

Vocabulary Learning from Storybooks : Effects of a Teacher's Reading Strategy on Korean Preschoolers with Different Prior Word Knowledge

이야기책을 통한 취학 전 아동의 어휘력 발달에 관한 연구 :
개인차에 따른 교사 읽기 방법의 차별적 영향을 중심으로

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ABSTRACT

교사가 이야기책을 반복하여 읽어주는 (a multiple reading) 과정에서 아동이 새로운 단어에 해당하는 그림을 보고 그 단어를 명명하게 하는 (a labeling strategy) 읽기 방법이 아동의 어휘획득에 연령과 경험에 따라 차별적인 효과를 가져오는가, 또한 동일한 읽기 방법이 그룹 상황에 적용되었을 때 일대일 상황에서 얻어지는 효과와 같은 효율성을 갖는가의 문제가 각각의 실험에서 다루어졌다. 양 실험에서 각 연령 (4, 5세) 집단은 그림 어휘력 검사의 표준 점수 결과를 기준으로 하여, 상·하 두 어휘력 집단으로 나뉘어졌다. 아동이 설정된 새로운 단어를 획득한 결과는 comprehensive와 productive 어휘력 검사를 통해 측정되었다. 첫 번째 실험에서 4세와 5세 아동들은 각 연령 집단에서 교사가 일대일로 이야기책을 읽어줄 때, 수동적으로 듣거나 또는 설정된 단어에 해당하는 그림을 보며 직접 명명할 수 있었다. 두 번째 실험에서는 첫 번째 실험에 참여한 4세 아동들이 같은 읽기 방법으로 그룹 상황에서 읽혀졌다.

첫 번째 실험 결과, 새로운 단어를 comprehend 하고 produce 하는데 5세 아동이 4세 아동 보다 나은 기제를 갖고 있는지는 분명히 밝혀지지 않았다. 결과를 통해 분명하게 밝혀진 것은 이야기책이 읽혀지는 동안 얻어지는 comprehensive 어휘와 productive 어휘에는 차이가 있다는 것이다. 아동들은, 특히 어릴수록, 새로운 단어를 comprehend 하는데 있어서는 labeling strategy의 효과를 보지 못한 반면, 단어를 produce 하는데 있어서는 동일한 방법이 단순한 반복 읽기 보다 효과적이었다. 덧붙여, 어휘력에 있어 상위 집단에 속한 아동이 하위 집단에 속한 아동 보다 더 많은 단어를 comprehend 하고 produce 한다는 점을 확인시켰다.

두 번째 실험 결과는 그룹 상황에서 4세 아동에게 이야기책을 읽어줌으로써 새로운 단어를 획득하게 할 수 있다는 것을 보여 주었다. 사용된 labeling strategy는 특히 productive 어휘 획득에 효과적인 것으로 나타났으며, 따라서 일대일 상황에서 뿐 아니라 그룹 상황에서도 중요한 요소로 보였다. 덧붙여, productive 어휘 획득에 있어서 labeling strategy의 효과는 어휘력에 있어 하위 집단에 속한 아동에게는 상황에 따라 다른 결과를 가져왔다. 즉, labeling strategy의 효과에 있어서 하위 집단의 아동들은 그룹보다 일대일 상황에서 productive 어휘를 더 많이 획득했다. 연구결과, productive 어휘력 발달을 위하여 교사는 일대일 책읽기 뿐 아니라 그룹 책읽기에서도 labeling strategy를 사용하는 것을 고려해야 하며, 비교적 적은 어휘력을 갖고 있는 아동에게는 일대일 상황에서 labeling strategy를 사용하여 이야기책을 읽어주는 시간을 할당할 것을 제시했다.

Key Words : 이야기책(storybook) 어휘력(Vocabulary) 취학전 아동(Preschooler)

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I . INTRODUCTION

Children become literate through the process of acquiring a broad range of the literacy-related skills and knowledge which start to develop during preschool years (Schickedanz, 1986; Teale & Sulzby, 1986). Children are typically most successful in mastering the foundations required for literacy if they are exposed to many oral and written language experiences, starting at an early age (Crain-Thoreson & Dale, 1992; Snow, Burns, & Griffin, 1998; Yaden, Smolkin, & Conlon, 1989). Many researchers and theorists have claimed that adult-child shared storybook reading experience is crucial for the acquisition of many beginning literacy understandings (Adams, 1990; Durkin, 1966; Ehri & Wilce, 1979; Feitelson, Goldstein, Iraqi, & Share, 1993; Goldfield & Snow, 1984; Mason, 1992; Mason & Allen, 1986; McCarthy, 1995; Otto, 1993; Schickedanz, 1981; Smith, 1978; Wells, 1985). In countless documents, parents and teachers alike are told that they should read to children because it will help them learn to read. Some researchers, however, claim that the evidence of benefits from storybook reading is actually quite limited and that benefits attributed to storybook reading could be attributed to other factors (Dunning, Mason, & Stewart, 1994; Lonigan, 1994; Scarborough & Dobrich, 1994).

Historically, storybook reading has received more research attention than any other aspect of young children's early literacy experience (Sulzby & Teale, 1991). But very few experimental studies have been conducted to examine possible links

between adults' specific reading behaviors and children's acquisition of specific literacy knowledge or skills. Such studies would help us to understand better how shared storybook reading contributes in specific ways to literacy acquisition. With greater understanding, interventions could be devised to increase the effectiveness of adult-child shared storybook reading, and classroom experiences other than shared storybook reading could also be planned accordingly.

According to Sulzby and Teale (1991), storybook reading research has actually been evolving, over the years, in four significant ways. First, researchers have moved away from interviews and surveys of parental behavior toward methods that describe and analyze the language and social interactions of storybook reading. Second, research has moved from a primary focus on one-to-one or one-to-few reading, found in parent-child reading at home, to group storybook reading that is more typical of classroom settings. Third, children's independent reading attempts have been included in studies in order to determine what concepts and skills the child uses in reading situations. Fourth, descriptive methodologies and experimental designs are now being used in a complementary manner. That is, information from descriptive studies is used to design intervention studies and to examine their effects on children's literacy development.

One example of these research efforts are studies concerning contribution of storybook reading to vocabulary development. An important predictor

of success in learning to read is the size of the child's oral vocabulary. Book reading is assumed to be effective, especially for teaching labels, because it is highly repetitive and narrows down possible meanings of words by showing specific illustrations (Ninio & Bruner, 1978; Snow & Goldfield, 1983). A number of researchers have wondered whether specific features of storybooks, and certain ways of reading them, affect children's ability to learn new words. Overall, work on vocabulary development and its underlying dynamics has been relatively limited. A model for studying vocabulary development from books, developed by Sénéchal (1993), leads to specific predictions about the interaction between individual differences and the frequency and variety of home reading experiences. In terms of the continuation of the experiences children have, this model also seems to be useful for studying book reading in classrooms. If the kind of research suggested by our understanding of vocabulary acquisition is to increase, then this type of model reflecting the dynamics of vocabulary development is necessary.

This study was based on previous work of Sénéchal (1993) who compared the effects of the multiple reading strategy and the labeling strategy on children's comprehensive and productive vocabulary. In the multiple reading strategy, children were exposed to novel words with each sentence containing the words repeated. In the labeling strategy, children were required to label the illustrations of novel words with "what" or "where" questions asked. Children in both the reading conditions listened to a book three times.

A single reading was added to the research design to confirm the effect of multiple reading condition. Only the children in the labeling condition had the opportunity to produce the novel words while being read to a book.

"Sénéchal (1993) hypothesized that children's comprehension of new vocabulary would be enhanced by listening to multiple readings of a book," and that "answering labeling questions during repeated book readings may further facilitate the acquisition of comprehension vocabulary." She also predicted that "the pattern of results should be different for production vocabulary" (Sénéchal, Thomas, & Monker, 1995, p. 219). That is, because repeated exposure to a book does not provide the opportunity to retrieve the words orally, it was not expected to have significant effects on productive vocabulary. On the other hand, it was expected that productive vocabulary should benefit from answering labeling questions.

Sénéchal's hypotheses were confirmed for the 3-year-old children, but differed for the 4- and 5-year olds. The 4-year-olds benefited from multiple readings both in their comprehension and production of novel words and further benefited from answering labeling questions during multiple readings. The 5-year-olds' comprehensive and productive vocabulary equally benefited from multiple readings and answering labeling questions during multiple readings. Sénéchal (1993) suggested that older children have better mechanisms to encode and to retrieve novel information than do younger children. As a consequence, they do not need to practice retrieval by answering questions.

Based on this study, Sénéchal et al. (1995) hypothesized that with “more efficient memory processes,” children with larger vocabularies learn more novel words than do children with smaller vocabularies during storybook readings. Children with larger vocabularies were assumed to be better equipped to relate novel labels with already acquired concepts. In addition, “greater word knowledge, which represents a rich network of interconnected words and their meanings,” was assumed to “facilitate later retrieval of newly acquired information” (p. 220). Sénéchal et al.’s results corroborate those of Robbins and Ehri (1994) who also found that children with larger vocabularies learn more words than children with smaller vocabularies. The model developed by Sénéchal (1993) pointed to the more efficient retrieval process of children with larger vocabularies as the source of their greater capacity for word acquisition.

Considering the age-related differences found in the Sénéchal (1993) study, Sénéchal et al. (1995) also hypothesized that children with larger vocabularies may have more facility at encoding and retrieving novel information and, thus, may learn just as much from passively listening to multiple readings as from answering questions during the readings. Conversely, it was hypothesized that children with smaller vocabularies may benefit more from practice in retrieval, provided by answering questions during multiple readings, rather than from simply listening to multiple readings. Sénéchal et al.’s hypotheses were not confirmed. In fact, both populations enhanced their vocabulary when given opportunities to

produce novel words. Sénéchal et al. (1995) suggested that children with larger vocabularies might indeed have “more efficient retrieval mechanisms,” but that these “become even more efficient with age and experience” (p. 226).

Sénéchal et al.’s (1993, 1995) work is valuable in that it demonstrates that book reading behavior affects vocabulary acquisition. Overall, additional exposure to target words was less effective for teaching vocabulary than was having children speak the target words themselves during the reading of the book. The benefits of asking simple questions during repeated book readings were presumably due to opportunities to practice retrieval. Labeling questions with repeated book readings (Sénéchal, 1993, 1997; Sénéchal et al., 1995) was particularly effective.

Sénéchal et al. (1995) and others, however, have conducted their research on the word-learning effects of storybook reading mostly in one-to-one reading situations in the home. Reading books aloud to every individual child in a classroom would be enormously time-consuming, given one teacher in a classroom with many children. The results from Elley’s (1989) work suggest that reading to groups of children can have a significant effect on vocabulary growth. The children in the Elley study were 8-year-olds, though, not preschoolers.

The questions of whether reading to children in groups has an effect on vocabulary development, and of whether different children benefit differentially from classroom storybook reading, need to be studied. If effective book reading strategies can be incorporated into a group setting with the

same effectiveness as is obtained in a one-to-one setting, and if a more comprehensive understanding of the interaction between different abilities of children and specific reading strategies of teachers in various groupings of a classroom can be obtained, then teachers will be better able to meet the needs of their children.

In this study, one aspect of preschoolers' beginning literacy skills, oral vocabulary, was examined in relation to adults' specific storybook reading behaviors. In the first part of this study, the question of whether certain storybook reading strategies (labeling questions in multiple readings, in this case) have differential effects on children's vocabulary, depending on the children's age and experience, was pursued. Based on previous research, it was hypothesized that 4-year-old children, no matter how small or large vocabulary (even equivalent to 5-year-olds') they have, would benefit more from retrieval practice of words encountered in a story than from multiple readings alone. It was hypothesized that 5-year-old children,

on the other hand, would not benefit from retrieval practice (Hypothesis 1).

Based on Hypothesis 1, it was also hypothesized that children with larger initial vocabularies would acquire more novel words than would children with smaller initial vocabularies (Hypothesis 2).

Based on the findings of the first part of the experiment, a second question, whether book reading strategies used with individual reading can be applied to a whole group situation, was investigated. The effects of the labeling group (experimental group) were compared to the effects of the multiple reading group (comparative group) to determine the effects of the reading strategies in a group situation. In addition, the experiment studied whether the one-to-one setting (results from Part I of the Experiment) and the group setting affect children's learning differentially. Specifically, the experimental investigation compared vocabulary learning of children with smaller and larger vocabularies in each group setting.

II . EXPERIMENT

1. Experiment 1

The first part of this study investigated whether certain storybook reading strategies (labeling questions in multiple readings, in this case) have differential effects on children's vocabulary, depending on the children's age and experience. It also investigated the hypothesis that children with larger initial vocabularies acquire more novel words than children with smaller initial

vocabularies. In this part of the study, the word-learning effects of the book reading strategy were probed in one-to-one reading situations.

1) Methodology

(1) Subjects

The subjects in this experiment were 44 typically developing, 4-year-old children and 49, 5 year-old children from one preschool in Seoul,

Korea. Participating children were drawn from four classrooms, two for each age group. Each classroom had about 25 children. The subjects participated in the experiment in his/her own classroom.

The younger subjects ranged in age from 4 years, 7 months, to 5 years, 6 months at the end of October; the older subjects ranged in age from 5 years, 7 months, to 6 years, 6 months. The average age of the 4-year-old children in each classroom was 5 years, 1 month ($SD = 3$ months) and 5 years, 0 month ($SD = 3$ months), and the average age of the older subjects was 6 years 1 month ($SD = 3$ months) and 6 years, 0 month ($SD = 3$ months) each.

(2) Design of the study

To explore the differential effects of the labeling questions in multiple readings on children's vocabulary, depending on the children's age and experience, two classrooms of each age group (4- and 5-year olds) were assigned randomly to one of two book reading conditions. Each child was read to individually. Children in the multiple reading condition listened passively while an adult read a storybook twice over two consecutive days. In that condition, the adult reader repeated the sentence introducing each target word, while reading the narrative. Children in the labeling condition were asked questions requiring them to label illustrations representing the target words during the two readings of a book. Children in both conditions had the opportunity to hear each target word twice during each reading. Children in the present study were read a storybook twice.

Two, not three (as in some previous studies), book readings were included in the present experiment to reduce testing time for each child (see Sénéchal et al., 1995).

At the beginning of the experiment, two experimenters, including the researcher (myself), were assigned to test the word knowledge of children in each age group, using Picture Vocabulary Test—Revised for Korean children (Kim, Chang, Lim, & Pak, 1995). With the test results, children from each age group who differed in word knowledge were assigned in their own classroom to one of two different reading conditions. The same experimenters conducted the comprehension vocabulary pretest constructed for each book to be read to the children. Then, two trained teachers, who had over 5 years of experience in the field, were assigned to read the selected books in particular ways for both age groups.

To train the teachers, the researcher held meetings in which she explained and demonstrated what the teachers were supposed to do when they read storybooks to their children individually. She then asked the teachers to read a book assigned to each of them, using the reading strategies explained for the two reading conditions. For the multiple reading condition, the teachers were trained to repeat the sentence which contained each target word. They were also told to read a book twice to each child over two consecutive days. Every time they read a book, they repeated the sentence containing each target word. On any one day, each teacher read to no more than ten children.

For the labeling condition, the same teachers were trained to read the books in a way that required children to label illustrations representing the target words during the two readings of a book over two consecutive days. They were told to ask a “what” or “where” question after reading each target word in the narrative. Appropriate questions for the target words were made in advance, and by familiarizing themselves with those questions, the teachers could use them consistently throughout their readings of a book. They were also told to say “OK,” and to continue to read the book if children responded with the target word. If children failed to use the target word, they were told to say the target word once to the child. Before saying the target words, the teachers were told to allow no more than 15 seconds for the children to respond to the questions.

For both reading conditions, the teachers were told to neither encourage nor discourage children’s comments during the reading. If children asked questions or made comments out of personal curiosity while being read a book, the teachers were told to direct their attention to following the main story, saying, for example, “Well, that’s interesting. Let’s listen carefully to what story says next.” In addition, the teachers were trained to point to the illustrations corresponding to each target word, and the pointing was not limited to target items.

The selected books (described below) were distributed to the teachers at least 3 days before they began reading to children, so that they could have time to become familiar with the target

words in the book specifically assigned to each of them. This also gave them time to practice book reading strategies for the two different reading conditions. Their reading practice was given a final check by the researcher right before their actual reading to the children, by reading books with the two book reading strategies.

The entire, actual book reading sessions were audiotaped. The tapes were used to confirm the trained teachers’ compliance with the two distinct book-reading conditions. The recorded tapes were reviewed every day, and if some problems were detected in the teachers’ reading, they were corrected immediately. The following posttests (immediate- and delayed-) were conducted by the experimenters.

(3) Instruments

Two commercially available books for each age group were used for this experiment. The same books, *An Outing of a Wind* (Kim, 1998) and *The Secret of a Hedgehog Star* (Choi, 1995), were used for both age groups of children. Half of the children in a classroom was read one book and the rest of the equivalent group was read the other to examine the effects of storybooks. These books were selected because the story structure consisted of the repetition of a similar episode. Repetitive episodes within each book were believed to allow the introduction of target words at relatively similar levels in the story structure, which prevented target words from being differentially memorable if some were more important to the narrative than others (Elley, 1989).

Ten target words, illustrated in the book, were

selected with the assumption that they would not likely be known to preschool children. Those target words were confirmed for their rarity in preschoolers' word usage and everyday conversation by the children's parents and teachers. However, the target words represented concepts known to preschool children. Thus, the task was to learn a novel label for a known concept. The target words in the book *An Outing of a Wind* were : *uh. ool. ri. da* (meaning mingle), *bi. haeng* (fly), *eup. nae* (town), *yeo. mool. da* (ripen), *oh. soo* (nap), *bi. sang* (soar), *go. gong* (high sky), *no. pa* (old woman), *san. jae* (scattered), *dae. yang* (ocean). The target words in the book *The Secret of a Hedgehog Star* were : *mi. poong* (breeze), *sae. woo* (drizzle), *chim. yup. soo* (needle-leaved tree), *ool. chang* (dense), *yeo. joo* (move), *shim. ya* (night), *hwal. yup. soo* (broad-leaved tree), *bal. a* (bud), *gae. hwa* (bloom), *hwe. gui* (return). Each target word was introduced only once in the narrative.

Learning was measured with tests of comprehensive and productive vocabulary. Comprehensive or receptive vocabulary consists of words that children can understand but not necessarily produce, and productive or expressive vocabulary consists of words children can produce (i.e., speak) (Just & Carpenter, 1987). The measures of comprehensive and productive vocabulary were similar to classical measures of retention (Sénéchal & Cornell, 1993). The comprehensive vocabulary test was similar to typical recognition tasks. A child is asked to identify a previously experienced item from an array of unfamiliar items. The productive vocabulary test involved

cued recall because the illustrations used in the test served as a prompt for retrieval.

A comprehensive vocabulary test was constructed for each book. The format of the comprehensive vocabulary tests was similar to the Peabody Picture Vocabulary Test—Revised (PPVT-R; Dunn & Dunn, 1981). "That is, the tests consisted of sets of illustrated plates, with one plate for each target word. Each plate presented four illustrations, one representing the target word and three representing foils" (Sénéchal & Cornell, 1993, p. 365). The foils were designed to be relevant to the illustrations in the story books, and to books' narratives, as well, to prevent children from selecting correct responses because they were more familiar than the foils (as a result of the book reading episode).

The illustrations used in the comprehensive vocabulary tests were different from the illustrations in the storybook. Hence, the children's task was to learn the new word and transfer the newly acquired word to a different representation of it (Sénéchal & Cornell, 1993). For example, the word *oh. soo* (nap) was introduced in the book with a picture of an old man lying on a rice field and taking a nap, whereas the test of the word used an illustration of a young boy lying on a lawn and taking a nap. The illustrations were the same on the pretest and posttest. However, the position of the four illustrations, the color or the background cardboard, and the order of presentation of plates were varied across all tests to minimize interference among tests.

Each test set also included plates with illustrations of irrelevant but familiar words to ensure

that children could experience some success in the task. Different irrelevant items were interspersed throughout the pretest and posttest to minimize interference among the tests. Finally, some plates representing familiar items were used to familiarize children with the testing procedure. In summary, the comprehensive tests for each book consisted of 16 plates, with 10 plates of target items, 3 plates of familiar, irrelevant items, and 3 plates of unfamiliar, irrelevant items. An additional three plates, used to familiarize children with the procedure, were common to all tests. Scoring was straightforward; a response was either correct or incorrect.

The productive vocabulary tests consisted of asking children to label the illustrations of target items, which appeared the same as in the storybooks read. Book illustrations as retrieval cues for recall were used successfully by Cornell, Sénéchal, and Broda (1988). Book illustrations were used as cues, instead of illustrations from the comprehensive vocabulary tests, because a pilot study by Sénéchal (1993) had revealed that children used familiar synonyms instead of novel target words when they were asked to label the test plate illustrations. Sénéchal, Thomas, and Monker (1995) assumed that children needed the context of the book to use the newly acquired words. The children were not pretested for productive vocabulary knowledge of target words because none of the children in the previous test for target words used target words; rather these children labeled target items with familiar synonyms, even after being prompted to use a different word.

(4) Procedures for collecting the data

In the preliminary data collection phase, both 4- and 5-year-old children participating in Experiment 1 were classified in their own classroom as either high or low in word knowledge on the basis of a median split of their Picture Vocabulary Test—Revised (Kim et al., 1995) standard scores (Mdns = 69 and 83 for each age group). The children were also administered the Korean—Wechsler Preschool and Primary Scale of Intelligence (K-WPPSI; Park, Kwak, & Park, 1996) to assess intelligence. In each classroom of 4- and 5-year-old children, the high- and low-word-knowledge groups did not differ from each other on this measure of intelligence, $t(18) = .75$, $p = .47$ and $t(17.5) = .47$, $p = .64$ (class 1 and 2 of the younger age group); $t(23) = 1.65$, $p = .11$ and $t(22) = .02$, $p = .98$ (class 1 and 2 of the older age group). In addition, the children in a classroom did not differ from the other classroom children on this measure, $t(42) = 1.29$, $p = .21$ for the younger age group, and $t = .76$, $p = .45$ for the older age group.

Other preliminary data for the participating children included the socioeconomic status (SES) of the family. In the previous studies by Sénéchal et al. (1993, 1995, 1997), the Four Factor Index of Social Status (Hollingshead, 1975) was used to calculate SES. The index took into account the education, occupation, gender, and marital status of parents and ranged from a low of 8 to a high of 66. The SES index used in this study was adopted from the Coleman (1981) study and modified for Korean families. The education of both parents, father's occupation, residential area,

and income were used to calculate an SES index. The index ranged from a low of 4 to a high of 53 and divided the social class into four categories : lower class, working class, middle class, and upper class. Indices associated with middle class ranged between 24 and 36. The mean for each age group (4- and 5-years old) was 32 (SD = 3.4 and 3.0), which indicated that most of the children in this study came from middle class homes. SES scores did not vary with book reading condition (assigned to each of the two classes in each age group) or word knowledge (high- and low-vocabulary groups in each class) : With book reading condition, $t(42) = .89$, $p = .38$ for the younger age group, and $t(47) = .11$, $p = .91$ for the older age group; with word knowledge, $t(18) = 1.6$, $p = .13$ and $t(12.9) = .07$, $p = .95$ (class1 and 2 of the younger age group); $t(19.9) = .83$, $p = .42$ and $t(22) = .20$, $p = .84$ (class1 and 2 of the older age group).

The second phase of the experiment began in the middle of the fall semester, and the data collection in this phase took 4 weeks : 2 weeks for 4-year-olds and 2 for 5-year-olds. Children participated individually in two sessions. In the first session, comprehensive vocabulary pretests were administered individually for the children assigned to one of two book reading conditions in their own classroom, and, one week later, the children were read either one of two selected books once. Book assignment was counterbalanced across reading conditions. The second session occurred the following day. During the session, the children were read the same book a second time before being posttested for productive and

comprehensive vocabulary.

The procedure for the comprehensive vocabulary tests was the same as for the PPVT-R; that is, children were asked to point to a named item on the test plate. If children hesitated to respond or said that they did not know the word, the experimenter said that some of the words were hard but that they should try just the same. The experimenter did not proceed to the next plate until the children made a selection. If children changed their selection, the experimenter recorded the children's last choice. In the productive vocabulary tests, children were asked to label the target items illustrated as in the storybooks. If children answered with a synonym, the experimenter asked, "What did the teacher call this when she was reading the book?" When children labeled a target item with a verb when the target word was a noun or adjective, the experimenter asked for clarification. Children's use of target words, use of synonyms of target words, and errors during the productive vocabulary posttest were scored. Children's use of target words during the test were scored with a liberal criterion. For example, in the Sénéchal et al. (1995) study, mispronunciations such as *fegara* for *fedora* and *shash* for *sash* were scored as correct responses. The productive vocabulary posttests were administered before the comprehensive vocabulary posttests to prevent children from hearing the experimenter use the target words an extra time (Sénéchal, 1993; Senenchal & Cornell, 1993). The procedures of the productive vocabulary tests were audiotaped so that another experimenter could score the children's responses. The interrater

agreement was 98% for the younger age group and 99% for the older age group. Disagreement on the several items was resolved after discussion.

The third session occurred 1 week later; the posttests were administered again for productive and comprehensive vocabulary, with the same test instruments used for the immediate posttests. The interrater agreement for the responses in the delayed productive vocabulary tests was 99% for both age groups. Disagreement on several items was resolved by discussion.

2) Results

Results from 4-year-olds. Preliminary analyses failed to reveal any significant effect of gender on any of the dependent variables; nor did gender interact with independent variables, all $ps > .13$. Thus, further analyses were conducted without including gender as a variable. The mean number of words correct on the pretest, the immediate posttest, and the delayed posttest for each vocabulary group are reported in Table 1. Children's performance on the pretest ($Ms = 2.70$ and 1.94 for the multiple reading and the labeling group, respectively) was not statistically different from chance performance (2.5 words) (all $ps > .12$), indicating that children knew few target words on pretest. There were no systematic differences between ages, reading conditions, or prior vocabulary groups, nor did any of the variables interact with one another (all $ps > .11$). Children's posttest performance for the comprehension of new words was analyzed with a 2 (reading condition) \times 2 (prior vocabulary) \times 2 (book) mixed-factorial analysis of variance (ANOVA) in the immediate

and the delayed posttest to determine whether children high and low in word knowledge made similar gains in vocabulary as a result of different reading conditions. This analysis revealed that the means of the two different reading conditions in both the immediate ($Ms = 5.55$ and 5.33 for the multiple reading and labeling groups, respectively) and the delayed posttests ($Ms = 5.75$ and 6.21) were not statistically different from each other ($F_s < 1.71$, $ps > .20$). However, the analysis yielded a significant main effect for prior vocabulary in both the immediate and the delayed posttest ($F_s(1, 40) = 9.71$ and 12.65 , $ps < .01$, $MSE = 3.59$ and 2.51). Further analyses revealed that the mean number of words correct on each of the immediate ($Ms = 4.25$ and 6.42 for the low- and the high-vocabulary group) and the delayed ($Ms = 4.38$ and 6.67) posttests was significantly different between two prior vocabulary groups in the multiple reading condition ($t(17.3) = 3.20$ and $t(18) = 3.52$, $ps < .01$). Although there was no statistical difference between two prior vocabulary groups in the labeling condition, the children in the high-vocabulary group got more words correct on the tests than did the children in the low-vocabulary group ($Ms = 6.08$ and 4.58 for the immediate posttest; $Ms = 6.83$ and 5.58 for the delayed posttest). No other main effect or interaction was significant (all $F_s < 2.32$, $ps > .14$).

A 2 (reading condition) \times 2 (prior vocabulary) \times 2 (books) mixed-factorial ANOVA in each testing time was conducted to determine whether high- and low-word-knowledge children could produce new words as a result of different reading

conditions. This analysis revealed a significant reading condition main effect in both the immediate and the delayed posttest ($F_s(1, 40) = 11.51$ and 9.70 , $ps < .01$, $MSE = 2.27$ and 2.73). Children in the labeling condition ($M_s = 4.50$ and 4.38 for the immediate and the delayed posttest, respectively) produced more words than did children in the multiple reading condition ($M_s = 3.10$ and 2.95). The means of each reading condition did not differ from each other across a testing time, all $ps > .79$. The analysis also revealed a prior vocabulary main effect in both the immediate and the delayed posttests ($F_s(1, 40) = 11.51$ and 7.74 , $ps < .01$). Children with larger vocabularies ($M_s = 4.50$ and 4.29 for the immediate and the delayed posttest) produced more words than children with smaller vocabularies ($M_s = 3.10$ and 3.05). In each of the reading conditions, children with larger vocabularies produced more words than children with smaller vocabularies ($t(18) = 3.01$ and $t(22) = 1.90$ for the multiple reading and the labeling condition, all $ps < .01$). No other main effect or interaction was significant (all $F_s < 1.13$, $ps > .05$).

Results from 5-year-olds. Children's performance on the pretest ($M_s = 2.79$ and 2.60 for the multiple reading and the labeling condition, respectively) was not statistically different from chance performance (2.5 words) (all $ps > .47$), indicating that children knew few target words at pretest. There were no systematic differences between ages, reading conditions, or prior vocabulary groups, nor did any of the variables interact with one another (all $ps > .17$). A 2 (reading condition) \times 2 (prior vocabulary) \times 2 (book) mixed-factorial ANOVA in the immediate and the delayed posttest was conducted. The analysis revealed that children who answered questions during the reading ($M = 6.76$) performed better on the immediate comprehension posttest than did children who listened to the story ($M = 5.58$) ($F(1, 45) = 4.19$, $p = .05$, $MSE = 4.08$). The difference between two reading conditions was significant at the $p < .05$ level, but not at the $p < .01$ level. In the delayed posttest, although the children in the labeling condition ($M = 7.28$) did slightly better than the children in the multiple reading condition ($M = 6.83$), the difference was

Table 1. Mean Number of Words Correct (and Standard Deviations) on the Vocabulary Tests as a Function of Reading Condition and Prior Word Knowledge (4-year-olds)

Word knowledge	Comprehension test			Production test	
	Pretest	Immediate posttest	Delayed posttest	Immediate posttest	Delayed posttest
Multiple reading					
Low (8) ^a	2.63 (1.51)	4.25 (1.04)	4.38 (1.41)	1.88 (1.36)	1.75 (1.28)
High (12)	2.75 (1.29)	6.42 (1.98)	6.67 (1.44)	3.92 (1.56)	3.75 (1.66)
Labeling					
Low (12)	1.70 (1.51)	4.58 (2.50)	5.58 (1.38)	3.92 (1.51)	3.92 (1.51)
High (12)	2.17 (1.64)	6.08 (2.02)	6.83 (2.04)	5.08 (1.51)	4.83 (1.90)

Note. The mean number of words is out of a maximum of 10.

^a The number of children in each group.

Table 2. Mean Number of Words Correct (and Standard Deviations) on the Vocabulary Tests as a Function of Reading Condition and Prior Word Knowledge (5-year-olds)

Word knowledge	Comprehension test			Production test	
	Pretest	Immediate posttest	Delayed posttest	Immediate posttest	Delayed posttest
Multiple reading					
Low (9) ^a	2.22 (1.30)	5.11 (2.15)	6.11 (2.15)	2.56 (1.59)	2.44 (1.42)
High (15)	3.13 (2.20)	5.86 (1.96)	7.26 (1.98)	4.40 (2.56)	4.07 (2.58)
Labeling					
Low (10)	2.20 (1.48)	5.90 (2.23)	6.40 (2.07)	3.80 (1.55)	3.30 (1.34)
High (15)	2.87 (1.60)	7.33 (2.06)	7.86 (1.60)	5.13 (2.59)	5.67 (2.47)

Note. The mean number of words is out of a maximum of 10.

^a The number of children in each group.

not statistically significant. In addition, the analysis revealed a significant main effect for prior vocabulary in the delayed posttest, $F(1, 45) = 5.28, p < .05$. In the immediate posttest, the mean number of words correct were 6.60 and 5.53 for the high- and low-vocabulary groups. No other main effect or interaction was significant (all $F_s < 3.10, p_s > .05$).

A 2 (reading condition) \times 2 (prior vocabulary) \times 2 (book) mixed-factorial ANOVA in each testing time was conducted to determine whether high- and low-vocabulary children could produce new words as a result of different reading conditions. This analysis revealed a significant reading condition main effect in the delayed posttest, $F(1, 45) = 4.48, p < .05, MSE = 4.71$, but not in the immediate posttest, $F(1, 45) = 2.11, p > .05, MSE = 5.06$. The means of both reading groups in the immediate posttest were 3.71 and 4.60 for the multiple reading and the labeling condition, respectively, whereas the means in the delayed posttest were 3.46 and

4.72. Those means of each reading condition did not differ from each other across a testing time, all $p_s > .05$. The analysis also revealed a significant main effect for prior vocabulary, $F_s(1, 45) = 5.77$ and 9.96 (for the immediate and the delayed posttests, respectively), $p_s < .05$ and $.01$. Children with larger vocabularies ($M_s = 4.77$ and 4.87 for the immediate and the delayed posttest) produced more words than did children with smaller vocabularies ($M_s = 3.21$ and 2.89). No other main effect or interaction was significant (all $F_s < 2.11, p_s > .05$).

2. Experiment 2

The second part of this study investigated whether book reading strategies used with individual reading could be applied to a whole group situation. The experiment also investigated whether vocabulary learning from a book reading strategy (labeling questions in multiple readings, in this case) could be affected by group setting.

Specifically, 4-year-old children with different word knowledge in a one-to-one setting were compared to the children in a group setting in terms of vocabulary learning.

1) Methodology

(1) Subjects

The subjects in this experiment were the same 4-year-old children who had participated in Experiment 1. The children read to with the multiple reading condition in the one-to-one reading situation were assigned to the multiple reading condition as a group (comparative group); and, the other group was assigned to the labeling condition as in the one-to-one reading situation (experimental group). Nineteen (one missing from the previous experiment, due to absences) and 24 children, respectively, participated in each reading group of the experiment.

(2) Design of the study

This part of the experiment included two aspects of comparison. First, the 4-year-old children who had been read to individually in the labeling condition of Experiment 1 were read to in a group with the same reading condition to compare the word learning of the children in different group settings. Second, the word learning of the labeling group children was compared to the word learning of the multiple reading group children to examine the effectiveness of the labeling strategy in a group setting. The measured scores of SES, intelligence, and PVT-R of both groups did not vary with book reading condition, $t(42) = .89$, $t(42) = 1.29$, and $t(42) = .78$ each,

$ps > .21$. Participating children in both reading groups were involved in the same preschool curriculum except for the book reading conditions, one using labeling and the other using multiple readings.

(3) Instruments

For the experiment that compared the word learning of children in different group settings, two commercially available books, *Helping Each Other* (Kim, 1998) and *The Journey of a Baby Acorn* (Lee, 1992), were used for the labeling group. The structure of the books, the repetition of a similar episode, was the same as the one used in Experiment 1. The same storybooks were used for the multiple reading group children (the comparative group) in the experiment that examined the effectiveness of the labeling strategy in a group reading session.

For the experiment examining the effects of the labeling strategy in a group, a set of two comprehensive vocabulary tests for each book was constructed as the pre- and the post-test for the children in both the multiple reading and the labeling group. A productive vocabulary posttest was also constructed for each book to ask children to label the illustrations of target words that appeared in the storybook read. This productive vocabulary test was used again for the posttest 1 week later.

(4) Procedures for collecting the data

Comprehension pretests for target words were conducted for the children individually. Then, an experienced classroom teacher read two selected

books, twice for each, within a week. While reading a book, the teacher of the experimental group asked questions requiring the children to label illustrations representing the target words. Given that these children had experienced this kind of reading interaction before, they were expected to respond to the teacher's requests actively in a group reading session. The comparative group teacher, on the other hand, repeated each sentence involving the target words, while reading a book. The entire storybook reading sessions were audiotaped.

The children in each group were posttested for productive and comprehensive vocabulary right after they were read a book twice. The same posttests were conducted 1 week later. This procedure was repeated for the second book.

2) Results

The effects of the reading strategies in a group context. Children's performance on pretest ($M_s = 2.82$ and 2.31 for the multiple reading and the labeling group) was not statistically different from chance performance (2.5 words), $t(18) = 1.00$ and $t(23) = .76$, $ps = .32$ and $.45$. This indicates that children identified few target words at pretest. There were no systematic differences between reading conditions, or prior vocabulary groups, nor did any of the variables interact with each other (all $ps > .06$). Children's posttest performance was analyzed with a 2 (reading condition) \times 2 (prior vocabulary) mixed-factorial ANOVA in each testing time (immediate and delayed) with each book. Because the preliminary analysis revealed a reading condition \times prior

vocabulary interaction in the immediate posttest with a book, $F(1, 40) = 3.24$, $p < .1$, further analysis for the possible main effects of the independent variables was statistically meaningless. Thus, the analysis was processed with the results from the other book, *Helping Each Other*. The analysis revealed no significant main effect for reading condition, all $F_s(1, 40) < .77$, $ps > .38$. In addition, there was a significant main effect for word knowledge, $F(1, 40) = 9.61$, $p < .01$, $MSE = 3.13$. Children with larger vocabularies obtained higher scores ($M=5.70$) than did children with smaller vocabularies ($M = 4.05$). No other main effect or interaction was significant (all $F_s < 2.03$, $ps > .05$).

The mean number of words correct on the immediate and the delayed posttest for productive vocabulary are reported in Table 3. A 2 (reading condition) \times 2 (prior vocabulary) mixed-factorial ANOVA in each testing time with each book was conducted. The analysis revealed a reading condition main effect and a reading condition \times book interaction. Simple main effects showed that with the book *Helping Each Other*, children in the labeling group ($M_s = 2.96$ and 2.83 for the immediate and the delayed posttest, respectively) produced more words than did children in the multiple reading group ($M_s = 1.63$ and 1.21), $F_s(1, 40) = 7.29$ and 12.49 , $ps < .05$ and $.01$, $MSE = 2.91$ and 2.44 . With the book *The Journey of a Baby Acorn*, the means from the same reading groups did not differ on word production ($M_s = 3.33$ and 3.04 for the labeling group; $M_s = 3.53$ and 3.11 for the multiple reading group, $F_s < 1$). In addition, the analysis revealed a

Table 3. Mean Number of Words Correct (and Standard Deviations) on the Vocabulary Tests as a Function of Reading Condition and Prior Word Knowledge

Word knowledge	Comprehension test			Production test	
	Pretest	Immediate posttest	Delayed posttest	Immediate posttest	Delayed posttest
Multiple reading					
Low (8) ^a	2.88 (2.42)	4.38 (2.13)	5.50 (1.77)	2.50 (1.20)	2.25 (1.39)
	1.38 (1.19)	3.75 (1.28)	3.50 (1.41)	0.63 (1.19)	0.50 (0.93)
High (11)	3.45 (1.97)	7.45 (1.63)	7.27 (1.62)	4.27 (1.68)	3.73 (1.35)
	3.18 (1.66)	5.45 (1.29)	6.27 (1.79)	2.36 (1.21)	1.73 (1.01)
Labeling					
Low (12)	2.17 (1.85)	6.00 (1.71)	5.67 (2.10)	2.25 (1.76)	2.00 (1.65)
	2.00 (1.91)	4.25 (1.54)	5.00 (1.81)	2.26 (1.62)	2.42 (1.56)
High (12)	2.67 (0.78)	7.08 (1.78)	7.67 (1.87)	4.42 (1.78)	4.08 (1.88)
	2.42 (2.15)	5.91 (2.54)	6.00 (2.63)	3.33 (2.35)	3.25 (2.22)

Note. The numbers in boldface are the means (and the standard deviations) from the book *The Journey of a Baby Acorn*, and the numbers in the next row are the means (and the standard deviations) from the book *Helping Each Other*.

The mean number of words is out of a maximum of 10.

^a The number of children in each group.

significant main effect for prior vocabulary, with one book, $F_s(1, 40) = 5.09$ and 4.39 for the immediate and the delayed posttest, $ps < .05$; with the other book, $F_s(1, 40) = 15.71$ and 13.86 , $ps < .01$. No other main effect or interaction was significant (all $F_s < .87$, $ps > .05$).

The effects of a labeling strategy in different group contexts. The mean number of words correct on the immediate and the delayed posttest for comprehensive vocabulary in different group contexts (i.e., one-to-one and group) are reported in Table 4. Children's posttest performance in each group context was compared to the other with t -tests. The mean number of words correct on the immediate and delayed posttests were 5.33 ($SD = 2.35$) and 6.21 ($SD = 1.81$) in a

one-to-one reading context, whereas those in a group context were 5.81 ($SD = 2.13$) and 6.08 ($SD = 2.29$). No significant differences were found between two contexts both in the immediate and delayed posttests ($ts(46) = .87$ and $.23$, $ps = .39$ and $.82$). At the same time, the children with larger vocabularies did not obtain more words in one context than in the other, $ts(22) = .55$ and $.00$, $ps = .59$ and 1.00 (for the immediate and the delayed posttest, respectively). This was also the case for the children with smaller vocabularies, $ts(22) = .74$ and $.40$, $ps = .46$ and $.69$.

The mean number of words correct on the immediate and delayed posttests for productive vocabulary in the two different group contexts are reported in Table 4. Children's performance

Table 4. Mean Number of Words Correct (and Standard Deviations) of 4-Year-Old Children with the Labeling Condition in Different Group Settings

Word knowledge	Comprehension test		Production test	
	Immediate posttest	Delayed posttest	Immediate posttest	Delayed posttest
One-to-one setting				
Low	4.58 (2.50)	5.58 (1.38)	3.92 (1.51)	3.92 (1.51)
High	6.08 (2.02)	6.83 (2.04)	5.08 (1.51)	4.83 (1.90)
Group setting				
Low	5.13 (1.83)	5.33 (1.95)	2.42 (1.67)	2.21 (1.59)
High	6.50 (2.23)	6.83 (2.39)	3.88 (2.11)	3.67 (2.06)

Note. There were 12 children in each low/high vocabulary group in the two different group settings.

in each group context was compared to the other with *t*-tests. The analysis revealed that children in the one-to-one reading context produced more words (*M*s = 4.50 and 4.38 for the immediate and the delayed posttest) than did children in the group reading context (*M*s = 3.15 and 2.94), *t*_s(46) = 2.87 and 3.04, *p*s < .01. In addition, the analysis revealed that children with larger vocabu-

laries did not produce more words in one context than in the other, *t*_s(22) = 1.76 and 1.64 (for the immediate and the delayed posttest, respectively), *p*s = .09 and .11. On the other hand, children with smaller vocabularies produced more words in the one-to-one reading context than in the group reading context, *t*_s(22) = 2.63 and 3.09, *p*s < .05 and .01.

III. DISCUSSION AND CONCLUSIONS

What was clear from this study was that there is a difference between the acquisition of productive vocabulary and the acquisition of comprehensive vocabulary during shared reading. Children, especially younger ones, benefited from the labeling strategy in the production of novel words, while they did not in the comprehension of the words. Asking children questions requiring them to produce novel words proved to be an important element in word acquisition during one-to-one storybook reading. The present study

also showed that 4-year-old children can learn novel words from storybook readings in a group context. Children's performance in a group showed that the labeling strategy during repeated readings of a storybook is a particularly powerful didactic technique for the acquisition of productive vocabulary, and therefore, is an important element in word acquisition during group storybook reading as well as during one-to-one reading.

In addition, this study confirmed the findings by Sénéchal et al. (1993, 1995) that, under certain

circumstances, children with larger vocabularies acquire and produce more words than do children with smaller vocabularies. Although children in the labeling condition performed better overall than those in the multiple reading condition in terms of their production and comprehension of novel words and thus, the labeling strategy stood out as an effective reading strategy for both prior vocabulary group children, 4-year-old children with smaller vocabularies performed significantly better in the labeling condition in terms of their productive vocabulary learning. At the same time, the low-vocabulary group children with the labeling condition seemed particularly vulnerable to different group settings in terms of their productive vocabulary learning. That is, the children performed significantly better in a one-to-one reading context than in a group. These findings suggest that as far as the acquisition of productive vocabulary is concerned, classroom teachers should consider using the labeling questions in a group storybook reading as well as in an individual reading, and assigning time for the individual storybook readings with the low-vocabulary children, asking labeling questions. However, despite the fact that different books were used in the individual and the group storybook reading, the comparison of the results in different group contexts did not consider the possible effects of the books. Therefore, the findings from the direct comparison between the group contexts might be distorted, and thus, cannot conclusively be determined.

The findings of the present study are important in light of Scarborough and Dobrich's (1994)

review of the research on the effect of book reading in which they concluded that the effect of book reading may be more modest than anticipated. As Sénéchal et al. (1995) mentioned, it seems important to point out that the database examined by Scarborough and Dobrich was limited : They included only three published correlational studies that assessed the relation between frequency of book reading and comprehensive vocabulary (measured with the PPVT-R). The findings of the present study suggest that children do learn from exposure to book reading, and that adult reading behaviors may have different effects on children's comprehensive and productive vocabulary. Clearly, more research must be conducted before strong conclusions are drawn.

The findings obtained in this study provide more information on reading strategies that do support word learning. To confirm the effectiveness found in this study with the multiple reading condition, the effects need to be compared with those of another multiple reading condition where children are read a text as presented with repetition. In terms of the labeling condition, when adults read storybooks to children, active responding can be easily incorporated by asking simple questions during reading. Sénéchal (1997) pointed out that parents often include what- and where- questions, but that parents use the questions to reinforce information that children already know (Sénéchal, Cornell, & Broda, 1995). As Sénéchal (1997) suggested, parents and teachers could extend their use of the simple didactic technique to facilitate the acquisition of novel

information. Meanwhile, considering that reading comprehension is the ultimate goal of reading education, becoming more significant as children get older, and that enhanced vocabulary can improve text comprehension, the question of whether the effectiveness found in this study with the labeling strategy can actually affect reading comprehension needs to be answered. It is also not clear from the present study whether this is a better reading strategy than others in terms of short- and long-term effectiveness. In future research, comparing the effects of the reading strategies both on vocabulary and on reading comprehension, including this labeling strategy, needs to be followed.

Finally, more research considering the complex and multifaceted interactions among various

variables, including individual differences and reading contexts, needs to be conducted. In relation to the findings of this study, the process of children's developing mechanism, with which they acquire new words encountered in stories, needs to be investigated over the years with the same subjects, in subsequent studies. With more comprehensive understanding about children's vocabulary learning, the effective ways to manage the influencing factors in classrooms could be followed. As a consequence, children with widely different acquired knowledge about books and reading, at the time of school entry, could be accommodated appropriately to enhance their subsequent achievement more positively in the early school years and beyond.

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