Cross-language Transfer of Reading Strategies and Knowledge among Korean-English Bilingual Students

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Research has suggested that academic and linguistic skills acquired once through L1 would transfer to L2. The research on cross-language transfer of literacy skills and strategies to date has dealt primarily with Spanish-English bilingual students. Little is known about other bilingual populations who utilize two linguistically distinct languages not sharing the same alphabetic script on this topic. This study examines how Korean-English bilingual students use the two linguistically different languages in their actual reading and whether they transfer reading strategies and knowledge across languages. Based on the findings arising from the multiple case study of Korean-English bilingual middle school students, the study revealed the cross-language transfer of reading strategies and knowledge among the bilinguals. A remarkable finding was that they tended to transfer across languages schematic resources and generalizable reading strategies, rather than linguistic resources. It also demonstrated that they utilized a bilingual strategy of translating, which turned out to be an effective reading strategy. Two languages were processed in a complementary way in their reading processes. This study proposes a theoretical principle with respect to a positive relationship of two dissimilar languages in Korean-English bilingual students’ reading development. It advocates a fundamental pedagogical implication of strategy instruction. (198 words)

I. INTRODUCTION

Bilinguals are integrated individuals experiencing the constant interaction of two languages on a day-to-day basis including academic contexts, not two monolinguals in one person (Grosjean, 1992). Their second language (L2) learning is a developmental process along with their continuing first language (L1) development. They accordingly bring their
linguistic and cultural knowledge of L1 into L2 literacy and academic learning. To investigate bilingual students' unique and specific literacy strategies and knowledge in two languages and their language use in actual reading and writing is therefore necessary so as to better understand the needs and challenges bilingual students face in their literacy development. Many researchers have suggested that academic and linguistic skills acquired once through L1 would transfer to L2. This suggestion has the implication that the effective development of L1 literacy strategies and knowledge enhances L2 literacy development. Cummins (1981, 1989, 2000) argues that "academic language proficiency transfers across languages such that students who have developed literacy in their first language (L1) will tend to make stronger progress in acquiring literacy in the second language (L2)" (2000, p.173). A considerable amount of research has provided evidence on the interdependence of literacy-related or academic skills across languages, such as transfer of phonological and orthographic awareness (Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Bruck & Genesee, 1995; Fashola, Drum, Mayer, & Kang, 1996; Wade-Woolley, 1999), of reading comprehension skills (Royer & Carlo, 1991), of reading strategies (Garcia, 1998; Garcia, Jimenez, & Pearson, 1998; Jimenez, Garcia, & Pearson, 1995, 1996; Langer, Bartolome, Vasquez, & Lucas, 1990), and of writing skills and strategies (Edelsky, 1982; Lanauze & Snow, 1989). However, the research on cross-language transfer of literacy skills and strategies to date has dealt primarily with Spanish-English bilingual students using two linguistically similar languages. There still remain research questions regarding whether or not cross-language transfer of literacy skills and strategies shown among Spanish-English bilingual students occurs for other language-speaking groups, such as Korean-English bilingual students who utilize two linguistically distinct languages not sharing the same alphabetic script. Researchers agree that there is a pressing need for further studies of other bilingual populations on this topic (August, Calderon, & Carlo, 2002; Garcia, 2000).

The present study explores how Korean-English bilingual students use the two linguistically dissimilar languages in their actual reading and whether they transfer reading strategies and knowledge acquired through one language to reading in another language. It fundamentally aims to present theoretical principles concerning cross-language transfer of literacy strategies and knowledge among Korean-English bilingual students whose first language has a different writing system from English. This study has two major purposes: first, to investigate reading strategies and knowledge that Korean-English bilingual students employ when they read in Korean and English; and second, to examine whether or not they transfer reading strategies and knowledge across languages. In order to achieve those purposes, the study addresses the following three research questions:
1. What reading strategies and knowledge do Korean-English bilingual students use when they comprehend Korean and English narrative and informative texts?
2. Are there any similarities or differences in their strategy use according to the language of the texts, text topics, and text types?
3. Do they transfer reading strategies and knowledge acquired in L1 to L2 reading, or vice versa? If so, what types of reading strategies and knowledge are transferred?

II. LITERATURE REVIEW

Some studies documented transfer of reading strategies and skills from L1 to L2. Langer, Bartolome, Vasquez, and Lucas (1990) examined Spanish-speaking fifth-grade bilingual students’ strategies used when they read in English and Spanish, the knowledge sources they used, and the ways in which these relate to comprehension. Twelve fifth-grade students, half of whom were born in Mexico, participated in the study. They read two genres of reading passages, story and report, in Spanish and in English and then were interviewed. One major finding of this study was that the use of good meaning-making strategies rather than degree of fluency in English differentiated the stronger from the weaker readers. The students who had developed good meaning-making strategies in one language used those strategies in their L2 even though they were not as fluent in it. This finding was observed similarly across languages. The study revealed that students who use good meaning-making strategies in one language were likely to use those strategies in the other language. The other significant finding was that students’ L1 (Spanish) proficiency enhanced their meaning-making in both languages. This study clearly provided evidence on the transfer of reading strategies.

Royer and Carlo’s (1991) study demonstrated the transfer of listening and reading comprehension skills of L1 (Spanish) to those in L2 (English). Forty-nine Spanish-speaking sixth-graders enrolled in a transitional bilingual program participated in the study. This study revealed three major findings that 1) Reading skills in L1 transfer to reading in L2 as L2 develops; 2) Listening skills in L1 also later transfer to reading in that language; and, 3) General language ability does not appear to be significantly involved in the transfer of reading skills to L2. These findings indicated that cognitive and academic skills and knowledge acquired in one language transfer to another language. This study supported the notion of Cummins’ (1981) Linguistic Interdependence Hypothesis that a common underlying proficiency makes the transfer of literacy skills possible across languages.

Calero-Breckheimer and Goetz (1993) investigated reading strategies utilized when Spanish-speaking elementary school students read stories in Spanish and English. Thirty-two third and fourth graders in a bilingual education program were selected. They
reported strategies used while reading and completed an interview checklist of a strategy use. This study showed that the students were likely to use the same number and type of strategies when read in English as when reading in Spanish, and that students who tended to use more strategies had higher scores on comprehension measures. It suggested that Spanish-speaking bilingual students transfer reading strategies from Spanish to English and their strategy use was positively associated with their comprehension in both languages.

Hardin (2001) investigated cognitive reading strategies of Spanish-speaking fourth grade bilinguals when they read expository texts in Spanish and in English. It also examined the role of English oral proficiency in strategy use. A total of 50 students were grouped into three categories: Able (Ab), Average (Av), and Less-Able (Lab) readers of Spanish. It was purposed to compare reading strategy use between the groups. Data were collected by interview on reading, think-aloud tasks, and structured interview on strategies. The study showed that when reading in Spanish, the Ab and Av students used similar patterns of strategy use, which were oriented toward gathering meaning. The Lab students employed strategies orienting to the perceptual and mechanical aspects of the reading. When they read in Spanish, the students employed strategies of metacomprehension and monitoring, such as re-reading text to guess word meaning or to better understand, use of prior knowledge, predicting, and noting novelty. And when they read in English, they employed the strategies of imaging, changing speed, self-questioning, paraphrasing, use of prior knowledge, and noting novelty. The study also revealed that all three groups transferred prior knowledge from Spanish to English at a higher level than from English to Spanish, and that they used cognates at a lower level. This study added that strategic reading in English did not depend on L2 oral proficiency. It suggested that strategy use in L1 provided a foundation for strategic L2 reading.

While the above studies focused on cognitive reading strategies, the next two studies documented the transfer of metacognitive strategies and skills. Jimenez, Garcia, and Pearson (1996) examined metacognitive knowledge and strategy use of Spanish-speaking bilinguals who were successful English readers. Eleven Spanish-speaking students in sixth- and seventh-grades and three monolingual Anglo students in the same grades participated in the study. They were divided into two groups: successful and less successful readers. The students read reading passages (seven for Latino students and three for Anglo students) and then had prior knowledge assessment, prompted think-aloud assessment, and text retellings. After doing them, they were interviewed. This study revealed that successful Spanish bilingual students utilized the strategies of resolving unknown vocabulary, monitoring comprehension, connecting prior knowledge with text, making inferences and drawing conclusions, and asking questions while reading. The successful bilingual readers used less frequently the strategy of invoking prior knowledge
and more frequently the strategy of monitoring comprehension when reading in Spanish than when reading in English. This study showed that successful Spanish bilinguals have an enhanced awareness of the relationship between their two languages, and that such awareness encouraged them to use the bilingual strategies of searching for cognates, transferring, and translating. On the other hand, less successful readers did not know how to use knowledge of Spanish to enhance their comprehension of English text and vice versa. The study demonstrated that metacognitive strategies and skills transferred across languages among Spanish-speaking successful students who already developed metacognitive knowledge of L1.

Garcia (1998) identified metacognitive reading strategy use and their comprehension problems of Spanish-speaking bilinguals. Thirteen Mexican-American fourth-graders participated in prompted and unprompted think-aloud tasks and a retelling-type interview after they read narrative and expository texts in English and in Spanish. This study showed that 1) the students' strategy use was different according to the genre of the texts rather than to the language of the texts, and 2) they frequently used bilingual strategies of code-mixing, code-switching, and translating, which reflected their language preference, reading experience in two languages, reading ability, and perceived text difficulty. The study did not determine the specific cross-language transfer of strategies in the Spanish-speaking students since the types and frequency of strategies varied depending on the genre, text difficulty, their language preference, and reading ability. However, it concluded “the better readers appeared to use a wider range and greater number of strategies while reading in both of their languages, suggesting that reading expertise transfers” (p.262).

The studies above are based on a theoretical foundation of the Linguistic Interdependence Hypothesis (Cummins, 1981). Cummins (1981) proposes a theoretical principle with regard to a positive relationship of two languages in language minority students' linguistic and academic development. According to this hypothesis, there is a common set of proficiencies underlying L1 and L2 and the common underlying proficiency facilitates the transfer of literacy skills and knowledge across languages. Here, literacy skills and knowledge represent academically mediated language skills that can be acquired in context-reduced academic situations. The examples are higher order thinking skills (e.g. analysis, synthesis, and evaluation), subject-matter knowledge, conceptual knowledge, and reading and writing strategies. Cummins maintains that those skills are related to cognitive/academic language proficiency (CALP). Considerable research has documented the evidence of the interdependence principle. It has shown a strong correlation between L1 and L2 literacy skills and knowledge when bilingual students continue to develop literacy in their both languages. Despite the criticism that the interdependence principle neglects the role of social factors in the acquisition of school-related linguistic proficiency
(Genesee, 1984; Troike, 1984; Wald, 1984), the principle has supported a prominent view that L1 literacy strategies and knowledge present a conceptual foundation for L2 literacy development.

III. METHODOLOGY

1. Methodological Framework

The present study relied on a case study approach with a multiple-case design, thereby providing a detailed account of each case with a cross-case comparison as well. A case study with several individual cases is also termed a "collective case study" (Stake, 1994). Having several cases for this study does not mean that the study sought to generalize the findings of those cases to a large population. Instead, the study intended to provide richer descriptions with a variety of individual cases of the phenomenon in inquiry. The evidence from multiple cases is often regarded as more compelling since a multiple-case study presents a better understanding and theorizing of cases applicable to a still larger collection of cases (Yin, 2003). This is the distinctive advantage of a multiple-case study in comparison to a single-case study.

Purposeful sampling was used in this study. Patton (1990) states that "the logic and power of purposeful sampling lies in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research, thus the term purposeful sampling" (p. 169). The selection of the participants was based on the following three criteria for recruiting the information-rich cases in question: firstly, that the participants be bilinguals who could listen and speak Korean and English; secondly, that they be biliterate in their two languages, that is, able to read and write in Korean and English; and finally, that they have the previous learning experience of English and Korean literacy or have continued to learn English and Korean in any school setting. Consequently, the participants for this study were sixth- to eighth-grade Korean-English students having attended a Korean language school in the U.S.

2. Participants

Four Korean-American middle school students participated in this study: Esther, Soo, Ah, and Boram. They were sixth- to eighth graders at U.S schools who were the fifth grader at a Korean language school at the time of this study. Three students in the same age were born and had been raised in the U.S., who represent the group of second
generation immigrants which refers to US-born children having immigrant parents or foreign-born children arriving at preschool age (0-4 years) (Zhou, 1997). On the other hand, one student was born in Korea and immigrated to the U.S when she was seven years old. She is the so-called “1.5 generation” Korean: immigrants who was born in a foreign country but immigrated when they were preadolescents or adolescents (Min, 2000). The participants were bilinguals who are able to listen and speak Korean and English and were also biliterate, which means that they are able to read and write in their two languages. They used both Korean and English at home; however, each participant had a different degree of language use which varied depending on the participants’ language preference, their speaking proficiency in Korean, and their home environment. All the participants continuously developed the Korean language at the beginning of the present study at the Korean language school which was operated by the Korean community. In this study, the participants’ language proficiency in Korean and English was the primary focus. With respect to their English proficiency, the grades that the students received in their language arts class in their U.S. schools for one academic year were used as an indication of their proficiency level of reading and writing in English. All of the participants had attained grades averaging A or A+ in their language arts class during their academic year. It indicated that they had high proficiency in English. As for their Korean proficiency, the participants were evaluated based on the evaluative feedback from their Korean language school teachers during one academic year and primarily their scores of national-level Korean proficiency tests developed for Korean residents overseas and foreign non-native speakers of Korean in Korea. They took Level 1 and Level 2 of the language test at the beginning and the end of their Korean academic school year. Their experienced Korean language teachers regarded Korean proficiency test Level 1 and 2 to be appropriate to elementary schoolers. Their Korean proficiency slightly varied in each area of language skills among the participants, but all of them achieved more scores than 70% of the total score, which was enough to pass the test of Level 2 (from Level One, the lowest to Level Six, the most difficult). According to the objectives of each level of the Korean tests in terms of the expected language proficiency, the participants were determined to be able to use from 1,500 to 3,000 Korean words engaged in daily-life conversation and accomplish basic functions such as calling, asking for, doing matters about post offices and banks and so on, and further to utilize Korean language differently depending on contexts.

Considering the evidence of their language proficiency in two languages and their Korean and English language learning experiences in schools, they can be categorized as ‘balanced bilinguals’ (Baker, 2001). Bake (2001) defined a balanced bilingual to be “a child who can understand the deliver of the curriculum in school in either language, and operate in classroom activity in either language” (p. 7).
3. Materials

1) Student Background Information Questionnaire

The questionnaire was designed to elicit the participants’ demographic information and educational backgrounds. It asked for such information as age, grade level, birthplace, parents’ occupations, length of time living in the U.S., length of time learning L1 in school, languages used at home and at schools, and degree of the language use at home and at school.

2) Reading Texts for Think-aloud Tasks

Reading texts for think-aloud tasks were selected in two different text types of narrative and informative texts and three different topics of folk tale, history, and science. The selection was based on the assumption that the participants may utilize different reading strategies and knowledge according to the types and topics of texts. A total of six reading passages were used for the think-aloud tasks: three in Korean (one narrative and two informative texts with history and science topics) and three in English.

With respect to the English texts, the three texts were drawn from books designed for above six graders comparable in age to the participants in this study. The readability level of the texts was checked by the use of FRY Readability Formula and Graph (Fry, 1968), which has been used in considerable reading research. The English narrative text titled The Disobedient Child has a total of 985 words and a sixth grade level of readability. It was selected from Collection 6 of a series of books entitled Literature Works: A Collection of Readings which was published by Silver Burdett Ginn in 1997. The English informative text on history deals with the modern Olympics. It has a total of 667 words and a seventh grade level of readability. It was excerpted from a book titled Arriving Before I Start: Passages Through Time, which is the fifth book of a series of Celebrate Readings published by Scott Foresman in 1997. And the English informative text on science discusses arctic animals’ adaptation to weather. It has a total of 737 words and the seventh grade level of readability. It was from the fourth book, Discover the Wonder, Module D, Adaptations: Surviving in Different Habitats of a series of Scott Foresman Science which are published by Scott Foresman in 1996.

As for the Korean materials for think-aloud tasks, two Korean texts were chosen from the textbook used at the Korean language school, published as a textbook for Korean children overseas by Ministry of Education in Korea. The Korean school textbook was the good resource for the Korean reading texts used in this study in that it had the readability level of texts appropriate according to grade levels. The narrative text presents the
biographical story of a well-known Korean calligrapher, "Han Seok Bong." The text is 331 words long. The informative text on history describes the history of The Olympics, and is 325 words in length. The textbook did not include science. In addition, there were few science books for upper elementary school students available in the Korean language school or anywhere else in the U.S. For those reasons, unlike the other texts, the informative science text was selected from a popular science website for elementary school students (www.inara.co.kr). The text covers the hibernation of animals, and contains a total of 325 words. There is no established standard to check the readability level of Korean texts. Therefore, the readability and content validity of the texts were checked by four Korean language teachers who had experienced in teaching Korean for more than three years in either Korea or the U.S. The four teachers agreed that the science text was appropriate for the participants' grade level of the Korean school in terms of the level of difficulty with respect to vocabulary and the appropriateness of content for children.

3) Interview Protocol on Reading Strategies and Knowledge for Text Comprehension

A structured interview on reading strategies and knowledge was developed to gather sufficient data on reading strategies and knowledge employed by the participants for text comprehension. The interview protocol consisted of 18 questions. The questions addressed the following: 1) the students' use of strategies to identify unfamiliar word meanings and difficult sentences, 2) the strategies used to comprehend a whole text, 3) the reading approach or style, 4) the language used while reading, and 5) the students' awareness of genre and organization of texts. These questions were adapted from some literature (Calero-Breckheimer & Goetz, 1993; Garcia, 1998; Hardin, 2001; Jimenez et al., 1995, 1996; Langer et al., 1990; Royer & Carlo, 1991).

4) Reading Strategy Checklist

The reading strategy checklist was targeting metacognitive strategies that the participants utilized before, during, and after reading the texts. The checklist contained a total of 26 statements. The participants were asked to check off the statements that reflected the strategies they generally used.

5) Korean Proficiency Test

The Korean proficiency test that the participants took at the beginning and the end of their Korean school academic year was the national-level test developed and administered
by the Ministry of Education and Human Resource Development in Korea. This test has
been used in Korea for foreign non-native speakers of Korean or Korean residents
overseas. It evaluates proficiency in four areas of language skills: vocabulary/grammar,
reading, writing, and listening. Each area has 30 to 35 questions, valuing 100 points. The
test has 120 to 140 questions with a total of 400 points. The questions contain
multiple-choice items with four options and subjective questions requiring short written
answers. The minimum number of points for passing is more than 40% of the score for
each section and more than 60% of the total score. The test has different 6 levels; from
Level One, the lowest to Level Six, the most difficult. The proficiency tests, in fact, were
originally designed to focus on students who wanted to attend a university in Korea or
adults in business who needed to adjust to life in Korea. Thus, the appropriateness of Level
1 and 2 tests for the adolescent participants and the content validity was confirmed by
those experienced Korean language teachers previously mentioned. The proficiency tests
needed to be modified for the adolescents in this study by changing some language related
to the business world into language about the students' school life.

4. Data Collection Procedures

Data for this study were collected during one academic year. The primary data resources
were: 1) structured interviews of reading comprehension processes; 2) think-aloud tasks;
3) reading strategy checklists, 4) written and oral recalls, and 5) any other documents
associated with their reading learning, such as school reports. The use of these multiple
resources was intended to enhance the trustworthiness of data and evoke any unexpected
data. The participants were given the student background information questionnaire and
Korean language proficiency test. They took Level 1 of the Korean proficiency test at the
beginning of the Korean school academic year and then Level 2 at the end of the school
year. Think-aloud tasks were carried out throughout home visits. The visits were intended
to provide a familiar and comfortable environment to interview with the participants as
well as to perform the think-aloud tasks. For each reading text, the participants had a
think-aloud task in which they verbalized their thoughts while reading a text, a subsequent
structured interview, an oral recall, a written recall, and a reading strategy checklist. The
students, in fact, had practice sessions of think-aloud tasks. A think-aloud method relies on
verbal accounts of the thinking processes involved. This activity can be difficult for
students with no previous experience verbalizing their thinking activities while reading.
Therefore, as Olson, Duffy, and Mack (1984) recommended, the participants were
provided with practice sessions of think-aloud activities before the actual data collection
for this study. They mentioned after those pratice sessions that this practice helped reduce
the novelty and the difficulty of a think-aloud task by making the participants familiar with
the method. While performing actual think-aloud tasks, the participants used a language which they felt comfortable to speak. One participant used English predominantly when achieving think-aloud tasks for both Korean and English texts; on the other hand, a participant constantly spoke Korean when she did think-aloud tasks for both Korean and English texts. The others used both languages, usually Korean for Korean texts and English for English texts, but sometimes code-switched between two languages. It generally took less than half an hour per each reading text for a participant to complete a think-aloud task. After completing think-aloud tasks, they were asked to perform oral and written recalls of the text read to exhibit their degree of comprehension and then fill out a reading strategy checklist. Each participant had a total of six think-aloud tasks following by interviews and six reading strategy checklists; three for the English texts (one narrative and two informative texts) and three for the Korean texts. All of the think-aloud tasks and interviews were audio-taped.

5. Data Analysis

For the analysis of the data on the reading strategies and knowledge, the transcripts of think-aloud tasks and interviews were coded by and then grouped under a researcher-developed coding scheme which has different reading strategy categories of text-based, reader-oriented, and bilingual strategies. These groupings were adapted from previous studies (Block, 1986; Garcia, 1998; Jimenez et al, 1996; Kamhi-Stein, 2003; Tang, 1997). Table 1 shows the detailed strategies in each category.

**TABLE 1**

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<th>Classification of Reading Comprehension Strategies</th>
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<td><strong>Text-based strategies</strong></td>
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<td>(Language-focused strategies)</td>
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<td>Decoding</td>
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<td>Focusing on vocabulary</td>
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<td>Using contexts to identify unfamiliar word meanings</td>
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<td>Using similar words to identify unfamiliar word meanings</td>
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<td>Using cognates to identify unfamiliar word meanings</td>
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<td>Paraphrasing</td>
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<td>Summarizing</td>
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<td>Re-reading</td>
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<td>Recognizing text structure</td>
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<td>Scanning</td>
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<td>Skimming</td>
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In this study, text-based strategies refer to strategies that readers focus on text or language in order to understand texts. These strategies are consistent with a bottom-up approach to reading. Reader-oriented strategies refer to strategies that readers show interactions with texts beyond understanding and interpreting texts. They are consistent with a top-down approach to reading. Code-mixing strategies refer to strategies demonstrating bilingual students’ alternative use at an intra-sentential level in comprehension processes. Bilingual students employ alternative use of two languages at a level of words or phrases in order to better comprehend texts (Hoffman, 1991; McLaughlin, 1984). Code-switching strategies refer to strategies concerning the alternative use of two languages at an inter-sentential level in comprehension processes. Bilingual students start to read in one language and then switch to the other between sentences in order to enhance their comprehension of texts (Hoffman, 1991; McLaughlin, 1984). As for translation, this study used Kern’s (1993) definition, which refers to “a mental processing of L2 words, phrases, or sentences in L1 (other familiar language) forms while reading L2 texts” (p. 442).

The data analysis was done in two phases: the within-case analysis and the cross-case analysis. The data analysis procedure for the present study fundamentally followed the three stages of description, analysis, and interpretation, as Wolcott (1994) suggests as the three means of data transformation.

IV. FINDINGS

1. Reading Strategies and Text Types

The participants were likely to use reading strategies differently according to text types and their reading purposes, not text topics and the language of the texts. They utilized strategies at all the phases of reading; before-reading, while-reading, and after-reading. Before they read, they commonly used such strategies as anticipating contents by thinking about the topic and reading the back cover and often skimming pictures, charts, and/or graphs. It occurred when they read both in English and in Korea. While they read, they employed both text-based strategies and reader-oriented strategies, but they had a different degree of their strategy use depending upon text types. For example, Esther showed a different approach to texts depending on reading purposes, thereby probably causing her to employ different strategies. She was able to monitor and regulate her reading strategies based on text types, regardless the language of texts. She employed text-based strategies in her reading of the narrative texts whereas she used reader-oriented strategies with more frequency when the reading informative texts. This strategy use was observed the same
when reading in English as when reading in Korean. When she read the English and Korean narrative texts, she mostly paraphrased or summarized the texts. She also attempted to identify the meanings of unfamiliar words or phrases by guessing from context. On the other hand, when she read the English and Korean informative texts, she showed active interactions with the informative texts by frequently utilizing such reader-oriented strategies as connecting prior knowledge to the information of the texts, confirming the text, questioning about the contents, reacting to the texts, and adjusting a reading speed. She tended to read the texts in detail and often confirmed the contents.

Both Ah and Boram employed reader-oriented strategies for their reading of the narrative texts and text-based strategies for their reading of the informative texts. When Ah read the narrative texts both in English and in Korean, she used mostly reader-oriented strategies such as connecting prior knowledge to the texts, anticipating content, making inferences, and commenting on texts, which showed her active interaction with texts. In contrast to her active reactions to texts shown in the narrative texts, she was likely to focus on comprehending the word-level meanings of texts when she read the informative texts. She used text-based reading strategies of paraphrasing, summarizing, rereading, and using context or similar words to identify unfamiliar words or phrases. Boram showed the same strategy use as Ah. Boram was explicitly aware of how she would apply different reading approaches depending on text types. When reading the narrative texts, she tended to get the main ideas of the texts and she skipped unfamiliar words or phrases at times. According to her, she generally read story books two or three times. She was likely to read a story book in more detail at the second reading. In contrast, when she read the informative texts, she was inclined to read them carefully and then confirm contents sentence by sentence, particularly in the science texts. She thought that science texts are difficult to read so that she has to read them in detail in order to get information. Thus, she utilized different reading strategies according to text types. When she read the English and Korean narrative texts, she employed mostly reader-oriented strategies of making inferences and reacting to texts, by which she showed active reaction to the texts. When she read the English and Korean informative texts, she used text-based reading strategies such as using context or similar words to identify unfamiliar word meanings, paraphrasing, summarizing, and rereading, thereby focusing on text to better understand contents.

Unlike other three participants, Soo utilized reader-oriented strategies with greater frequency than text-based strategies, regardless of text types and the language of texts. She showed her active interactions with texts by using such reader-oriented strategies as connecting prior knowledge to texts, anticipating content, making inferences, confirming content, drawing conclusions, monitoring comprehension, which are probably led to a high degree of her comprehension. She sometimes prioritized comprehending the meanings of sentences by utilizing text-based reading strategies which focused on identifying
unfamiliar words or phrases to better understand the texts, especially the informative texts. Interesting was in her reading of the Korean informative texts that in addition to using context when she encountered unfamiliar words or sentences, she employed a distinctive reading strategy of using her already known Chinese characters in order to identify unfamiliar word meanings, which was not observed in the other three participants’ reading comprehension processes. This strategy was observed only in Soo’s reading comprehension processes of the Korean informative texts. The strategy use of using Chinese characters indicated that Soo already had the semantic knowledge of Korean word structures, which is that many Korean words make meanings by combining Chinese characters. She established her own unique strategy for Korean texts, which cannot be applied in English reading, and was able to employ reading strategies depending on the language of texts.

In summary, for text-based reading strategies, by which the participants all tended to focus on comprehending word-level and clausal meanings of the texts, and they generally used rereading, paraphrasing, summarizing, and using context or similar words to figure out unfamiliar word meanings. For reader-oriented reading strategies, they all showed active interaction with the texts beyond simple understanding, and they connected to prior knowledge, made inferences, commented on contents, reacted to texts, self-questioned about contents, confirmed contents, adjusted reading speed, and the like.

With respect to after-reading strategies, all the participants generally used such strategies as rereading favorite parts, summarizing contents in mind, predicting next contents or events, picturing characteristics, places, and ideas, and so on, regardless of the language of texts and text types. Table 2 summarizes before-reading, while-reading, and after-reading strategies the participants used when they read both in English and in Korean.

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<th>TABLE 2</th>
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<td>Types of Reading Strategies</td>
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<tr>
<td>Before-reading</td>
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<td>While-reading</td>
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<tr>
<td>Rereading, Paraphrasing, Summarizing, Using context or similar words to figure out unfamiliar word meanings</td>
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<td>After-reading</td>
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Likewise, these findings with respect to strategy use among the participants indicated that they shared the same reading strategies across languages. In other words, they transferred reading strategies acquired in one language to reading in another language. Also of note is the fact that the participants utilized a strategy of connecting prior knowledge to texts with greater frequency than other types of strategies. This finding was clearly evidenced in their reading of the Korean science text. They had difficulty in comprehending the Korean science text due to unfamiliarity with content and words. However, they were likely to invoke their prior knowledge about the content, which was already acquired in English from their science classes or books, and then comprehend the Korean text by transferring that knowledge. The finding revealed that they applied content knowledge acquired in one language to reading in another language. In this study, the transfer occurred from English to Korean. It may be due to the fact that to the participants, English is a stronger language in academic learning than Korean since the participants started formal schooling by the language of English in the U.S.

2. Bilingual Strategies and Language Dependence

One interesting pattern concerning their reading strategy use was that all the participants utilized bilingual strategies of code-mixing and translating although having a different degree in which they used strategies according to text types. It generally occurred when they read the Korean texts. They used summary translating for their reading of the Korean narrative text; on the other hand, they employed word-for-word translating, paraphrased translating, and code-mixing with more frequency than summary translating when they read the Korean informative texts. Table 3 contains a summary of their use of bilingual strategies depending upon text types and the language of the texts.
### TABLE 3

<table>
<thead>
<tr>
<th>Language Text Types</th>
<th>Korean</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Narrative</td>
<td>Informative</td>
</tr>
<tr>
<td>Esther</td>
<td>Code-mixing</td>
<td>Code-mixing</td>
</tr>
<tr>
<td></td>
<td>Paraphrased translating</td>
<td>Word-for-word translating</td>
</tr>
<tr>
<td></td>
<td>Summary translating</td>
<td></td>
</tr>
<tr>
<td>Soo</td>
<td>None</td>
<td>Code-mixing</td>
</tr>
<tr>
<td></td>
<td>Word-for-word translating</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Word-for-word translating</td>
<td>Paraphrased translating</td>
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<tr>
<td></td>
<td></td>
<td>Summary translating</td>
</tr>
<tr>
<td></td>
<td>Word-for-word translating</td>
<td>Summary translating</td>
</tr>
</tbody>
</table>

Esther frequently translated the Korean texts into English in an attempt to better understand the Korean texts with semantic or syntactic complexities when she read the Korean narrative and informative texts. In contrast, when she read the English texts, her use of translating was not observed since she verbalized in English what she comprehended while reading the English texts. For her reading of the Korean texts, she utilized different types of translating according to text types. She used mostly paraphrased translating and summary translating, as strategies when she read the Korean narrative text. She restated or summarized sentences in her own English words. In doing so, she sometimes simplified the sentences, but still caught the main ideas of the text. The following example 1 demonstrates her use of summary translating while she read the Korean narrative text.

**Example 1**

Text: Geuhu myeongpilroseo junggukekktaji ireumeul tteolchige doeeotseunpida. Hanseokbongeun geuui geulssireul chingchanhanaeun maleul deuleul taemada gogaeul garo jeeumyeonseo “Naboda deo hulryunghan myeongpil gyesipnida.” rago malhayeotseunpida. (After that, as a famous calligrapher, he became famous even in China. Whenever Han Seok Bong [the name of this biographical story] hears compliments to his calligraphy by being compared with the best calligrapher in the
world, Wang Huiji [an eminent Chinese calligrapher], he shakes his head and says, “There is a better calligrapher than me.”

Esther: He became very famous as a calligraphy person. People... when they compliment him, he doesn’t feel that he is like the best.

She comprehended the sentences and then briefly summarized them in English although she did not know the history of the relationship between Korea and China at that time the story occurred and the meaning of the word, “Cheonhamyeongpi Wang Huiji (The best calligrapher in the world, Wang Huiji).” Her uses of paraphrased and summary translating seemed to be consistent with her use of text-based strategies like paraphrasing and summarizing in her reading of the English narrative text.

Unlike her use of translating in the narrative text, when she read the Korean informative texts, she frequently used word-for-word translating and paraphrased translating, but had few uses of summary translating. She attempted to decode unfamiliar words or phrases, in particular, when she read the Korean science text. An example 2 illustrates how she tried to understand the main ideas of sentences by translating word by word and phrase by phrase from Korean to English.

Example 2

Text: Dudoejineun geobrewa jirungireul japa ttangskuki gokgane moa dupnida. (A mole catches bugs and earthworms and saves them in a storage place underground.)

Esther: Dudoeji... Is that bear? Oh! I will get it. [She saw the picture of animals on the first page of the reading passage.] Neoguri is raccoon. Gom is bear, bakjwi is bat. Is that reptile or mammal? I think it is mammal. [She read the sentence again.] Dudoeji which is a mole eat get a bug and worms and Ttangskuki ...get into the hole... Gokgane ...Ttangskki gokgane... into... it’s a little food storage and it gathers them there and keeps them there.

While trying to understand the meaning of the sentence by translating word by word, she also guessed the meaning of an unfamiliar word, “Gokgan (a storage place)” from the context. It was likely that translation helped her comprehend the text by providing English meanings of unfamiliar Korean words and an English context where an unfamiliar word meaning was guessed.

Meanwhile, Esther sometimes used a strategy of code-mixing when she read the Korean narrative and informative texts. An example 3 shows how she used two languages
alternatively at a level of words or phrases in order to better comprehend texts.

Example 3

Text: Titatteuthameul yujihagi wihaeseo dukkeoun teolgajuk cheungeul gajigo itgo, hangangsang kkotkkothagye seoitneun gildaratgo soki teong bin bohoyong teoldo gajigo itseupnida. (They have a thick layer of skin to keep warm, and they have furs for safety, which are always straight and long and have an empty space under the furs.)

Esther: Because they don’t have…they don’t have like warm time in the North Pole, so they have really really thick fur and hangangsang kkotkkothagye seoitneun gildaratgo (always straight and long)...they always have some kinds of habit. Eo... kkotkkothagye seoitneun (straight). That’s the habit they have. Soki teong bin bohoyong (have an empty space for safety) and also... gildaratgo (long)... isn’t that like their fur is really really long. soki teong bin bohoyong teoldo gajigo itseupnida (have furs for safety, whichy have an empty space under the furs). Inside they have another layer of fur.

Likewise, Esther attempted to better comprehend the Korean narrative and informative texts in English by translating the texts into more comprehensible English words, although sometimes with misinterpretation due to her limited semantic and syntactic knowledge of Korean. In addition to her use of translation from Korean to English, the fact that she recalled the contents in English after reading also supports the interpretation that her reading comprehension was processed in English. These findings indicated that English played a major role in Esther’s reading comprehension processes.

In the case of Soo, her use of bilingual strategies may be different from the use of other participants. She frequently utilized summary translating from English to Korean when she read the English narrative and informative texts. In contrast, she used word-for-word translation from Korean to English when she read the Korean informative texts, but it was not often observed. The summary translation in her English reading seemed to be used for her to verify a high degree of her understanding by restating what she understood in Korean along with adding more explanations or elaborating the sentences. The following example 4 from the English science text shows her use of summary translating from English to Korean.

Example 4

Text: White feathers grow in gradually to replace brown ones as the early snows
cover part of the landscape.

Soo: Cheoeumeneun wonrae geu banmsaekindae.. galsaekindae, ije geu... gyeouli dagaoja mite hayansaek gitteoli nagajigo... ije mue...gaelujeongdo doemyeon nuni itgo ttangi itgo geuraeseo banbanigo...gyeouli doemyeon aye hayejineun geojyo. (At first, the feathers are originally maroon....brown... now as the winter is coming, it grows white feathers.... When it is the fall, there are seen snow and earth [on the surface of the earth], so it [the color of birds' feathers] becomes half and half [half brown and half white]... when it becomes the winter, it become white.)

While she read the English narrative and informative texts, she represented her understanding in Korean by paraphrasing and more frequently summarizing the sentences. In other words, she already comprehended the texts in English well and then reinterpreted them in her own Korean words. Her use of translation from English to Korean shown in her English reading indicated that she had good reading comprehension in English and also enough high proficiency in Korean to explicitly express her thoughts. Unlike summary translating in her English reading, the word-for-word translation used in her reading of the Korean informative texts enhanced her comprehension of the Korean texts by helping her identify unfamiliar Korean words with the help of English. Considering those findings, in Soo’s reading comprehension processes, translation was used as a strategic tool of a comprehension check to verify her understanding as well as as a way of using two languages to enhance her comprehension. Generally, she used two languages comfortably when she comprehended the English and Korean texts and articulated her understanding. In a word, two languages were used in a complementary way without any interference in the case of Soo. This finding indicated that she achieved relatively high level of language proficiency both in Korean and English.

As for Ah, she often used a strategy of word-for-word translating when she read the Korean informative texts, which contain a relatively high level of vocabulary and unfamiliar contents. She retained the main ideas of the texts with the help of translating unfamiliar words from Korean into English. Meanwhile, while restating the content of the Korean informative texts in Korean, she frequently used code-mixing at an intra-sentential level, as seen in an example 5. This shows that she comprehended the content by mentally translating unfamiliar Korean words into English words. The evidence of mental translation was frequently observed, especially in her reading of the Korean science text.

Example 5

Text: Geuraeseo bukeukgomeun gyeouledo gyeouljameul jaji ango mulbeomina
mulgaereul japameokgo sapnida. (For the reason, polar bears do not hibernate and
survive in the winter by eating sea leopards or seals.)

Ah: Ireatge south pole eitneun gomdeuleunyo geu fur ga protect hanikkayog ygeoule
anjagoyo seal hago whale gateun geo japameokeoyo. (Like this, bears in South
Pole... Since their furs protect [the cold weather], they do not sleep in the winter and
eat the things like seal and whale.)

Unlike her reading of the Korean informative texts, she did few such translations when
she read the Korean narrative text. She showed little code-mixing when reading the
Korean narrative text. She rephrased the Korean text in her own Korean words with little
code-mixing and no code-switching and translation. She showed coherent comprehension
of the text, although she simplified the text by skipping unfamiliar words or phrases
requiring cultural knowledge to better understand. This finding indicated that she
understood the content in Korean without the help of English. Regarding her reading of the
English texts, Ah was generally likely to use code-mixing, paraphrased translating, and
summary translating. Her use of bilingual strategies appeared the same as Soo’s use of
bilingual strategies for the English texts. She attempted to verbalize in Korean what she
understood, thereby verifying her comprehension while reading the English texts. She
often code-mixed two languages when verbalizing. It indicated that two languages were
functioned in her reading processes.

Boram showed a similar use of bilingual strategies to the use of other three participants.
She mostly used word-for-word translating in her reading of the Korean informative text;
in contrast, there were few cases of translating from Korean into English when she read the
Korean narrative text. She also used a strategy of code-mixing while reading the Korean
science text. The following example 6 shows that she understood the sentence by
code-mixing English and Korean words to better understand the main ideas of the text.

Example 6

Text: Ideuleun cheone jal gyeondiji mothamyeo, bannyaon byeonon dongmulira
burineun oenzeong dongmuleun daesae pilyohan neeoji biyongi jeokgi ttaemeune
cheon yujieul wiae eumsikmuli mani pilyohaji anseupnida. (They [warm-blooded
animals] do not stand temperature change. On the other hand, the animal called
“cold-blooded animals” do not need many foods because they consume little energy
expense for body mechanism.)

Boram: warm-blooded dongmuldeul temperature ga byeonhwae? Change? Change an
handagoyo. (She read the next sentence.) byeonon dongmulira cold-blooded bulrineun oenoseong dongmuleun daesae pilyohan eneoji biyongi jeokgi ttaemeune ... What does that mean? eneoji biyongi jeokgi ttaemeune. (She read this phrase slowly again.) ttaemeune cheon yujeul wihae eumsikmuli mani pilyohaji anseupnida. because eneoji biyong? expense? eneoji expense hanikkayo eumsikmuli mani pilyo eopdagoyo. They don’t need lots of food. (Warm-blooded animals... temperature change? Change? They do not change their body temperature. (She read the next sentence.) What does that mean? (She read slowly the sentence.) Because energy expense? Expense? Energy is expensed. Many foods are not needed. They don’t need lots of food.)

When she read the English texts, she utilized frequently code-mixing and paraphrased translating, but infrequently summarized translating. Her use of those strategies in her English reading seemed to be the way to demonstrate in Korean her comprehension of the English texts, which may be different from the use in her Korean reading of which purpose was to better understand the Korean texts with the help of English. The findings concerning her use of bilingual strategies indicated that she relied on English in reading comprehension processes by translating the Korean texts with semantic and syntactic complexities into more comprehensible English words.

V. DISCUSSION

Taken together, the findings regarding their strategy use in reading indicated that the participants applied reading strategies and knowledge acquired in one language to reading in another language. They revealed cross-language transfer of reading strategies and knowledge among the participants who are Korean-English bilingual middle school students. In the case of these participants, this transfer occurred from English which was the stronger language in their academic learning to Korean. This may be due to the fact that the participants started formal schooling in English. The findings of the present study are consistent with earlier research on cross-language transfer of reading comprehension strategies and skills (Garcia et al., 1998; Jimenez, et al., 1995, 1996; Langer, et al., 1990; Royer & Carlo, 1991). This study demonstrated that Cummins’ principles of Common Underlying Proficiency and Interdependence Hypothesis can also be applied to the relationships between the very dissimilar languages of Korean and English.

There was a distinctive finding concerning the transfer, in terms of the types of transferred reading strategies and knowledge. When they read in English and in Korean, the participants were likely to readily and easily transfer across languages any prior content or world knowledge and generalizable strategies such as inference making,
contextual guessing of words, adjustment of reading speed, rereading to facilitate their reading comprehension, and monitoring their comprehension. They did not, however, transfer linguistic resources focusing on using language structures, such as using cognates or shared vocabulary to better comprehend the texts, which are often observed among Spanish speaking bilinguals (Hardin, 2001; Nagy et al., 1993). This finding was clearly evidenced by the fact that all the participants frequently utilized a strategy of transferring prior knowledge to texts in order to enhance their comprehension. Such a strategy use was often observed when the participants read difficult texts with unfamiliar contents with semantic and syntactic complexities such as a Korean science text. The participants invoked their content knowledge already acquired in English from their science classes or books and then attempted to comprehend the Korean text by transferring the knowledge. The findings regarding the types of transferred strategies and knowledge may be attributed to the fact that Korean and English do not share linguistic features since they have different writing systems, a syllabic writing system\(^1\) and an alphabetic writing system\(^2\), respectively. They are consonant with the previous research findings: “When two languages have different writing systems, general strategies, habits and attitudes, knowledge of text structure, rhetorical devices, sensorimotor skills, visual-perceptual training, cognitive functions, and many reading readiness skills transfer from L1 to L2 reading” (Ovando & Collier, 1998, p.128); “In the case of linguistically distant languages, interdependence across languages derives primarily from the cognitive and personality attributes of the individual and, in the case of linguistically more congruent languages, the relationships derive from both underlying attributes and linguistic factors (e.g. cognate relationship between L1 and L2)” (Cummins, 2000, p. 184).

The present study also showed the bilingual students' use of two languages and their tendency for language dependence in reading comprehending processes. All the participants utilized bilingual strategies of code-mixing and translating in order to better understand the texts. It can be inferred that two languages were processed in a complementary way in their reading processes although they showed variations in their reliance on language in terms of the degree. In this study, translating was generally used not only as a strategic tool of a comprehension check to verify the degree of their reading comprehension, but also as a linguistic mode of alternative use of two languages to enhance their comprehension. A strategy of translation has been regarded as a bad habit of weaker

\(^1\) In the syllabic writing system, the symbols represent syllables rather than phonemes. Cherokee, a native American language, and Korean are examples. Japanese is a combination of the logographic and syllabic system. (Perez, 1998, p. 55)

\(^2\) In the alphabetic writing system, the symbols represent phonemes of the language. English, Spanish, Italian, Vietnamese, and many other languages use the Roman or Latin alphabetic writing system. (Perez, 1998, p. 57)
readers until recently (Grabe & Stoller, 2002). However, it turned out to be an effective reading strategy to enhance reading comprehension among the participants who were balanced bilinguals. This evidence accords with the finding of Kern’s study (1994) that the metacognitive use of translation as a comprehension check was observed primarily by readers in the high ability group. According to Kern, mental translation facilitate reading comprehension in three ways; 1) it assists in semantic processing without overburdening memory capacity; 2) it helps readers problem solve through comprehension difficulties; and 3) it helps comprehension more accurate. This study supports Kern’s (1994) argument for the potential usefulness of mental translation as a processing strategy.

Meanwhile, the findings of the present study can raise the issue of language threshold level for successful transfer. Some researchers (Carrell, 1991; Clarke, 1980; Cummins, 1981; McLaughlin, 1987) maintain that students should first attain a threshold level of L2 proficiency before transferring their L1 literacy proficiency to their L2 literacy performance since low L2 literacy may limit a student’s ability to understand and interact with an L2 text. In this study, the participants were regarded as a balanced bilingual, “a child who can understand the deliver of the curriculum in school in either language, and operate in classroom activity in either language” (Baker, 2001, p.7), considering the evidence of their language proficiency and language learning experiences. They also showed successful transfer of reading strategies and knowledge, in most cases, from English to Korean, regardless text types and text topics. It therefore can be inferred that all the participants seemed to establish in advance enough Korean proficiency to successfully transfer their English reading strategies and knowledge to Korean reading.

VI. CONCLUSION

This study provides the evidence concerning cross-language transfer of reading strategies and knowledge among bilinguals who are using two linguistically dissimilar languages. Korean middle school students using English and Korean transfer across languages their reading strategies and knowledge, in particular schematic resources and generalizable literacy strategies, rather than linguistic resources. These types of transferable reading strategies and knowledge are principally associated with the distance between the two languages with different writing systems. The study also shows the linguistic orientation of the bilingual students’ language reliance in their actual reading. It occurs even among bilinguals using two linguistically different languages that two languages are functioned in a complementary way in reading comprehension processes. The study proposes a theoretical principle with respect to a positive relationship of two dissimilar languages in bilingual students’ reading development. It supports the notion of
Cummins’ principles which present a theoretical foundation of L1 maintenance for L2 development.

This study advocates a fundamental pedagogical implication of strategy instruction, although the findings of the study cannot be generalized to a large population due to a methodological limitation of a case study. It demonstrates that the Korean bilingual middle school students transferred across languages their content knowledge and generalizable reading strategies and skills, but not linguistic resources. This finding suggests that teachers are encouraged to provide bilinguals who are using dissimilar languages with different writing systems with general reading strategies applicable to any language and schematic resources. This instruction would also be helpful to EFL students in Korea. Teachers can present the instruction of generalizable reading strategies and also lead students to invoke content knowledge acquired in Korean from other subject classes and connect it to their English reading. Such an instructional suggestion is believed to facilitate effective reading teaching.

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