) but not significantly more information correctly recalled (2, 1.947,  $p = .162$ ). Table 5 shows the descriptive statistics.

Table 5. Knowledge of Topic Vocabulary and Recall (%)

Degree of Knowledge	Correct Recall (SD)	Total Recall (SD)	N
Low <sup>6)</sup>	19.5 (11.4)	30.6 (10.9)	12
High	30.2 (18.5)	46.3 (16.4)	11
Border-liners	19.9 (8.4)	32.9 (10.8)	7
Total	23.9 (14.7)	37.4 (14.9)	30

5) The criterion of grouping was the subjects' scores in the measure of topic knowledge. Scores above 2 were classified as 'high', those below 2 as 'low', and the others as 'border-liners', where 4 was the highest score possible.

6) The criterion of grouping was the subjects' scores in the measure of topic vocabulary

Although Joh (2006) already found that the reader's knowledge of topic vocabulary did not 'cause' better recall while it was the best predictor of the reader's comprehension measured by multiple-choice or open ended items, the reason for this was not clear without enough empirical data. Did the difference in the measure of reading comprehension bring out the discrepant result in terms of the role of topic vocabulary knowledge? Or could there be other potential factors relevant to this phenomenon? Motivated by these questions, more analyses were conducted and the results showed that the knowledge of topic vocabulary was negatively correlated, though not high, with the amount of distortion ( $r = .37$ ,  $p = .047$ ).

This result means that those subjects with less knowledge of topic vocabulary tended to make more distortions of the original information in their recall protocols. Although the degree of correlation was not that high, this result also indicates that the knowledge of topic vocabulary could play a meaningful role in L2 reading comprehension (as measured by recall) by intervening in the process by which L2 readers decode, understand, and reconstruct textual information. This reasoning was partly supported by the significant main effect for the knowledge of topic vocabulary on distortion (2, 6.587,  $p = .004$ ). A post hoc test revealed that the High Topic Vocabulary Group produced significantly less cases of distortion than either Low Group or Border-liners.

### 3.2.2. Formal Schema (Knowledge of Rhetorical Structure) and Recall

Whether or not the reader recognized the textual organization did not make significant difference in the amount of correctly recalled information, with less than 5% of difference between those who correctly identified the rhetorical structure of the passage they read and those not. Table 6 shows the result.

Table 6. Formal Schema and Recall (%)

Formal Schema	Mean (SD)	N
Present	27.4 (10.7)	7
Absent	22.8 (16.1)	23
Total	23.9 (14.7)	30

---

knowledge. Scores on or above 7 were classified as 'high', those on or below 5.5 as 'low', and the others as 'border-liners', where 10 was the highest score possible.

As the mean on the target language proficiency test was almost the same for the two groups (24.7 versus 24.8 out of 30), it seems safe at the present to say that the knowledge of rhetorical structure was not a critical factor in reading comprehension measured by recall, at least for the EFL readers in the present study.

This result is quite different from Lee and Riley's (1990) finding that recall was significantly better, both in quantity and quality, when the readers knew the rhetorical structure of the given text and used the knowledge in organizing recall protocols. In the present study, however, the subjects who recognized the rhetorical structure and utilized this knowledge in composing recall protocols did not necessarily yield better recall than those who did not exactly identify the rhetorical structure or those who did but not incorporated the knowledge into recall protocols.<sup>7)</sup>

What was going on in the subjects' mind? The retrospection protocols obtained from individualized interviews revealed that most of the subjects had a tendency to try to retrieve every bit of information in the exactly same order as it appeared in the given text, rather than restructure the text content by using the rhetorical organization as the basic skeleton around which segments of retrieved information string appropriately. Even the few who exactly identified the rhetorical structure of the given text did not necessarily base their recall protocols on the very organizational structure.

This finding suggests that rhetorical structure may not be a major concern in the reading process to certain groups of L2 readers, at least to some Korean EFL readers. Above all, the absence of formal schemata was prevalent among them as can be seen from the much higher proportion of subjects who chose a wrong descriptor as the rhetorical structure of the given text (23 out of 30 subjects).

It is thought that these results reflected one of the overall characteristics of Korean adult EFL learners. Namely, it seems that Korean EFL learners generally lack explicit knowledge about organizational structure of written discourse in the target language, and that this deficiency is true of the students enrolled in fairly good ranking universities in Korea,

---

7) It was not easy, however, to statistically or strictly compare these two groups (or three groups) because there were few, though not none, subjects who both knew the rhetorical structure and utilized such knowledge in creating recall protocols on the one hand, and because only small number of subjects (7 out of 30) correctly identified the rhetorical organization of the given text on the other hand.

who speak quite good English and have considerable knowledge of vocabulary and structures. As already mentioned, about 80% of subjects in the present study could not correctly identify the rhetorical structure of the text given to them. In relation to this, Joh (2004a) observed that textual organization had an influence on reading comprehension (measured by either multiple-choice or open-ended items) only among the highest proficiency level subjects, and lower level ones were not affected by the type of textual organization, simply showing a kind of floor effect in the criterion measure.

However reading researchers have reported the significant role of formal schema, and emphasized the need for explicit instruction of rhetorical structure in a reading classroom. For example, Droop and Verhoeven (2003) maintained that special attention to the structure of a text can facilitate vocabulary learning and reading comprehension, adding that children can presumably acquire new knowledge from moderately unfamiliar texts when the necessary structural cues are provided. They further claimed that instruction should therefore focus on the identification of organizational structures as well as signal words and topic sentences in order to detect the main ideas, critical pieces of information, and the relations between them. Dickson, Simmons, and Kameenui (1995) also mentioned that explicit instruction with regard to the structure of a text facilitates the development of important comprehension strategies.

The findings from the present study and voice from relevant previous studies seem to suggest a strong need for explicit instruction about the rhetorical structure of English written discourse in Korean EFL classrooms so that learners can read and understand more effectively in English, and further enhance their learning from the texts written in English.

### 3.2.3. Topic Interest and Recall

The subjects were classified into two groups (either high or low) based on their response to the measure of topic interest. The two groups were comparable in terms of target language proficiency, topic knowledge, and topic vocabulary knowledge, though the high interest group was much larger in size (25 out of total 30 subjects). Table 7 reports the descriptive statistics.

Table 7. Topic Interest and Recall (%)

Interest Level	Mean (SD)	N
High	33.6 (12.3)	5
Low	21.9 (14.6)	25
Total	23.9 (14.7)	30

At first glance, there was seemingly tangible difference in the amount of correctly recalled information between the low and high interest group. However this difference did not reach the statistical significance (1, .905,  $p = .107$ ). This result could partly be related to the large difference in the group size and the overall small number of subjects in the present study.<sup>8)</sup> In addition, topic interest was not highly correlated (around .1 of coefficient) with any of the reader knowledge variables examined in the present study (i.e., target language proficiency, topic knowledge, and knowledge of topic vocabulary), suggesting that interest in the text topic might be quite an independent trait within this sample.

Searching for a fuller picture of the role of topic interest in recall, all the data were scrutinized again, this time focusing on the qualitative aspects. A close look at the data revealed that all the low interest subjects were those who read the causation or description text, of which the topic was the cause of women's longer life expectancy and how the American values were shaped, respectively. On the other hand, those who read the list text, of which the topic was netiquette, all expressed mid to high degree of interest in the topic.

In addition, all the subjects in the low interest group reported that low interest or lack of interest in the text topic did not impede their reading process or recalling. This response sharply contrasts with those of the high interest group in that almost all (except two) members of the latter group mentioned facilitating effects of (high) interest in the text topic while reading or recalling. Three subjects from low interest group said that it was not difficult for them to read the given text, even though they were not interested in the topic, because the topic was familiar to them.

This means that for the low interest subjects topic knowledge would have been a more important factor that affected their reading process.

---

8) Personal communication with an expert of statistics.

One subject in this group reported that her lack of interest did not affect reading since she could predict how the text would flow. In contrast, the two high interest subjects who did not believe in the facilitating effect of topic interest in reading process gave different opinions. One of them showed a similar view to the three low interest subjects, saying that it was not topic interest but topic familiarity that helped him read the given text effectively.

What the other high interest subject [Subject L] said was completely different from all this. He said that interest in the topic helped neither reading process nor recalling. According to him, he tends to accept the information in a text as it is when he is not interested in the topic of the given text. However, when the text is about a topic he is interested in, his background knowledge about the topic gets actively invoked and his personal opinions intervene in the reading process. This in turn makes him quite confused, after completing reading, between what he comes to know from the text and what he has already known from previous learning. For him, topic interest, therefore, more impedes reading than helps, especially when he has to recall what has been read. Actually his recall performance was below average while he was one of the two who marked on the highest scale ('Very interested') in the topic interest measure. As he himself reported, his recall protocol contained more than average number of distortion and elaboration, probably as a result of negative effect of background knowledge.

His retrospection is somewhat special not only because he was the only subject who explicitly mentioned the negative effect of topic interest on reading and recalling but also because it suggests a possibility of a unique mechanism operating in reading comprehension that involves interest and background knowledge.

Meanwhile, the subjects from high interest group presented a fairly wide spectrum of ideas about the role of topic interest, some of which seem to deserve attention. The analysis of retrospection protocols revealed several elements that appeared to influence reading and/or recalling via interacting with topic interest, or interacting with one another. They were engagement, speed, motivation, and background knowledge. By 'engagement', I mean some inner force on the part of the readers that helped them concentrate on the reading activity and keep reading the text on. Actually, 8 subjects said that as they were interested in the topic they could concentrate on reading, easily follow the lines, and re-

member a lot of what they read.

Interestingly, the subjects' retrospection protocols suggest a possibility that easiness of the text (in terms of vocabulary or syntax) may not counteract the lack of interest in the topic. According to some of the high interest subjects, lack of topic interest makes them distracted and consequently re-read the text over and over again, even when the text is easy [Subjects K1, K2, K3, K4, K5, K6, Y, and R].

On the other hand, effective engagement in reading invoked by topic interest seemed to bring about several positive influences, i.e., elevated reading speed and facilitated retrieving of information obtained from the text. Three subjects overtly mentioned the speed in relation to topic interest, saying that they could read fast (with understanding) as the text was about the topic they were interested in. In addition, seven subjects reported that their interest in the topic helped them recall what they read.

Background knowledge (or topic familiarity) was mentioned by 6 subjects. Their retrospection protocols showed how they perceived the relationship between topic interest and background knowledge. Five of them said that topic interest usually entails [a certain amount of] background knowledge of the topic and that this combined interest and background knowledge enhances their comprehension and memory.

"When I am interested in the topic, it is often the case that I have some background knowledge of the topic. Thus it is generally easy to read the text and remember its content when it is about a topic I'm interested in." [Subject L]

Topic interest also seemed to be related with motivation to read in the sense that readers with high interest had a tendency to vigorously put efforts to figure out from the context the meaning(s) of unknown words. Three subjects talked about this aspect of topic interest.

"If the text is about a topic of my interest, I try hard with willingness to infer the meaning from the context when faced with unknown words." [Subject C]

On the other hand, two subjects said they would rather, and actually they do, give up when they are not interested in the topic, suggesting a

de-motivating effect lack of interest could bring about. Joh (1998) reported that a group of Korean LEP high school students said that they were not inclined to read a given passage even in a test situation if the text was not interesting. The result in the present study suggests that topic interest could influence the motivation to read even for the adult readers at higher levels of target language proficiency.

To make a picture more exciting and complicated, several subjects insinuated interactions among topic interest, text difficulty, reading speed, or background knowledge. According to one subject [Subject J], it does not matter to her whether or not she is interested in the text topic (i.e., she can read a text with speed) if only the text is easy. However, topic interest does matter when a text is difficult: she can read at reasonable speed only when she is interested in the topic. Another subject said that interest in the topic facilitates his comprehension on condition that the text is not difficult AND he has some degree of background knowledge about its topic [Subject N].

All these self-reports by the subjects seem to provide clues, though in part, to the findings on topic interest in the previous studies (Joh, 2004a, 2004b, 2006) and in the present study, such as unexpectedly low correlations of topic interest with other reader variables and its insignificance as a factor in L2 reading comprehension. In other words, although readers' interest in the text topic is generally helpful to motivate readers by keeping them engaged in reading, the interaction patterns involving interest is so entangled that its effect may not be easily detected by statistical means.

These findings from the present study deserve attention for reasons. First of all, the previous studies that addressed the issue of interest in reading comprehension were mostly conducted in the context of L1 reading. Moreover, although several assumptions and conclusions were made about the role of interest and its relationship with prior knowledge in reading comprehension, they were based almost exclusively on quantitative data or on speculations (e.g., Baldwin et al., 1985; Fincher-Kiefer, Post, Greene, & Voss, 1988; Garner & Gillingham, 1991; Osako & Anders, 1983; Schumm et al., 1992; Wade, 1993).

After all, the role of topic interest in reading and recall of L2 texts seems to be intricately interrelated with extraneous factors such as prior knowledge or text difficulty. Much more systematic and pin-pointed research seems necessary, however, to figure out the exact mechanism of

interactions between topic interest and other factors before solid generalizations could be made about the role of topic interest in L2 reading comprehension.

### 3.2.4. Text Organization and Recall

The subjects produced significantly longer ( $p = .000$ ) and also more correct ( $p = .000$ ) recall protocols when the text had cause-and-effect organization than either descriptive or listing type organization. Meanwhile, distortion of information occurred significantly more often when the text was descriptive. The difference in the frequency of distortion between the causation and description texts was not significant, though near ( $p = .052$ ), while the difference between the list and description texts was significant ( $p = .031$ ). Table 8 shows the descriptive statistics.

Table 8. Correct Recall (%) and Distortion by Text Organization

Text	Correct Recall	Frequency of Distortion	N
Causation	38.9 (14.3)	2.5 (1.5)	10
Description	15.9 (6.2)	4.2 (2.6)	10
List	16.8 (9.0)	2.3 (1.3)	10
Total	23.9 (14.7)	3.0 (2.0)	30

The significantly better recall by the causation text readers is somewhat interesting considering the following two sets of data. First, there was no significant difference among the three text groups in terms of general English proficiency ( $p = .052$ ),<sup>9)</sup> the self-appraised text difficulty ( $p = .736$ , virtually the same among the three text groups), or interest in the text topic ( $p = .282$ ). Second, the list text readers had significantly more topic knowledge than either the causation or description text readers ( $p = .005$ ), while the causation text readers had significantly *less* knowledge of topic vocabulary than either the description or list text readers ( $p = .021$ ).

Remember that less knowledge of topic vocabulary was a mediocre predictor of more distortion and that knowledge of topic vocabulary was positively interrelated with, and significantly affected, the total recall.<sup>10)</sup> It is possible that the influence of text organization was stronger than

9) See Table 2 for relevant information.

10) Refer to the section '3.2.1. Content Schema and Recall'.

that of prior knowledge, since the subjects recalled more of causation text even though they knew relatively less lexical items in the given text and had less background knowledge of the topic.

On the other hand, those subjects who read the list text showed highest interest in the text topic, and got highest scores on the English proficiency test as well as on the measures of topic knowledge and topic vocabulary. The list text was also perhaps syntactically easier with fewer words per sentence and the lowest readability index. In spite of these apparent advantages, they did not remember much of the information in the text.

Now let's look at those subjects who read the description text. They recalled significantly less units correctly than the causation text group while they significantly more often distorted the original passage than those who read the causation or list text. Actually there was no grounded reason to expect their inferior performance in the recall task as they had as much background knowledge and topic interest as those who read the causation or list text. In addition they were significantly better than the causation text readers and comparable to list text readers in their knowledge of topic vocabulary.

When the multiple-choice and open-ended items were used to measure reading comprehension of the same texts with comparable subjects, it was found that in both measures the description text group got significantly lower scores than either causation or list text group (Joh, 2004a). This result is similar to that in the present study with regard to the description text but *different* with regard to the list text. One of the reasons could be the difference in the nature of task between multiple-choice/open-ended items and recall, and the most salient feature of the difference would be whether or not the reader is allowed to look back at the text while performing a given task.

Analysis of qualitative data and closer looks at individual subjects' recall performance provided some clues to these phenomena. To begin with, nine out of the top 10 high achievers were from the causation text group, and it is possibly related to the clarity and logical cohesion inherent in the texts having cause-effect organization, as Kobayashi (2002) pointed out. That is, it is probable that the logical clarity and simplicity in rhetorical structure (i.e., hierarchy among the propositions) had a stronger influence on short term memory than other factors, e.g., text difficulty, topic knowledge, or topic interest.

For example, text difficulty does not seem to have been a critical factor in recall, for the SMOG readability formula by McLaughlin (1969) indicated that the list text was presumably the easiest (Grade 8) while the causation and description texts were harder than this (Grade 10 and 11, respectively). This means that the relative easiness of the list text did not help better recall. Why this happened? Probably it is because the parallel structure of the list text, which is composed of numerous propositions with equal or comparable importance, imposed heavy burden on memory. Actually several subjects explicitly mentioned this kind of difficulty associated with the list text.

“The text was very easy to read, mostly because it was itemized with short segmented paragraphs, but when I had to recall what I read it became quite a different matter. It was not as easy to remember [the text] as to read or understand it.” [Subjects H, J, K1, K2, K3, K4]

By contrast, the relative difficulty of the causation text seems to have been cancelled by the clear logical relations among the propositions, and as a result did not debilitate but facilitate storing and retrieving of information in the text.

Meanwhile, the poor recall performance among the description text readers could possibly be attributed to the interaction of topic familiarity and loose organization of the text. Two thirds of the subjects for the present study were English majoring juniors or seniors, and the content of the description text was probably quite familiar to these English majors — founding of a new country by early settlers from Europe, their independence from England, the ideal of individual freedom, etc. However, the text contained much more than that, and the new information was neither logically presented as in the causation text nor neatly itemized as in the list text. It was more like a historical narrative, but it was not organized exactly in chronological order. Under such circumstances, the subjects seem to have resorted to their background knowledge, not remembering much of the new information in the text, which probably resulted in frequent distortion and/or addition. A male subject who majored in history is an example. Although his recall protocol included a great number of idea units, not many of them were from the original text but from his own discipline knowledge. Similar cases were observed in the protocols by several English majoring subjects who

read the description text.

These results regarding the effect of text organization on recall suggest that L2 readers might have difficulty in retrieving the information gained from an L2 text when the text lacks logical cohesion (like description texts), or when it contains segments of information each of which has comparable importance (like list texts), even though they have little difficulty understanding the text. It is probably because lack of transparent logical ties among paragraphs or absence of clear hierarchy among the propositions could impose unduly cognitive burden on L2 readers, independently of linguistic difficulty. By contrast, an L2 text could be recalled without big trouble if the logical relationships among the propositions in the text is clear and simple, and therefore judging the relative importance of individual propositions is rather easy (as in cause-effect organization), even though the text contains a little difficult vocabulary and/or syntactic structures and the reader does not have much background knowledge about, or interest in, the topic.

At this point Seidenberg's (1989) observation regarding the potential effect of text organization on reading comprehension seems worth quoting that well-structured text clearly helps children identify, summarize, and outline the main ideas.

However, the difficulty in recall associated with, or caused by, organizational characteristics needs to be differentiated from comprehension difficulty while reading. The same reader might have little difficulty understanding a text which is easy and which s/he has both interest in and background knowledge about, as the subjects' self-reports suggested.

### 3.2.5. Strategy in Reading and Recalling

Analysis of the retrospection protocols revealed that most frequently used strategies across texts were 'trying to memorize', 'focusing on the topic sentence', and 'grasping overall context/main ideas', in this order. Other strategies mentioned by more than two subjects included 'grasping main ideas of each paragraph', 'focusing on key words', 're-reading underlined parts (which were not completely understood or memorized)', 'ignoring or paying less attention to details (such as the year of a historical event)', and 'repeated reading with different focus each time'. The purpose of repeated reading was the same for the 1st reading, i.e., skimming, but diverse for the 2nd reading, e.g., 'intensive reading for specific information' or 'looking for the main idea in each paragraph'. There

were also two subjects who reported that they focused on specific part of the text, either the last part or both the first and the last part, because they thought those parts were most important in the given text.

Although the majority of the subjects “tried to memorize” for better recall, one female subject [Subject N] said that she put more efforts on ‘understanding’ than on memorizing because (she thought) she could paraphrase in her own language, even without memorizing the text, if she ‘did understand’. Actually she produced a good recall protocol, ranking the 3rd in the description text group.

‘Trying to memorize’ was a kind of cover term for the single most frequently used strategy among the subjects. However, there were various ways to implement this strategy. Simply trying to memorize everything in the text was most common (from all three text groups), trying to memorize what is important first and then supporting details was most rare (only one from the causation text group), and there were two subjects both from the list text group who tried to memorize by “associating text content either with [the aspects of my] real life related to the text topic or with [my] background knowledge about the text topic”. More about these two list text readers will be discussed later.

As already mentioned, the subjects on the whole did not correctly recall much of the information in the text they read, merely about a quarter of the total information on average. This overall performance was far from the researcher’s expectation because the subjects were generally hard-working, good language learners and they knew what they had to do after reading the text. And close examinations of their recall protocols, retrospection protocols, and of other personal data gave clues to this rather unexpected result.

First of all, the subjects were not very efficient on average in their strategy use. That is, not many of them concentrated on grasping main ideas and information of relatively higher importance, which would be a kind of scaffolding for their construction of recall, according to van Dijk and Kintsch’s (1978) discourse comprehension model. Instead, they allocated most of their attention to memorizing the propositions in the text.

This does not mean, however, that the subjects never tried to grasp the main ideas or overall context. Neither does it mean that they did not consider the relative importance among the propositions at all. The thing is that most of them allocated considerable portion of their limited cognitive capacity to such strategies as memorizing secondary or tertiary

details, which proved not very helpful to perform the task after all.

On the other hand, effective strategy use by some of the causation text readers seem to have contributed to the significantly superior recall performance by the causation text group. This group's recall could already have been facilitated to an extent by the clarity and coherence of the organizational structure. Given this, use of strategies such as 'grasping main ideas' or 'using the cause-effect organization as the framework of recall protocol' would surely have had an additive effect.

Another interesting finding worth mentioning is the very unique strategy used by two list text readers: trying to memorize by "associating text content with [the aspects of my] real life related to the text topic" or by "associating text content with [my] background knowledge about the text topic." As explained earlier, the list text readers recalled least among the three text groups in spite of lowest text difficulty and highest topic interest and target language proficiency on average. However, these two subjects produced relatively good recall protocols, ranking 1st and 2nd in the list text group, a little over the grand sample mean in recall performance.

Although they also tried to 'memorize' while reading as many others did, what differentiated them was their highly sophisticated strategy use. That is, they did not simply try to memorize mechanically (or try to cram the information into their memory facilities) but actively and efficiently employed further strategies that could facilitate the working of memory strategy itself. Thus their relatively good recall could be considered a natural consequence.

Overall, the strategy use among the subjects can be summarized as follows. First, most subjects tended to focus on intensive reading, paying the same amount of attention to every proposition and spending most of their time on trying to memorize all the content of the given text for the sake of 'perfect recall'. In addition, quite a few of them spent time ineffectively trying to include in the recall protocol everything remaining in their memory, leaving little mental faculty for determining whether or not to include a certain piece of information by judging its relative importance. Such tendency was reflected in several subjects' recall protocols in which earlier sections of the given text were recalled in detail but later parts of the same text could hardly be found. The subjects' self reports about strategy use and difficulties experienced while performing the recall task also provided evidence for the presence of

such tendency.

These findings imply that the effect of a variable (e.g., text characteristics, topic interest, or general language proficiency), which is expected to either facilitate or debilitate reading process and/or product, could vary as a function of the reader's strategy use. This observation is interesting in that it adds a new perspective to our knowledge of L2 reading strategy. That is, many of the previous L2 reading studies often reported much more efficient strategy use by L2 learners with higher target language proficiency (e.g., Bialystok, 1981; Hosenfeld, 1984; Kern, 1988; O'Malley, Chamot, Stewner-Manzanares, Kupper, & Russo, 1985). However, the present study suggests that use of strategy could vary to a great degree even among L2 learners of quite comparable target language proficiency, and that this difference in strategy use could result in significant difference in the amount of recall.

After all, it seems that the two most influential factors in the recall of L2 expository texts in the present study were text organization (already discussed in the previous section) and strategy use. As can be seen in the relatively good recall performance by several subjects who read description or list text, the difficulty in recall imposed by textual organization could be compensated for by the reader's strategy choice to an extent. In addition, exerting oneself to memorize everything in the text turned out less efficient than figuring out main ideas or allocating different amount of attention to individual propositions in accordance with relative importance of each proposition. A tentative conclusion that can be drawn, therefore, is that the unsuccessful recall performance by the most subjects is ascribable to their inefficient strategy use and the difficulty associated with textual organization.

About this, van Dijk and Kintsch's (1978, 1983) model of discourse comprehension seems to provide a useful theoretical explanation. They postulated that successful L1 readers use in recall the macrostructure as a retrieval cue for the detailed propositional information about the text. It is because what is stored in memory corresponds to the macrostructure of the text, with some of the microstructure propositions subordinated under the macrostructure categories. Seen from their viewpoint, therefore, many of the subjects in the present study could not produce good recall protocols because they failed to construct a macrostructure of the given text, which is a necessary component of comprehension.

Meanwhile, there was little variation in the strategy use in accordance

with textual organization. Remember that only 7 out of 30 subjects correctly identified the rhetorical organization of the given text. In addition, just 3 out of the few 7 reported that they utilized such knowledge in creating recall protocols. But recall protocols by those 7 subjects did not prove to be any better than their counterparts. This implies that almost all the subjects approached the given text in the same way regardless of the organizational structure of the text. Once again, what mattered seems to be the absence of formal schemata and lack of strategic efficiency among Korean EFL readers.

#### **4. Conclusion**

The present study intended to explore the nature of L2 reading process and product by closely examining Korean EAP learners performing a recall task after reading an expository text. In an effort to enhance the validity of the findings, most of the major factors known to affect reading were included and both quantitative and qualitative approaches to data analysis were employed. The findings can be summarized as follows.

First, prior knowledge (neither topic knowledge nor topic vocabulary knowledge) did not turn out to significantly influence the amount of correctly recalled units. However, it was found that the more topic knowledge or topic vocabulary the reader had, the significantly longer recall protocols s/he produced. In addition the readers with more topic vocabulary knowledge showed fewer cases of distortion. This finding suggests that pre-reading activities on key words and phrases in a given text could be more effective for adult EFL learners than providing background knowledge about the topic of the text, if the background knowledge is to be represented in the learners' native language.

Second, the present study clearly showed that Korean EFL learners generally lack knowledge of rhetorical structure of written discourse in the target language. However, reading researchers have pointed out that explicit instruction with regard to text structure facilitates reading comprehension (e.g., Dickson et al., 1995; Droop and Verhoeven, 2003). It seems necessary, therefore, to bring in explicit instruction on the rhetorical structure of English discourse in Korean EFL classrooms to help the learners more effectively read, understand, and learn from the texts

written in English.

Third, although interest in the text topic did not prove to increase recall in the present study, the subjects reported that topic interest influenced reading speed and helped them stay motivated to keep reading or to infer from the context when faced with unknown expressions. The subjects' retrospection protocols also revealed fairly complicated patterns of interaction among topic interest and other variables, such as topic familiarity and text difficulty. After all, much more systematic exploration seems needed before drawing a conclusion about the exact role of interest in L2 reading comprehension, including the development of legitimate device to measure the construct of topic interest.

Fourth, text recall deteriorated either when the text lacked logical cohesion or when it consisted of propositions with comparable importance, even though the text was about a familiar topic and relatively easy syntactically or semantically. One of the reasons for this is probably the burden on memory inherent in the specific text organization, and the recall protocols and retrospection protocols indicated that use of efficient reading strategy could compensate for this type of difficulty to an extent. This finding implies that L2 reading instruction should allocate more time to get learners sensitive to the organizational features of target language discourse and train them to be able to choose the most appropriate processing strategies that best match the characteristics of a given text. Otherwise, L2 readers' optimal understanding and learning from text could not be hoped.

Fifth, the subjects extremely relied on memory strategy in performing a recall task, instead of optimally allocating their cognitive capacity based on critical judgement of the organizational features of text and relative importance of each piece of information. Lack of instructional experience in this aspect of reading would be a plausible explanation for this result. Unique socio-educational context where the subjects were brought up also seemed to play a role in their beliefs of reading/reading task, and further in their approaches to a given reading situation. That is, the subjects' heavy reliance on memory strategy in recalling might have reflected an aspect of Korean socio-educational environment where traditionally indoctrination of knowledge has prevailed.

In spite of cares and efforts put forth in designing and conducting this research, the present study is never free from limitations. The subjects might not be representative of general Korean adult EFL learners not to

speak of L2 readers in general, and the sample size was not large enough for safe generalizations. The measures used to elicit cognitive or affective traits, especially those solely based on self-reports by the subjects, might have affected the validity of the results in unexpected ways. More strict control over the text variables could have been desired, too, though it was practically impossible to perfectly control all the topic, difficulty, and organizational features so that selected texts could be completely equivalent in the criteria under investigation. The exploration of 'process' could have been much better accomplished if think-aloud was used as the tool for eliciting reader's verbal reports, though it would also entail its own limitations.

Bernhardt (1991, 2000) once observed that L2 reading comprehension is taken to be a function of general literacy ability, word knowledge, and syntactic knowledge, leaving about half of the variance in reading scores still to be explained. Her observation seems to rightly point out the extremely complicated, and multi-faceted nature of L2 reading. The findings from the present study give us a glimpse of such intricateness inherent in L2 reading, indicating patterns of complicated interaction among the reader's knowledge, interest, strategy choice, text structure, and possibly influences from socio-educational context. Admitting that there IS limit in generalizability of these findings, the empirical evidences obtained in the present study seem to deserve consideration for both theory and practice of L2 reading.

## References

- Afflerbach, P. P. (1990). The influence of prior knowledge on expert readers' main idea construction strategies. *Reading Research Quarterly* 25, 31-46.
- Alderson, J. C. (2000). *Assessing reading*. Cambridge: Cambridge University Press.
- Alexander, P. A., Kulikowich, J. M., and Schulze, S. K. (1994). How subject-matter knowledge affects recall and interest. *American Educational Research Journal*, 31, 313-337.
- Ammon, M. S. (1987). Patterns of performance among bilingual children who score low in reading. In S. R. Goldman and H. T. Trueba (Eds.), *Becoming literate in English as a second language* (pp.

71-106). Norwood, NJ: Ablex.

- Baldwin, R. S., Peleg-Bruckner, Z., and McClintock, A. H. (1985). Effects of topic interest and prior knowledge on reading comprehension. *Reading Research Quarterly*, 20, 497-508.
- Bernhardt, E. B. (1983). Three approaches to reading comprehension in intermediate German. *Modern Language Journal*, 67, 111-115.
- Bernhardt, E. B. (1991). *Reading development in a second language: Theoretical, empirical, and classroom perspective*. Norwood, NJ: Ablex.
- Bernhardt, E. B. (2000). Second language reading as a cases study of reading scholarship in the 20th century. In M. L. Kamil(Ed.), *Handbook of reading research* (pp. 791-812). Mahwah, NJ: Lawrence Erlbaum.
- Bialystok, E. (1981). The role of conscious strategies in second language proficiency. *Modern language Journal*, 65, 24-35.
- Carrell, P. (1983). Three components of background knowledge in reading comprehension. *Language Learning*, 33, 183-207.
- Carrell, P. (1984). The effects of rhetorical organization on ESL readers. *TESOL Quarterly*, 18, 441-469.
- Chin, J. (1997). ESL readers' perceptions and reading processes: Five case studies. *Journal of The Applied Linguistics Association of Korea*, 13(1), 81-117.
- Connor, U. (1984). Recall of text: Differences between first and second language readers. *TESOL Quarterly*, 18, 239-256.
- Dickson, S. V., Simmons, D. C., and Kameenui, E. J. (1995). Text organization: Curricular and instructional implications for diverse learners(Technical Report No. 18). Eugene, OR: National Center to Improve the Tools of Educators.
- Droop, M. and Verhoeven, L. (2003). Language proficiency and reading ability in first- and second-language learners. *Reading Research Quarterly*, 38, 78-103.
- Fincher-Kiefer, R., Post, T. A., Greene, T. R., and Voss, J. F. (1988). On the role of prior knowledge and task demands in the processing of text. *Journal of Memory and Language*, 27, 416-428.
- Garcia, G. E. (1991). Factors influencing the English reading test performance of Spanish-speaking Hispanic children. *Reading Research Quarterly*, 26, 371-392.
- Garner, R., Alexander, P. A., Gillingham, M. G., Kulikowich, J. M., and Brown, R. (1991). Interest and learning from text. *American*

- Educational Research Journal*, 28, 643-659.
- Garner, R. and Gillingham, M. G. (1992). Topic knowledge, cognitive interest, and text recall: A microanalysis. *Journal of Experimental Education*, 59, 310-319.
- Hosenfeld, C. (1984). Case studies of ninth grade readers. In J. C. Alderson and A. H. Urquhart (Eds.). *Reading in a foreign language* (pp. 231-249). New York: Longman.
- Joh, J. (1998). *The effects of assessment features on the performance in EFL reading comprehension tests*. Seoul: Hanshin Publishers.
- Joh, J. (2004a). Interactions among the reader, text, and task variables in EFL reading comprehension. *English Teaching*, 59(3), 115-144
- Joh, J. (2004b). Which prior knowledge? - Relative contribution of prior knowledge components to EFL reading comprehension. *Language Research*, 40, 1035-1057.
- Joh, J. (2006). Interest and prior knowledge in L2 reading comprehension. *Foreign Languages Education*, 13(1), 85-113.
- Johnston, P. H. (1983). *Reading assessment: A cognitive basis*. Newark, DE: International Reading Association.
- Johnston, P. H. (1984). Prior knowledge and reading comprehension test bias. *Reading Research Quarterly*, 19, 219-239.
- Kang, D. (2004). Korean primary school EFL readers' intertextual processes among the multiple stories. *Foreign Languages Education*, 11(4), 55-81.
- Kendall, J. R., Mason, J. M., and Hunter, W. (1980). Which comprehension? Artifacts in the measurement of reading comprehension. *Journal of Educational Research*, 73, 233-236.
- Kern, R. G. (1988). *The role of comprehension strategies in foreign language reading*. Unpublished doctoral dissertation, University of California at Berkeley.
- Kim, S. (1994). Types of reading strategies used by Korean high school EFL students. *English Teaching*, 48, 239-267.
- Kletzien, S. B. (1991). Strategy use by good and poor comprehenders reading expository text of differing levels. *Reading research Quarterly*, 26, 67-86.
- Kobayashi, M. (2002). Method effects on reading comprehension test performance: Text organization and response format. *Language Testing*, 19(2), 193-220.
- Lee, J. (2002a). An analysis of test-taking strategies for the cloze. *English*

- Teaching*, 57(1), 213-217.
- Lee, J. (2002b). An exploratory study on reading comprehension test-taking processes and strategies in the EFL context. *English Teaching*, 57(4), 177-196.
- Lee, J. (2004). A study on English reading test-taking strategies. *English Teaching*, 59(4), 145-166.
- Lee, J. F. (1986). Background knowledge and L2 reading. *Modern Language Journal*, 70, 350-354.
- Lee, J. F. and Riley, G. L. (1990). The effect of prereading, rhetorically-oriented frameworks on the recall of two structurally different expository texts. *Studies in Second Language Acquisition*, 12, 25-41.
- McLaughlin, G. H. (1969). SMOG grading - a new readability formula. *Journal of Reading*, 12, 639-646.
- Meyer, B. J. F. and Freedle, R. O. (1979). Effects of discourse type on recall. *American Educational Research Journal*, 21, 121-143.
- Oh, J. (1999). Gap-filling and reading strategies. *English Teaching*, 54(2), 85-108.
- O'Malley, J. M., Chamot, A. U., Stewner-Manzanares, G., Kupper, L., and Russo, R. P. (1985). Learning strategies used by beginning and intermediate ESL students. *Language Learning*, 35, 21-46.
- Osako, G. N. and Anders, P. L. (1983). The effect of reading interest on comprehension of expository materials with controls for prior knowledge. In J. A. Niles & L. A. Harris (Eds.), *Searches for meaning in reading/language processing and instruction* (pp.56-60). Rochester, NY: National Reading Conference.
- Seidenberg, P. L. (1989). Relating text-processing research to reading and writing instruction for learning disabled students. *Learning Disabilities Focus*, 5, 4-12.
- Schraw, G. and Bruning, R. (1996). Readers' implicit models of reading. *Reading Research Quarterly*, 31(3), 290-305.
- Schumm, J. S., Mangrum, C. T., Gordon, J., and Doucette, M. (1992). The effect of topic interest and prior knowledge on the predicted test questions of developmental college readers. *Reading Research and Instruction*, 31, 11-24.
- Song, M. (1999). Reading strategies and second language reading ability: The magnitude of the relationship. *English Teaching*, 54(3), 73-95.
- Swaffar, J. K., Arens, K. M., and Byrnes, H. (1991). *Reading for meaning:*

- An integrated approach to language learning*. Englewood Cliffs, NJ: Prentice Hall.
- Tyler, S. and Voss, J. F. (1982). Attitude and knowledge effects in prose processing. *Journal of Verbal Learning and Verbal Behavior*, 21, 524-538.
- van Dijk, T. A. and Kintsch, W. (1978). Cognitive psychology and discourse: Recalling and summarizing stories. In W. V. Dressler (Ed.), *Current trends in text linguistics* (pp. 61-78). New York: De Gruyter.
- van Dijk, T. A. and Kintsch, W. (1983). *Strategies of Discourse Comprehension*. New York: Academic Press.
- Wade, S. E. (1993). How interest affects learning from text. In K. A. Renninger, S. Hidi, and A. Krapp (Eds.), *The role of interest in learning and development*. Hillsdale, NJ: Erlbaum.
- Wolf, D. F. (1993). A comparison of assessment tasks used to measure foreign language reading comprehension. *Modern Language Journal*, 77, 473-489.

Jeongsoon Joh  
English Language and Literature  
Konkuk University  
Hwayang-dong, Kwangjin-gu  
Seoul, Korea 147-703  
E-mail: johjs@konkuk.ac.kr

Received: Mar. 31, 2006

Revised version received: May 15, 2006

Accepted: May 31, 2006