

## **The Effects of Pre-Reading Questions on Middle School Students' Reading Comprehension**

**Soo Young Lee**

Korea University

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This study examines the effects of pre-reading questions on the reading comprehension of Korean middle school students. Fifty-eight middle school students read two expository texts and answered comprehension questions. Prior to reading, the experimental group received three pre-reading questions but the control group did not. Results showed that the pre-question group outperformed the no-question group on overall comprehension. Specifically, the pre-question group performed better on both repeated questions and on new questions. When the two groups' performance on different kinds of questions (explicit, implicit) was compared, the pre-question group scored higher on implicit questions; however, there was not a significant difference in the groups' performance on the explicit questions. The findings suggest that pre-reading questions had a facilitative effect on repeated questions and new questions. However, beneficial effects of pre-reading questions were limited to implicit questions. Implications of the findings for reading instruction in EFL classrooms are discussed.

[pre-reading activities/pre-reading questions/reading comprehension/  
읽기 전 활동/읽기 전 질문/읽기 이해력]

### **I. INTRODUCTION**

It is widely accepted in reading education that students understand a text better when the reading is processed through the pre-reading, while-reading, and post-reading phases (Barnett, 1988). Many researchers in reading literature have emphasized the use of pre-reading activities in reading classes based on schema theory. Schema theory defines reading comprehension as an interaction between the reader and the text. According to schema theory, a text itself does not provide meaning, but only guides directions for readers to construct meaning on the basis of their prior knowledge (Carrell & Eisterhold,

1983). The implication for reading instruction is that if readers have insufficient background knowledge or fail to activate them, they may have difficulty in comprehending the text (Carrell, 1984). The significant role of background knowledge in reading comprehension proposes that teachers need to provide pre-reading activities in order to activate students' prior knowledge or provide appropriate background knowledge in reading classes.

While researchers in the field of foreign language reading have suggested that teachers can use pre-reading activities to aid students' reading comprehension (Beatie, Martin, & Oberst, 1984; Carrell, 1984; Chen & Graves, 1995; Mayer, 1984), teachers in Korean EFL reading classes usually begin reading without pre-reading activities (Dong-Bin Jeong & Hye-Kyung Kim, 2009). In addition, English textbooks rarely present pre-reading activities except when introducing new vocabulary before the text (Dongeul Hwang, 2002). Considering the facilitative effects of pre-reading activities on comprehension enhancement, it is necessary for Korean EFL teachers to introduce easily adoptable pre-reading activities. One of the commonly used pre-reading activities in a classroom setting is pre-questioning. Traditionally, teachers ask questions after students read materials to check their understanding. In addition, Korean EFL textbooks provide comprehension questions at the end of the text and few questions are presented before the text. However, studies on the effect of pre-reading questions have suggested that students comprehend the text better when the questions precede the reading (Gange & Memory, 1978; Hannafin & Hughes, 1986; Just & Carpenter, 1980).

Therefore, the present study investigates whether the pre-reading questions have a facilitating effect on Korean EFL middle school students' reading comprehension. Since most of the previous studies on the pre-reading questions investigated college students, this study examines the effectiveness of pre-reading questions on middle school students' reading comprehension which seem to be more influenced by teachers' teaching method.

## II. LITERATURE REVIEW

Pre-reading activities have been discussed as a way of improving reading comprehension (Beatie et al., 1984; Carrell, 1984; Chen & Graves, 1995; Mayer, 1984; Taglieber, Johnson, & Yarbrough, 1988). The purpose of pre-reading activities is to activate the background knowledge that is relevant for understanding the reading texts (Carrell, 1984; Chen & Graves, 1995; Mayer, 1984). Beatie et al. (1984) indicated that the primary goal of pre-reading activities should be to make reading an active process that there is a continuous dialogue between the text and the student's prior knowledge. Not only do pre-reading activities facilitate the interaction between the text and student's

background knowledge, but these activities can also motivate students to read by making reading itself more enjoyable (Taglieber et al., 1988).

Pre-reading activities include viewing movies and pictures, discussion, role playing, predictions, introduction of vocabulary, and text previewing (Carrell, 1984). Among a variety of pre-reading activities, many previous studies were concerned mainly with the effect of vocabulary pre-teaching, previewing, providing visual materials, and pre-questioning on reading comprehension.

Several researchers in reading have argued that previewing activity has a strong influence on the comprehension enhancement (Chen & Graves, 1995; Choengsook Chin, 1999; Yunkyong Cho, 2006). Chen and Graves (1995) examined the effects of previewing, providing background knowledge, and combined treatments on the reading comprehension of Taiwanese college students. The result showed that previewing and combined treatment proved beneficial for comprehension, whereas providing background knowledge had a weaker effect than the other two treatments did. However, the effect of vocabulary pre-teaching showed conflicting results. Johnson (1982) investigated the influence of building background knowledge on the reading comprehension of ESL university students. The study found that providing cultural background helped readers to understand the text better; however, vocabulary pre-teaching did not seem to have a significant effect on reading comprehension. On the other hand, several studies supported the use of vocabulary preteaching in reading classes (Suk-Hyeon Hwang & Woong-Jin Yoon, 2006; Jin Min Kang & Yunkyong Cho, 2008). Suk-hyeon Hwang and Woong-Jin Yoon (2006) found that vocabulary teaching and showing information through the Internet had similar positive effect on reading comprehension.

Providing questions before reading is one of the most effective ways of enhancing reading comprehension (Myoung Ok Cheon, 1999; Gange & Memory, 1978; Hannafin & Hughes, 1986; Just & Carpenter, 1980; Jin Min Kang & Yunkyong Cho, 2008; Mi-jeong Oh, 1992; Taglieber et al., 1988). By investigating the effect of pre-reading questions with other kinds of pre-reading activities, researchers found that asking questions before reading helped readers to comprehend the text better (Myoung Ok Cheon, 1999; Jin Min Kang & Yunkyong Cho, 2008; Taglieber et al., 1988). Jin Min Kang and Yunkyong Cho (2008) found that pre-questioning enhanced comprehension. In their study, 160 Korean middle school students were divided into five groups and received one of the pre-reading activities (Pre-questioning, sharing personal experiences, providing visual materials, and vocabulary pre-teaching) except the control group. The findings proved that all four pre-reading activities were beneficial for comprehension. A similar finding was reported by Myoung Ok Cheon (1999) and Taglieber et al. (1988), who investigated the effects of pre-questions, pictorial context and vocabulary pre-teaching on EFL students' reading comprehension. They found that the groups that received picture context, story map and pre-questions

outperformed vocabulary teaching group on the reading comprehension test. Mi-jeong Oh (1992) hypothesized that the influence of pre-questions on reading would be different depending on the level of students. Compared to advanced and lower level students, the facilitating effects of pre-questions were greater on intermediate-level students.

Extensive research into the effectiveness of pre-questions for improving reading comprehension has proven that questions that precede passages have stronger facilitative effects than questions that follow passages (Gange & Memory, 1978; Hannafin & Hughes, 1986; Just & Carpenter, 1980). Since there are many ways in which pre-questions are effective, much research has been conducted to determine how pre-questions help students' learning. One explanation of how pre-questions improve reading comprehension is that pre-questions serve as a preparation by setting a purpose and activating students' background knowledge. Another explanation of the facilitating effect of pre-questions was suggested by Hannafin and Hughes (1986), who argued that pre-questions assuage students' concerns about the difficulty of forthcoming text and assist them in paying attention to what their teachers consider important. Furthermore, pre-questions can enhance comprehension by leading readers to focus selective attention on the questioned items and reduce attention to unquestioned material; this can promote intensive learning and improved memory (Boyd, 1973).

At the same time, the use of pre-questions does not always result in increased comprehension. Several studies have found that groups that were given questions before passages tended to retain even less incidental information than did a control group which did not read the questions (Duchastel & Nungester, 1984; Frase, 1968; Rothkopf, 1966; Wilhite, 1984). Pre-questions may hinder general understanding of a text by overloading students with information before reading (Faw & Waller, 1976; Frase, 1968; Rothkopf, 1966). Memory (1983) reported that poor readers sometimes focus only on finding information that answering pre-questions and ignore other important information in the text. In addition, Peeck (1970) suggested that pre-questioning seems to have a facilitative effect only on the retention of question-relevant information.

Considering the controversy over the effect of pre-reading questions, it would be necessary to investigate the effect of pre-reading questions on students' reading comprehension. Although a large body of reading research has discussed the effects of pre-reading activities, relatively few studies examined the use of pre-reading questions in Korean EFL reading classes. Since questioning is one of the most frequently used and easily employed methods in reading instruction, experimentally-based research which has practical implications is needed. Accordingly, the present study examines the effectiveness of pre-reading questions on Korean middle school students' reading comprehension. Based on the aforementioned theoretical background and the research purposes, this study poses the following research questions:

1. Do students who are given pre-reading questions comprehend better than those who are not?
2. Do pre-reading questions have a facilitative effect on answering the repeated questions?
3. Do pre-reading questions have a positive effect on answering the new questions?

### III. METHOD

#### 1. Participant

The participants in this study were 58 third-grade students at a middle school in Gyeonggi, South Korea. Two advanced level classes were selected and each class was assigned to a control group and an experimental group. Each group had 29 students. To verify the homogeneity of the two groups in terms of English language proficiency, the average scores on the English section of the mocking test (Feb, 2009) were compared using t-test ( $p=.932$ ).

#### 2. Materials

In order to select experimental materials, the researcher performed a readability test (Flesch-Kincaid) on the middle school third-grade English textbook (Byungmin Lee, Kihwa Park, Junggeun Han, Junghye Jung, & Vlack, 2008). The textbook was based on the Seventh National Curriculum published by Chunjae Education. Four paragraphs (255 words) in lesson 1 were used for analyzing readability. The Flesch-Kincaid Grade Level was 4 which means fourth graders in U.S. grade school would understand the text. Based on the readability level, two expository passages were selected from the Qualitative reading inventory-3 grade 4. The first passage (281 words) comprises four paragraphs on the life of beaver. Each paragraph contains information about how a beaver spends its life working and building. The second four-paragraph passage (266 words) is about Saudi Arabia. Each paragraph explains how the people of Saudi Arabia live in the hot weather. Each passage has eight comprehension questions: four explicit and four implicit. The three pre-questions given to the experimental group are consisted of a main idea question, an explicit question, and an implicit question. Among the eight comprehension questions, there were three repeated questions and five new questions for each passage.

### 3. Procedure

#### 1) General Procedure

Each group read the two reading passages and wrote down the answers to the comprehension questions after reading. After reading each passage, the experimenter collected the passage sheets and distributed question sheets to control other variables such as using skimming strategy in answering questions. Subjects were given twelve minutes to read the passage and eight minutes to answer the questions for each passage.

#### 2) Group Specific Procedures

Before reading each passage, the experimental group received three comprehension questions. Participants in the experimental group read aloud three pre-reading questions two times with the experimenter to ensure that they would remember the questions. After reading the pre-reading questions, the experimenter distributed the reading passage and instructed the subjects to read the passage carefully so that they could answer the comprehension questions after reading. Immediately after reading the passage, the experimenter removed the reading material, handed out the sheets with eight comprehension test items and instructed the subjects to answer the questions. Participants in the control group followed the same procedure, except that they had not been given the pre-reading questions before reading the passages.

### 4. Data Analysis

The comprehension test was scored by the experimenter using the rubric that she developed. Each question was scored from 0 to 2. If the subject wrote two correct answers, it was scored 2. If the subject wrote only one correct answer, it was scored 1. When the answer was wrong, or left blank, it was scored 0 (see Appendix). To measure the effects of pre-reading questions on participants' comprehension, the comprehension question scores of two groups were analyzed statistically using a t-test. The total scores of two groups were compared first. The scores of three repeated questions and five new questions of two groups were compared respectively. More specifically, the scores of implicit and explicit questions of two groups were analyzed using a multivariate analysis of variance (MANOVA) to investigate whether the pre-reading questions influenced the explicit questions more than the implicit questions, or vice versa.

## IV. RESULTS

In order to examine the effects of pre-reading questions on reading comprehension, separate t-tests were conducted on total scores, repeated questions scores and new questions scores of the pre-question group and the no-question group.

### 1. The Effects of Pre-reading Questions on Overall Comprehension

Table 1 presents means and standard deviations of scores on the comprehension test of the pre-question group and the no-question group. The overall means of the pre-question group are higher than those of the no-question group. It seems clear that students who received pre-reading questions outperformed students who received no questions in each category of questions. The mean scores of each type of questions for the pre-question group were significantly higher than those of the control group.

Table 1  
*Descriptive Statistics of the Comprehension Test (n=29)*

Type of questions	Total questions	Repeated questions	New questions
Group	Mean (SD)	Mean (SD)	Mean (SD)
Pre-question group	21.66 (4.79)	7.34 (2.27)	14.31 (3.41)
No-question group	18.17 (4.57)	5.79 (1.91)	12.34 (3.43)

Research question 1 examined the effects of pre-reading questions on students' reading comprehension. Table 2 shows mean, standard deviation, t-value, and p-value of the two groups' comprehension scores. The results show that the treatment effects were statistically significant. The t-test conducted on the total comprehension scores of two groups revealed significant differences in performance between the pre-question group and the no-question group ( $t=2.83, p=.006$ ). The pre-question group performed considerably better than the no-question group on the comprehension test: the means were 21.66 and 18.17, respectively. It can be concluded that pre-reading questions helped students to understand the passages better and answer the questions more accurately than the no-question group.

Table 2  
*Total Scores on the Comprehension Test (n=29)*

Group	M	SD	t (p)
Pre-question group	21.66	4.79	2.83 (.006)
No-question group	18.17	4.57	

\*\*  $p < .01$

## 2. The Effects of Pre-reading Questions on Repeated Questions

The second research question investigated the effects of pre-reading questions on repeated questions. As can be seen in Table 3, the t-test results reveal that the influence of pre-reading questions on repeated questions were significant. There was a remarkable difference in performance between the two groups ( $t=2.81, p=.007$ ). The means for the repeated questions were 7.34 and 5.79 respectively. In other words, students who read the pre-reading questions performed better on repeated questions than students who did not read pre-reading questions. This finding indicates that pre-reading questions produced statistically significant enhancement in answering repeated reading questions.

Table 3  
*Gain Scores on Repeated Questions (n=29)*

Group	M	SD	t (p)
Pre-question group	7.34	2.27	2.81 (.007)
No-question group	5.79	1.91	

\*\*  $p < .01$

## 3. The Effects of Pre-reading Questions on New Questions

The third research question examined the effects of pre-reading questions on new questions. As shown in Table 4, the pre-question group did significantly better than the no-question group on the new questions ( $t=2.18, p=.033$ ). The means were 14.31 for the pre-question group and 12.34 for the no-question group. This finding suggests that pre-reading questions helped students to perform better on new questions as well as repeated questions. This might suggest that the facilitative effect of pre-reading questions on reading comprehension was not limited to repeated questions.

Table 4  
*Gain Scores on New Questions (n=29)*

	M	SD	t (p)
Pre-question group	14.31	3.41	2.18 (.033)
No-question group	12.34	3.43	

\* $p < .05$

## 4. The Effects of Pre-reading Questions on Different Types of Questions

To verify the effects of pre-reading questions on different types of questions (Explicit vs.



Implicit), the scores of new test items were compared separately by question type using a MANOVA. The results are summarized in Table 5. When comparing the gain scores on explicit questions between the pre-question group and the no-question, there was not a significant difference between the two groups ( $F=1.61, p=.210$ ). The means were 7.97 and 7.24, respectively. The results indicate that the pre-reading questions did not play much of a role when students answered explicit questions. However, when the implicit question scores of the two groups were compared, there was a significant group difference. The MANOVA results show that the pre-question group performed much better than did the no-question group on implicit questions ( $F= 6.73, p=.012$ ). The means were 6.34 for the pre-question group and 4.97 for the no-question group. The data demonstrated a significant effect of pre-reading questions on implicit questions. In other words, pre-reading questions seemed to play a great role in answering implicit questions, but they did not play much of a role in answering explicit questions.

Table 5  
*MANOVA Summary Table for Explicit and Implicit Questions (n=29)*

variable	Group	M	SD	F (p)
EQ	Pre-question group	7.97	2.11	1.61 (.210)
	No-question group	7.24	2.23	
IQ	Pre-question group	6.34	1.77	6.73* (.012)
	No-question group	4.97	2.24	

Note. EQ represents explicit questions and IQ represents implicit questions

\* $p < .05$

In order to confirm the different effect of pre-reading questions on question types, a MANOVA was conducted again on the scores of explicit questions and implicit questions of the two groups. As presented in Table 6, the Wilks' Lambda reveals that the group difference of explicit questions and implicit questions was significant. ( $F=3.373, p=.042$ ). As previously mentioned, the group difference on explicit questions was not significant; however, there was a significant group difference on implicit questions. In sum, this finding indicates that pre-reading questions have a different facilitative effect on question types.

Table 6  
*MANOVA Table for Group Difference by Question Type (n=29)*

Effect		Value	F	Hypothesis df	Error df	Sig.
Group	Wilks' Lambda	.891	3.373*	2.000	55.000	.042

\* $p < .05$

## V. DISCUSSION

The results of this study showed that pre-reading questions have a strong facilitating effect on students' reading comprehension. Participants who received questions before reading the passages performed better on comprehension questions than did participants who did not read pre-reading questions. This result is explicable in terms of the role that pre-reading questions play in the organization and recall of passage materials. In particular, participants who received pre-reading questions seemed to have a big picture of the passage after having read three pre-reading questions. Another explanation of the better performance of the pre-question group on comprehension test could be that pre-reading questions encouraged students to give more time and attention to the questioned material than they would were questions not given (Durkin, 1981). Furthermore, by reading the questions, students may build up their own expectations about the coming information, and by trying to find answers to these questions, their prior knowledge on the topic can be activated. In summary, pre-reading questions seemed to help students' comprehension by setting a purpose for reading as Just and Carpenter (1980) suggested.

The data of the present study revealed that students who received pre-reading questions performed better than students with no pre-reading questions on repeated test items. This result is consistent with Anderson and Biddle's (1975) claim that the group that receives adjunct questions did substantially better than the reading-only control group on repeated test items. One possible explanation of the result is that the pre-question group performed better than did the control group by paying more attention to questioned material than to unquestioned material. Boyd (1973) indicated that questions lead students to focus attention selectively on the questioned items and to reduce attention to the unquestioned material which promote intensive learning and improved memory.

Most interestingly, the data demonstrated that the comprehension test scores of the pre-question group are higher than those of the no-questions group on new questions as well. This result is inconsistent with Duchastel and Nungester's (1984) finding that adjunct questions led to superior retention of the previously asked questions, but did not increase retention of previously unquestioned facts. However, this result supports Rothkopf's (1966) claim that the group that receives adjunct questions did substantially better than the reading-only control group on repeated test items and the questioned group also outperformed the control group on new test items. It can be assumed that participants in the pre-question group could save time on answering repeated questions that they could spend more time on new test items which lead to higher scores than the control group. Another interpretation is that students who received pre-reading questions could construct a

framework of the organization of a passage while reading; this framework can facilitate learning. This assumption supports the suggestion that readers who receive questions read the text more thoroughly in order to answer the questions that will follow (Rothkopf & Bisbicos, 1967).

The results clearly indicate a varied effect of pre-reading questions on different kinds of questions (Explicit vs. Implicit). When compared the explicit question scores and the implicit question scores between the experimental group and the control group, only implicit questions showed a significant group difference on performance ( $F= 6.73, p < .05$ ). On the other hand, the difference of performance on explicit questions was not significant ( $F=1.61, p > .05$ ). It is important to stress here that the significant difference in performance on new test items between two groups lies not in the explicit questions but in the implicit questions. Given that there was not a significant group difference on participants' performance in explicit questions, it can be assumed that pre-reading questions do not play much of a role in answering explicit test items. In other words, the influence of pre-reading questions on explicit questions is not significant. However, considering the fact that the pre-question group outperformed the no-question group on the implicit test items, that pre-reading questions clearly have an overall facilitative effect on answering new test items. One possible interpretation of this result is that subjects in the pre-question group could spend less time answering repeated explicit test items and more time answering implicit questions. Implicit questions are higher level questions than explicit questions in that the answer is suggested but the stated in the text. Thus, students need to integrate information from several sentences or larger sections of text in order to answer implicit questions which demand more time than explicit questions (Hee-Jung Jung & Jie-Young Kim, 2008). Taking that implicit questions require more time to answer, students who received pre-reading questions had an advantage over controls in a time-controlled test. If the students had no time limitation, the result of the experiment could be different.

The general implication of this study is that providing pre-reading questions has facilitative effects on overall reading comprehension. In Korea, teachers tend to provide questions after students have read the passages and textbook writers usually place questions after passages. However, it is suggested that reading teachers ask students to read the questions before reading to improve comprehension. By providing pre-reading questions, students can activate their own prior knowledge on a topic. At the same time, students can build up their expectations about the coming information. They can even create a framework of the organization of the passage to be read if the questions are arranged carefully (Lingzhu, 2003).

## VI. CONCLUSION

The principal aim of this study was to examine the effect of pre-reading questions on reading comprehension. The result showed that pre-reading questions enhanced middle school students' overall reading comprehension. In addition, the facilitating effect of pre-reading questions is applied both to repeated questions and to new questions. The findings also suggested that the positive effect of pre-reading questions on reading comprehension is limited to implicit questions.

When considering the generalizability of these results, it is necessary to examine the nature of the passages employed as experimental materials. As was indicated in the description of how the passages were selected, the passages used in this study were expository passages which give information. Thus, students' familiarity with the topic might be a variable which influence their performance. For instance, if a student knew more about beavers or Saudi Arabia than other students did, he or she might receive a higher score on the comprehension questions. However, when considering employment of unfamiliar passages as experimental materials, difficult content would interfere with students' ability to process the passages in a limited time. As a result, students might not complete reading the passages and answering the questions in a time limit. However, although the topics of two passages used as experimental materials were familiar to students, the information in the passages provided a depth of explanation about the beaver and Saudi Arabia.

It should be noted that this study was based on an experiment with advanced students. However, it is possible that pre-reading questions have a greater influence on beginning level students, or vice versa, so more study needs to be done to examine the varied effects of pre-reading questions on students at different levels of reading proficiency. Furthermore, it would be worth examining the effects of pre-reading questions with other types of pre-reading questions. Boyd (1973) found that factual post-questions only produced learning of question-relevant facts, but not the incidental learning of facts or general ideas. Since the three pre-reading questions used in this study were main idea, explicit, and implicit questions, it is not possible to identify which type of pre-reading questions influenced what kinds of comprehension questions. For these reasons, future researchers should investigate the effects of different types of pre-reading questions on the reading comprehension of students at different level of reading proficiency.

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## APPENDIX

### Rubric for the Comprehension Test

Score	Criteria	Example
0	a. The answer is incorrect. b. The answer is left blank.	Q: What does the beaver eat during the winter? A: house (correct answer is trees)
1	Require two answers	Q: Describe the beaver's tail. A: Large and round or large (correct answer is large and flat)
	Require one answer	Q: Why does the beaver build a dam? A: to live with family (correct answer is to make a pond or to make a place for his lodge)
2	Require two answers	Q: Describe the beaver's tail. A: Large and flat.
	Require one answer	Q: Why does the beaver build a dam? A: to <u>make the lodge</u> or house.

Sooyoung Lee  
 Department of English Education, Korea University  
 Anam-dong, Seongbuk-gu, Seoul, 136-701, Korea  
 H.P.: 010-3102-7110  
 Email: karalsy@korea.ac.kr

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