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Scaffolding Voluntary Summer Reading for Children in Grades 3 to 5: An Experimental Study

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Abstract

The effects of a voluntary summer reading intervention with teacher and parent scaffolding were investigated in an experimental study. A total of 24 teachers and 400 children in Grades 3, 4, and 5 were randomly assigned to one of four experimental conditions: (1) Control, (2) Books Only, (3) Books with Oral Reading Scaffolding, and (4) Books with Oral Reading and Comprehension Scaffolding. Books were matched to children's reading levels and interests. Children were pre- and post-tested on measures of oral reading fluency (DIBELS) and silent reading ability (ITBS). Results showed that children in the Books with Oral Reading and Comprehension Scaffolding condition scored significantly higher on the ITBS posttest than children in the Control condition. In addition, children in the two scaffolding conditions combined scored higher on the ITBS posttest than children in both the Control and Books Only conditions. Practical implications for summer voluntary reading interventions are discussed.

Scaffolding Voluntary Summer Reading for Children in Grades 3 to 5: An Experimental Study

Voluntary reading can be defined as an instructional approach in which children self-select texts, are encouraged to read books silently on their own, and are given little or no feedback on their reading by teachers, parents, or older peers (National Reading Panel, 2000; [NRP]). Chall (2000) noted that voluntary reading can be considered a "student-centered" pedagogical strategy, and "it is highly optimistic about learning, positing basically that learning is accomplished on one's own, based on one's interests" (p. 34). Voluntary reading interventions are motivated by the notion, sacred to many educators, that self-initiated and solitary reading practice will promote reading competence.

Although correlational research has demonstrated a positive relationship between measures of independent reading and reading achievement (Anderson, Wilson, & Fielding, 1988; Greaney, 1980; Heyns, 1978; Stanovich, 2000), this body of research cannot be used to infer that voluntary reading *causes* higher reading achievement (Carver & Leibert, 1995; Juel, 1988; National Reading Panel, 2000; Shanahan, 2004). The NRP (2000) reviewed 14 experimental and quasi-experimental studies and found little evidence that giving children more books and encouraging them to read more improved reading achievement. However, the NRP assumed an "agnostic" position on the merits of voluntary reading, suggesting that the dearth of experimental evidence "does not mean that procedures that encourage students to read more could not be made to work—future studies should explore this possibility" (page 3-28). Thus, the NRP left open the possibility that voluntary reading could be made more effective and encouraged researchers to pursue the question of how.

Consistent with the NRP's findings and the thinking of other scholars (Brynes, 2000; Pearson & Fielding, 1991), we believe that access to high-interest and appropriately challenging

books and encouragement to read are necessary but not sufficient for improving the reading ability of elementary school children. We hypothesize, further, that voluntary reading can be made more effective by providing explicit skill instruction and encouraging social interactions around text so children are actively engaged in reading and comprehending what they read (Guthrie, Shafer, Wang, & Afflerbach, 1995). Several experimental studies, for example, suggest that children enjoy more growth in reading when their teachers provide explicit skill instruction than when no instruction is provided (Brynes, 2000; Manning & Manning, 1984).

Summer Reading and Summer Learning Loss

From a practical perspective, it may be particularly important to find a way to enhance the effectiveness of voluntary reading by children during the summer. The phenomenon of summer reading loss among low-income, minority, and less-skilled readers is well documented by researchers and often lamented by educators (Alexander, Entwisle, & Olson, 2001; Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996; Heyns, 1978; Phillips & Chin, 2004). Since summer reading loss for disadvantaged children is cumulative (Alexander et al., 2001), it may be especially important to provide low-income, ethnic minority, and low-performing children with access to books and opportunities to read and practice their skills during the summer. However, mere access to books may not be sufficient to promote reading gains. Indeed, based on the NRP's review of experimental studies, access alone would be expected to have no positive effect or at best, a very small positive effect.

Matching Books to Readers

When left to their own devices, children often choose books that are too easy or too difficult for them, so it is important for any voluntary reading intervention to provide some guidance in the selection of texts (Carver & Leibert, 1995). Experimental research suggests that

controlling the difficulty of text improves both oral reading fluency and reading comprehension (Shany & Biemiller, 1995). In addition, to enhance motivation to read independently, children should have an have an opportunity to choose books to read that tap into personal interests (Guthrie & Humenick, 2004). Providing books that match children's reading levels and reading preferences should, in theory, support and encourage voluntary reading outside school (Morrow, 2003). However, especially among children at risk for summer reading loss, matched books alone may not be sufficient to improve achievement. Children may not read the books if they lack motivation to read or there are no incentives for them to do so. Or children may read the books in a casual way that promotes neither effective decoding and fluency practice nor comprehension.

Scaffolding Voluntary Reading

According to Meichenbaum and Biemiller (1998), *scaffolding* is "the practice of providing just enough assistance (not too much or too little) to help students succeed" (p. 141). When applied to children's summer reading, the scaffolding idea suggests that parents might provide "just enough" assistance by (1) listening to their child "tell them" about a book they have read, and (2) listening to their child read a short passage out loud and providing feedback on the degree to which the child reads smoothly and with expression. Oral reading may improve both fluency and comprehension through such mechanisms as improving decoding speed and increasing attention to prosody (Daane, Campbell, Grigg, Goodman, & Oranje, 2005; Fuchs, Fuchs, Hosp, & Jenkins, 2001).

Teachers are not available in the summer months to directly assist children with reading. Nonetheless, at the end of the school year, teachers can (1) encourage children to read aloud to their parents and teach them how to implement a simple procedure for doing so, and (2) train

children to use comprehension strategies when they read silently and independently at home during the summer. This too may be "just enough" assistance. Having the teacher telephone the child over the summer, for instance, might be too much assistance. This could make the summer reading seem like "school work" and undermine the child's motivation to read for pleasure. Certainly, teacher intervention over the summer would add substantial cost to any intervention that includes it.

Our goal was to employ evidence-based instructional strategies that could be easily and inexpensively implemented at the end of the school year, strategies with real potential to enhance the effects of reading practice during the summer. Although the NRP (2000) found no convincing evidence of positive effects for voluntary reading, it did find that oral reading of text and the use of multiple comprehension strategies produced significant gains on reading assessments. Thus, prior research suggested that children might benefit from summer reading if they were explicitly taught how to practice oral reading with a family member and/or taught to use comprehension strategies during silent reading of text.

Teacher and Parent Scaffolding of Voluntary Summer Reading

Kim (2006) designed and investigated a summer voluntary reading intervention with teacher and parent scaffolding to promote reading engagement and achievement, particularly among ethnic minority children. During the summer following Grade 4, children in the experimental condition received eight free books that were matched to their reading levels and interests. Teacher scaffolding consisted of a series of lessons provided to children at the end of the school year before they received the books. In these lessons, the teacher modeled fluent oral reading and comprehension strategies for silent reading. Children practiced fluent oral reading in a paired reading format (Koskinen & Blum, 1986) and practiced using five reading

comprehension strategies while reading silently on their own. Parent scaffolding consisted of listening to the child talk about a book, listening as the child read aloud and then re-read a 100-word passage from the book, providing general feedback, and signing a postcard to be mailed to the researchers with an optional comment about the child's reading. The results were promising. Estimated treatment effects on the Iowa Test of Basic Skills ([ITBS]; Riverside Publishing, 2003) relative to an untreated control group were largest for Black children (*ES* = +.22) and Latino children (*ES* = +.14). These effect sizes were large enough to potentially offset summer reading loss for upper elementary grade children as reported by Cooper et al. (1996).

The Kim (2006) experiment, however, did not provide a direct test of our central hypothesis and theoretical prediction that scaffolding voluntary reading is essential if it is to produce positive effects on reading achievement. It is possible that the same results would have been obtained if the children simply received the matched books without any support from their teachers or parents.

The present study had two major goals. The first was to replicate Kim's (2006) findings with a different sample of schools and additional grade levels including children with a wider range of reading skill. The second aim was to isolate the effects of teacher and parent scaffolding, separating them from the effects of providing matched books. In addition, we were interested in determining whether scaffolding of both oral reading and comprehension strategies would be more effective than scaffolding of oral reading only, and whether scaffolding in general (both forms) would be better than no scaffolding. To achieve these aims, we conducted an experiment with four conditions: (1) Control, (2) Books Only, (3) Books with Oral Reading Scaffolding, and (4) Books with Oral Reading and Comprehension Scaffolding. Children were

randomly assigned to conditions, pretested at the end of the school year in June, and posttested at the beginning of the next school year in September.

The participants in our experiment were children who had just completed Grade 3, 4, or 5. Our decision to target the intervention to children in Grades 3 to 5 was informed by prior research. Most voluntary reading interventions have focused on children who are old enough to have mastered basic decoding skills (Brynes, 2000). For example, 12 of the 14 studies on voluntary reading reviewed by the NRP involved children in Grade 5 or higher. If children do not have adequate decoding skills, they are not likely to benefit from a voluntary reading intervention in which adults provide little or no assistance in reading individual words. Once decoding skills are mastered, phonological recoding may function as a self-teaching device (Share, 1999). Thus, according to the self-teaching hypothesis (Jorm & Share, 1983; Share, 1995), self-initiated reading practice may further strengthen word recognition skills and general reading ability.

Research Questions

1. Compared to the Control condition, what are the effects on reading achievement of Books with Oral Reading and Comprehension Scaffolding?
2. Compared to Books Only, what are the effects on reading achievement of Books with Oral Reading and Comprehension Scaffolding?
3. Compared to Books with Oral Reading Scaffolding, what are the effects of Books with Oral Reading and Comprehension Scaffolding?
4. Compared to no scaffolding (Control and Books Only combined), what are the effects of scaffolding (Books with Oral Reading Scaffolding and Books with Oral Reading and Comprehension Scaffolding combined)?

METHOD

Design

In this study, both teachers and children were randomly assigned to experimental conditions to enhance internal validity. Random assignment of children to conditions ensured equivalence of the groups at the beginning of the experiment, and random assignment of teachers to conditions ensured that teacher skill and condition were not confounded.

Participants

Two public K-6 elementary schools with large percentages of Black, Hispanic, and Asian children were recruited because the summer reading intervention was aimed at improving reading outcomes for minority children. The schools were part of a large suburban district located in the mid-Atlantic region of the United States where teachers were encouraged to teach comprehension strategies (e.g., prediction) and often did so, according to the administrators. In each school, the participants were teachers and children from Grades 3, 4, and 5.

When pretesting was completed, there were 514 children with a Total Reading score on the Iowa Test of Basic Skills (ITBS), which is a widely used measure of general reading ability. At the end of the study, due to children moving over the summer or being absent during testing, there were 401 children with both a pretest and posttest Total Reading score. Attrition was unrelated to experimental condition, χ^2 (3, 514) = 1.40, p = .71. Also, a preliminary regression analysis predicting the posttest from the pretest revealed an extreme outlier with a studentized deleted residual of - 4.99 (Kleinbaum, Kupper, & Muller, 1998). This case was removed from the data set. Of the 400 children remaining in the final analytic sample, 210 were boys and 190 were girls. They ranged in age from 103 months (8.6 years) to 156 months (13 years). Ethnic characteristics were as follows: White 31%, Black 25%, Hispanic 29%, Asian 8%, and other 7%.

Thirty-eight percent of the children received free or reduced-price meals and were therefore considered to be low-income children, and 29% had limited English proficiency according to district records. The median national percentile rank on ITBS Total Reading was 49. All subsequent analyses of the treatment effects were based on the final analytic sample of 400 children.

Measures

Pretests. Pretesting began in the second week of June following receipt of parental permission and assignment to treatment conditions. Teachers administered Form A of the Vocabulary and Reading Comprehension tests from the complete battery of the ITBS following standard procedures in the directions for administration. The Vocabulary and Reading Comprehension tests together determine the Total Reading Score that was used in subsequent analyses. Grade 3 children took Level 9 of the ITBS; Grade 4 children took Level 10; and Grade 5 children took Level 11. The ITBS is highly reliable (KR-20 coefficients above .93 and equivalent form estimates of .86 or higher), and the levels are vertically equated through IRT scaling to yield a continuous measure of reading ability, the Developmental Standard Score (DSS) for Total Reading. The ITBS also provides a 100-point Lexile range that represents each child's independent reading level.

Oral reading fluency was assessed with the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). Five retired teachers who had been trained to administer the DIBELS tested children individually using a single grade-appropriate passage. The grade-appropriate passage chosen was the mid-level passage recommended for children at the end of third, fourth, or fifth grade (i.e., benchmark 3.2). The examiner introduced the task, asked the child to read out loud for one minute, and recorded errors in word recognition following the procedures described in

the manual for administration. The resulting measure used in subsequent analyses was words correctly read per minute (WCPM). Good and Kaminski (2003) reported reliability data for alternate forms of the DIBELS when multiple passages were used in the standard procedure. In this study using a single passage, test-retest reliability was .89.

June reading survey. During June in the week following the ITBS, teachers administered a pretest reading survey that included the 20-item Elementary Reading Attitude Survey ([ERAS]; McKenna & Kear, 1990) and a 25-item reading preferences survey. The ERAS measures attitudes towards academic reading and recreational reading. Cronbach alpha reliability is .89 for the full scale, and normative data are available.

The reading preferences survey asked children how much they enjoyed reading books from one of 25 categories. The categories were initially developed from the *Adventuring with Books* list for pre-K to Grade 6 children published by the National Council of Teachers of English ([NCTE]; McClure & Kristo, 2002), validated using other published surveys of children's reading preferences (Galda, Ash, & Cullinan, 2000; Ivey & Broaddus, 2001; Monson & Sebesta, 1991; Summers & Lukasevich, 1983), and reviewed and refined by four elementary teachers from one of the study schools.

Posttests. Posttesting began in the second week of September, shortly after the participating children had entered Grade 4, 5, or 6. Children were tested by their teachers with an alternate form, Form B, of the Vocabulary and Reading Comprehension tests from the complete battery of the ITBS. Grade 4 children took Level 9; Grade 5 children took Level 10; and Grade 6 children took Level 11. Oral reading fluency was re-tested with the same grade-appropriate, mid-level passage from the DIBELS passage administered in June.

September reading survey. In September following the ITBS, teachers administered a posttest reading survey that asked children about their summer reading activities and their ownership of books. The survey included seven items adapted from the Literacy Habits Survey developed by Paris et al. (2004), and two additional items asking children whether they attended summer school or moved to a new house or apartment during the summer. Preliminary analysis of the September reading survey data identified two factors of interest: a summer reading activity factor and a book ownership factor. The summer reading activity factor (Cronbach's $\alpha = .75$) included the following five items: (1) "During summer vacation, how often did you read at home for fun?" (2) "During summer vacation, how often do you read books or stories at bedtime?" (3) "During summer vacation how often did you read books?" (4) "During summer vacation how often did your parents help you read at home?" (5) "During summer vacation how often did you read out loud to someone at home?" The response options were (a) never or hardly ever, (b) once or twice a month, (c) once or twice a week, and (d) almost every day. The book ownership factor (Cronbach's $\alpha = .75$) included two items: (1) "About how many books for kids do you have in your home?" followed by the response options 0-10, 11-20, 21-30, 31-50, and more than 50. (2) "About how many books are in your home?" followed by the response options few (0-10), enough to fill one shelf (11-25), enough to fill one bookcase, and enough to fill several bookcases (more than 100).

Procedure

In each school, children were randomly assigned to one of four groups within their grade level: (1) Control, (2) Books Only, (3) Books with Oral Reading Scaffolding, and (4) Books with Oral Reading and Comprehension Scaffolding. To avoid teacher effects, teachers within each grade were also assigned at random to one of these conditions. If there was a fifth teacher

as happened in several instances, he/she was the designated substitute who could carry out the reading lessons associated with any of the conditions if the need arose. Children in the Control condition received books in the fall after the posttests had been administered. The treatment conditions were implemented in three stages: teacher training and end-of-year reading lessons, matching books to readers, and summer reading support provided by a parent or family member.

Teacher training and end-of-year reading lessons. In early June, all participating teachers attended a 2-hour training session conducted by an experienced elementary language arts teacher. This teacher trainer had developed the lessons to meet our specifications and field-tested them in a Grade 4 class prior to training. During training, she modeled a series of three lessons using an engaging, well-illustrated children's storybook, *The Wreck of the Zephyr*. Each lesson was fully scripted and designed to require no more than 45 minutes of class time.

The modeled 3-lesson sequence represented the Books with Oral Reading and Comprehension Scaffolding condition. When group assignments were revealed at the end of the training session, the teachers who were assigned to the Books Only or Books with Oral Reading Scaffolding condition received a shorter, 2-lesson or 1-lesson script that lacked either comprehension strategies instruction or both comprehension strategies instruction and fluency practice. These abbreviated scripts were otherwise identical to the lesson scripts described below. Teachers assigned to the control group received no script. They were asked to prepare an alternative reading instructional activity for the children who would be assigned to them on the days when lessons were scheduled.

Lesson 1 focused on comprehension strategies. The teacher began by explaining to the children that they would be receiving books and postcards over the summer, and they would need to know what to do when they received them. She asked for the children's help in

generating a list of five strategies that good readers use to help them understand what they are reading: re-read, predict, ask questions, make connections, and summarize. These were strategies the regular teachers had already introduced and taught, so it was not difficult to elicit them. The teacher trainer then read *The Wreck of the Zephyr* aloud, stopping at appropriate points to model one of the strategies. (Prediction was modeled twice because children made a prediction before reading and were asked to revise their prediction after reading was complete.) As each strategy was modeled, the children were asked to identify it, and the teacher re-phrased their responses so they exactly matched the phrases they would see on the postcard. Next, the teacher demonstrated on an overhead transparency how to complete the first four questions on the postcard. Then, in the last part of the lesson, children selected a book, attached sticky notes where they used a comprehension strategy, shared their examples of strategy use with the teacher, and practiced answering the questions on the postcard. The fourth of these questions asked them to place a check mark by each comprehension strategy they used (see Books with Oral Reading and Comprehension Scaffolding postcard in Appendix A).

In Lesson 2, the focus was fluency practice. Following a review of comprehension strategies, the teacher stated, "Another thing that good readers do is read smoothly and with good expression when they are reading aloud." She asked the children how they know if someone is a good reader when they read aloud, accepted their answers and said, "Yes, when someone reads aloud with good expression and at just the right speed without mistakes, we call that fluent reading." She wrote *fluent reading* on the board and beneath it, the words *smooth*, *good expression*, and *correct*. Then she explained that she would read a 100-word passage from *The Wreck of the Zephyr* several times, and the children would rate her reading. The first reading was poor, with lots of pauses and miscues; the second reading was better, with shorter pauses

and no miscues but flat and expressionless; and the third reading was her best reading, smooth, full of expression, and errorless. Next, the teacher used an overhead transparency of the postcard (see Appendix A) to demonstrate how the children would be answering two additional questions that were not discussed the day before: a three-part question that asked whether they read more smoothly, whether they knew more words, and whether they read with more expression; and a "question" that asked them to get a family member's signature and optional comment.

Lesson 2 continued with children pairing up, counting 100 words from a passage in a book, and practicing reading with their partner. One child read the passage aloud while the other gave feedback using the postcard rating categories, then the roles were reversed for a second reading. After paired reading, the children "mailed" their postcards by returning them to the teacher. Finally, they were given a homework assignment to read a book for 15 minutes, complete the first four questions on the postcard including the comprehension strategies question, read a 100-word passage to a family member twice, complete the fifth question (the self-rating of fluency), and obtain a family member's signature.

Lesson 3 gave the children an opportunity to "put all of the pieces together" through additional teacher modeling and practice with a nonfiction book. The teacher gave a quick overview of the steps in the process, modeled comprehension strategies as before, modeled completion of the first four postcard questions, modeled counting out 100 words and reading aloud twice with improvement shown, and modeled completion of the fifth and sixth postcard questions. The children then practiced on their own (for silent reading and comprehension strategies) and with a partner (for oral reading and fluency practice).

Teachers implemented the treatment conditions in the third week of June (the last week of school) with a special "class" of children who had been assigned to them. To accomplish this,

the teachers were given lists that indicated where each child should go and, as well, the names of children who would be coming to them for the lessons. Teachers with Control group children assigned to them taught none of the lessons described; they simply carried out the alternative reading instructional activity they had planned.

To assess lesson fidelity, the second author first identified 4 to 10 required elements in each lesson script (depending on lesson length). Next, three lessons were observed in the smaller of the two schools to develop lesson fidelity and lesson quality rating scales. The lesson fidelity scale was as follows: 3 = Teacher addresses all required elements and adheres very closely to the details of the script, including wording, materials, and order of presentation of "sub-elements." 2 = Teacher addresses all required elements but departs from the script in minor ways (e.g., wording, materials, order). 1 = Teacher misses one or more required elements. 0 = Teacher presents a lesson that is almost or completely unrecognizable in terms of the script. The lesson quality scale was as follows: 2 = Teacher executes lesson skillfully: The lesson is smooth and well-paced; children's behavior is managed effectively; children are engaged; and thoughtful responses are elicited. 1 = Teacher executes the lesson in an adequate but less skillful manner; the lesson is somewhat flawed in at least one of the above respects. 0 = Teacher executes the lesson poorly, in a manner that is inadequate or seriously flawed. Finally, at the second school one Books with Oral Reading and Comprehension Scaffolding lesson and one Books with Oral Reading Scaffolding lesson was observed at each grade level, and these lessons were rated using the two scales.

Matching books to readers. Matched books were selected for each child by a computer algorithm that merged data from two files. One file contained a Lexile level and preference categories for each of 240 available book titles. The second file contained each child's Lexile

range from the spring ITBS and reading preferences from the spring survey. The algorithm generated a list of the eight books that received the highest matching scores. These books had high scores based on the Likert scales used to measure the child's reading preferences and the spring ITBS Lexile scores used to estimate the child's independent reading level. For children in the treatment groups, one matched book was mailed each week for eight successive weeks from early July until the end of August. Children in the control group received all eight of their matched books at once in September after posttesting was completed.

Parent/family member support for summer reading. Along with each book that was sent to the child, there was a letter to the parent (or other family member) and a postcard. The letter was translated into Spanish, Urdu, Arabic, and Vietnamese for parents who spoke one of these languages. The content of both the letter and the postcard differed as a function of treatment condition. For children receiving books only, the letter simply asked the parent/family member to encourage the child to read the book, and to complete and mail the postcard, which did not require a stamp. The postcard for the Books Only group (see Appendix C) included three questions for the child to answer: the title of the book, whether or not the book was finished, and how many times it was read. The child's signature was requested as a fourth "question," and there was also a space for the child's comments about the book.

For children receiving books with oral reading scaffolding, the letter asked the parent to encourage the child to read, and to return the completed card, as before. In addition, it suggested that "It will help your child if he or she reads out loud to you, or to an older brother or sister," and requested that, "After you listen to your child reading out loud a second time, tell him or her how they improved." The letter also pointed out that there was a place on the postcard for their signature (i.e., the parent or family member's, not the child's, unlike the Books Only group) and

space for an optional comment on the child's reading. The postcard for children in the Books with Oral Reading Scaffolding group (see Appendix B) had the same three initial questions as the postcard for the Books Only group. Following these questions, there were instructions requesting the child to tell someone in the family what the book was about and to choose a part of the book to read aloud two times. There was a fourth question that asked the child to mark one or more boxes indicating whether there was improvement on the second reading, in terms of smoothness, word reading accuracy, and expression. The fifth "question" was the space for the parent/family member's signature.

For children receiving books with oral reading and comprehension scaffolding, the parent letter was the same as the letter described in the above paragraph. However, the postcard for the Books with Oral Reading and Comprehension Scaffolding group had a question on comprehension strategies in addition to the fluency question. As described in the end-of-year lessons by the teacher, this question asked the children to indicate what they did to better understand the book, by marking one of the five comprehension strategies (re-read, ask questions, make connections, make predictions, summarize).

Statistical Analysis

First, to establish initial equivalence of the treatment groups, analyses of variance (ANOVAs) were conducted on the pretest and spring reading attitude data. Next, as a treatment implementation check, ANOVAs were conducted on the measures of book ownership and summer reading activity derived from the September reading survey. Then, to examine treatment effects, analyses of covariance (ANCOVAs) were conducted on the posttest ITBS and DIBELS scores using the corresponding pretest scores as a covariate. The ANCOVAs were followed by planned comparisons ($\alpha = .05$) of the adjusted posttest means to test each of the four

research questions, and effect sizes were computed for significant or marginally significant comparisons.

RESULTS

Pretests and Spring Survey

Treatment group means and standard deviations for the pretests and reading attitude portion of the spring survey (i.e., the ERAS) are displayed in Table 1. As would be expected from the random assignment procedure, there were no statistically significant differences among the four treatment groups at the beginning of the experiment on ITBS Total Reading, DIBELS WCPM, or the ERAS.

Treatment Implementation Checks

To check implementation of the treatment conditions, we analyzed ratings of lesson fidelity and quality, September reading survey data measuring the factors of book ownership and summer reading activity, and postcard data.

Lesson fidelity and quality. The mean lesson fidelity rating for the six lessons observed in the larger school was 2.3 (maximum = 3, range 2-3). The mean lesson quality rating was 1.7 (maximum = 2, range 1-2). In the smaller school where teachers were observed for the purpose of developing the rating scales, formal ratings were not made. However, based on notes, lesson quality was similar, and fidelity was adequate for two of the three lessons observed. These findings indicate that most teachers provided high-quality lessons that included all of the required elements, although there were minor departures from the written script.

Book ownership and summer reading activity. On the 9-point book ownership scale from the September reading survey, children in the Books with Oral Reading and Comprehension Scaffolding group reported higher levels of book ownership (M = 6.86) than

children in the Books with Oral Reading Scaffolding group (*M* = 6.72), Books Only group (*M* = 6.60), or Control group (*M* = 6.37). However, the difference between the Books with Oral Reading and Comprehension Scaffolding group and Control group was not statistically significant ($p = .12$), according to an ANOVA and planned comparison. On the summer reading activity scale that included parental help with reading and reading aloud to a parent as well as reading for fun and the frequency of any kind of reading activity (solitary or otherwise), children in the Books with Oral Reading and Comprehension Scaffolding group (*M* = 11.80) reported significantly higher levels of activity than children in the Control group (*M* = 10.68), $p = .04$. Children in the Books with Oral Reading Scaffolding and Books Only groups (*M* = 11.05 and *M* = 11.07, respectively) did not differ significantly from those in the Control group (*M* = 10.68).

Postcard data. About half of the children in each of the three treatment conditions returned at least one postcard, indicating that they read part or all of at least one book: 49% of the Books with Oral Reading and Comprehension Scaffolding group, 51% of the Books with Oral Reading Scaffolding group, and 55% of the Books Only group. There was a parent or family member's signature on all of the postcards returned by children in the Books with Oral Reading and Comprehension group, and all but two of the postcards returned by children in the Books with Oral Reading Scaffolding group. About one quarter of the children in the treatment groups reported finishing four or more of the eight books they were sent: 23% of the Books with Oral Reading and Comprehension Scaffolding group, 28% of the Books with Oral Reading Scaffolding group, and 34% of the Books Only group. These percentages probably underestimate the impact of the treatments on summer reading due to under-reporting (i.e., postcards not being returned).

In summary, the implementation data show, first, that teachers conducted the end-of-year lessons as intended. Second, at least one of the treatment conditions, the Books with Oral Reading and Comprehension Scaffolding condition, did result in more summer reading activity than the control condition, according to children's responses on the September reading survey. Third, the postcard data suggest that at least 50% of the children in the three treatment groups read one or more books and 23% to 34% read four or more books. Notably, the percentage of children who reported reading four or more books was highest for the Books Only group (32%). This suggests that their motivation to read was not less than that of children in the scaffolding groups. Also, children in the two scaffolding conditions did read their books with a parent or family member.

Posttests: Treatment Effects

Table 2 displays posttest means, adjusted posttest means from the ANCOVA, and standard deviations for each of the four experimental conditions on the reading and fluency measures, ITBS Total Reading and DIBELS WCPM. For ITBS Total Reading, children in the Books Only and Control conditions performed similarly (adjusted posttest means of 203.57 and 203.07, respectively). Because the NRP's (2000) review of voluntary reading suggested that simply providing books would be ineffective, this result was anticipated.

The first of our planned comparisons, Books with Oral Reading and Comprehension Scaffolding versus Control, was significant, t (395) = 2.22, $p < .03$. As shown in Table 2, the Books with Oral Reading and Comprehension Scaffolding group (adjusted posttest mean = 207.00) had higher scores than the Control group (adjusted posttest mean = 203.07). The effect size, calculated as the difference between adjusted posttest means divided by the pooled standard deviation, was + .14. The second planned comparison, Books with Oral Reading and

Comprehension Scaffolding (adjusted posttest mean = 207.00) versus Books Only (203.57) fell short of statistical significance at $p = .063$. However, the effect size for this comparison, + .12, was about the same as the effect size based on the contrast between the Control group and Books with Oral Reading and Comprehension Scaffolding group.

The third planned comparison, Books with Oral Reading and Comprehension Scaffolding and Books with Oral Reading Scaffolding was intended to test whether a treatment including two forms of scaffolding (oral reading and comprehension) would be superior to a treatment with a single form of scaffolding (oral reading). The data in Table 2 show a slight advantage for the Books with Oral Reading and Comprehension condition (adjusted posttest mean = 207.00) over the Books with Oral Reading Scaffolding condition (204.83). However, this difference was not significant, $p = .23$.

The final planned comparison averaged the means of the two groups with scaffolding (Books with Oral Reading Scaffolding and Books with Oral Reading and Comprehension Scaffolding) and compared these with the average of the means for the two groups without scaffolding (Control and Books Only). This comparison was significant, $t\ (395) = 2.05$, $p < .05$. Reading achievement was higher with scaffolding (average adjusted posttest mean = 205.92) than without scaffolding (average adjusted posttest mean = 203.32). The effect size comparing scaffolding and no scaffolding was + .09.

On DIBELS WCPM, all of the groups performed at a similar level. The main effect for groups was not significant ($F < 1$). In addition, none of the planned comparisons were significant

DISCUSSION

Results from our randomized experiment support the idea that teacher and parent scaffolding can enhance the effectiveness of voluntary reading of books during summer vacation. First, we found no difference in achievement between children in the non-scaffolded Books Only group and the control (no treatment) group. Second, children in the Books with Oral Reading and Comprehension Scaffolding group performed significantly higher on the ITBS than the control group (*ES* = .14) and marginally better than the Books Only group (*ES* = .12). Third, we found that scaffolding (averaging two scaffolding conditions) was more effective than no scaffolding (averaging Books Only and Control conditions).

Overall, these results reinforce and extend findings from the National Reading Panel (NRP, 2000). Considering the dearth of experimental evidence on the effects of various approaches to encouraging voluntary reading, the NRP suggested that "at this time, it would be unreasonable to conclude that research shows that encouraging reading has a beneficial effect on reading achievement" (page 3-28). Although this conclusion has generated heated controversy among literacy scholars (Allington, 2002; Cunningham, 2001; Shanahan, 2004), the NRP neither rejected nor embraced voluntary reading as an effective instructional strategy for improving children's reading skills. Indeed, the NRP's agnostic conclusion was what prompted us to examine the efficacy of various strategies for encouraging voluntary reading, including four experimental conditions that differed in the amount of scaffolding that teachers and parents provided for children. Evidence from our study supports the findings of the NRP and other researchers who have suggested that providing children with more books and opportunities to read is necessary but not sufficient for improving reading achievement (Brynes, 2000; Carver & Leibert, 1995; Pearson & Fielding, 1991; Stahl, 2004). For example, Byrnes (2000) argued that,

if the primary goal of voluntary reading is to improve reading achievement, teachers should allocate more time to free reading time and "think about ways to foster diverse reading and provide scaffolds for children as they practice their reading skills" (p. 204).

Previous research suggests that many voluntary reading interventions do not improve reading achievement because they fail to promote reading engagement. The study by Carver and Leibert (1995) is noteworthy because it highlighted the challenge of helping children engage with text during independent reading practice. In this study, children in Grades 3 to 5 were encouraged to read easy books during a 2-hour class that was part of a 6-week summer reading program. Children made no reading gains, and Carver and Leibert reported the following observations: "(a) Some students were not reading because they were not even looking at their books, (b) some students were at the book tables supposedly looking for a book but were not seriously engaged in this task, (c) some students were taking a test on a book without finishing the book, and (d) some students were reading only very short books and getting lots of prizes compared to the students who were reading long books" (p. 35). Thus children in Grades 3 to 5 may need additional support to engage with texts during independent reading. By scaffolding voluntary reading with teacher instruction and parent support, we hoped to increase children's engagement with text and improve their reading achievement.

The NRP noted that some forms of explicit instruction provided by teachers, including guided oral reading and comprehension strategy instruction, were more effective in improving achievement than encouraging independent silent reading. Our findings are consistent with this and further suggest that voluntary reading can be made more effective by scaffolding that consists in part of teacher-directed lessons involving oral reading and comprehension strategy instruction.

Our results do not provide clear evidence on the question of whether some forms of scaffolding produce better reading outcomes than others. There was no difference in achievement between children in the Books with Oral Reading and Comprehension Scaffolding group and Books with Oral Reading Scaffolding group. However, our experiment lacked sufficient power to detect small differences between the scaffolding conditions. Future research should compare the effects of different forms of scaffolding and explore possible interactions of scaffolding type with reading skill.

To address limitations of previous research on voluntary reading, our intervention sought to nurture reading engagement in children's homes where most of the reading activities took place. Baker (2003) contends that the "same conditions that enhance motivation in classrooms will enhance motivation at home: choice, collaboration, and risk-free environments" (p. 102). We wanted to make voluntary reading enjoyable and to provide children with just enough assistance to nurture both oral and silent reading practice at home during the extended summer recess. Our analyses of the literacy habits data suggest that children in the full treatment group (M = 11.80) engaged in significantly more literacy-related activities than control children (M = 10.68). In addition, comments on the postcards suggest that the intervention led to more leisure reading during the summer. One parent of a boy noted, "He read aloud as often as possible. He got every joke and used much expression. This is definitely his genre." Another parent commented, "She does not read as often as I'd like her to. Your program has changed that. She enjoys receiving the books in the mail." Although these comments are anecdotal, they suggest that increasing access to matched books and encouraging oral and silent reading improve children's engagement with text. Thus, both quantitative and qualitative data suggest an overall increase in literacy-related activities for children in the full treatment group. Similarly, other

researchers (Baker, Dreher, & Guthrie, 2000; Guthrie, Schafer, Wang, & Afflerbach, 1995; Paris, Wasik, & Turner, 1991) have underscored the importance of simultaneously creating print rich environments, nurturing frequent social interactions around text, and encouraging self-initiated use of comprehension strategies.

Although positive relations between reading amount and reading achievement have been observed in correlational research (Anderson et al., 1988; Guthrie & Greaney, 1991; Stanovich, 2000), the causal directionality of these relationships is ambiguous (Shanahan, 2004). Two features of our design strengthen the causal link between the scaffolded voluntary reading intervention and improved reading outcomes: random assignment of children to conditions and random assignment of teachers to conditions.

IMPLICATIONS FOR RESEARCH AND POLICY

Many educators fervently believe that voluntary reading programs improve reading ability. Our message to them is that the details of such programs matter, and further, that it is possible to implement relatively inexpensive and effective summer voluntary reading programs. For most public school districts, summer reading interventions must be cost-effective as well as effective.

The range of positive treatment effects in this study is "small" by conventional social science standards (Cohen, 1988) and much smaller than teacher-centered instructional strategies like guided oral reading (*ES* = .41) and multiple comprehension strategy instruction (*ES* = .32) (NRP, 2000). However, the magnitude of our treatment effects should be viewed in a broader research and policy context.

The treatment effect for Books with Oral Reading and Comprehension Scaffolding, + .14, essentially replicates the Kim (2006) multi-site randomized field trial investigating the same

intervention with a sample of predominantly minority children, and we argue that it is practically significant. This effect size is identical to the average effect of + .14 standard deviations in Cooper et al.'s (2000) meta-analysis of experimental studies of remedial summer programs, and it is large enough to offset the average summer loss in reading comprehension for children in Grade 3 (-.02), Grade 4 (-.12), and Grade 5 (-,09) reported by Cooper et al. (1996, Table 9). Further, because other research indicates that the benefits of well-designed summer reading interventions may be cumulative (Borman & Dowling, 2006), results from Kim (2006) and the present experimental study suggest that summer reading loss could be reduced by implementing a cost-effective scaffolded voluntary reading intervention over the course of multiple summers. Thus future research should examine the generalizability and cumulative effect of scaffolded summer voluntary reading in a large-scale experiment involving more than one school district and two or more summers.

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APPENDIX A

Postcard for children receiving books with teacher and parent scaffolding of oral reading and comprehension (Books with Oral Reading and Comprehension Scaffolding)

(1) What's the title of the book you got?

Book Title: _____

(2) Did you finish reading this book? □ Yes □ No, I stopped on page _____.

(3) How many times did you read this book? □ Didn't finish □ 1 time □ 2 times □ 3 times or more

(4) What did you do to better understand this book? (check all that apply)

□ I **re-read** parts of this book. □ I **made predictions** about this book.

□ I **asked questions** about this book. □ I **summarized** parts of this book.

□ I **made connections** (text to text, text to self).

(5) After you read the book, tell someone in your family what the book was about. Pick a part of the book to read aloud 2 times. Ask him/her how you improved the second time you read the section and ask for his/her signature. (check all that apply)

□ Did I read more **smoothly?** □ Did I know more **words?** □ Did I read with more **expression?**

(6) Family Member's Signature:

Optional comment about this child's reading**:**

APPENDIX B

Postcard for children receiving books with teacher and parent scaffolding of oral reading (Books with Oral Reading Scaffolding)

(1) What's the title of the book you got?

Book Title: _____

(2) Did you finish reading this book? □ Yes □ No, I stopped on page _____.

(3) How many times did you read this book? □ Didn't finish □ 1 time □ 2 times □ 3 times or more

(4) After you read the book, tell someone in your family what the book was about. Pick a part of the book to read aloud 2 times. Ask him/her how you improved the second time you read the section and ask for his/her signature. (check all that apply)
□ Did I read more **smoothly?** □ Did I know more **words?** □ Did I read with more **expression?**

(5) Family Member's Signature: _____
Optional comment about this child's reading**:**

APPENDIX C
Postcard for children receiving books only (Books Only)

(1) What's the title of the book you got?

Book Title: _____

(2) Did you finish reading this book? □ Yes □ No, I stopped on page _____.

(3) How many times did you read this book? □ Didn't finish □ 1 time □ 2 times □ 3 times or more

(4) Please sign your name: _____
Is there anything you want to tell us about the book?

Footnote

[1]For the reading preference, the following categories were used: (1) science nonfiction (earth science, space, technology, (2) prehistoric life, dinosaurs, (3) animal nonfiction (zoology, mammals, marine life, reptiles, et.), (4) historical nonfiction and biography, (5) historical fiction, (6) African and African American stories (real and realistic fiction), (7) Asian and Asian American stories (real and realistic fiction), (8) Latino and Latino Americans (Spanish speaking) and stories (real and realistic fiction), (9) Native American stories (real and realistic fiction), (10) family and everyday life stories, (11) school life stories, (12) struggle and survival stories (realistic adventure, heroes, heroines, etc.), (13) poetry, (14) sports biographies, (15) sports fiction, (16) animal fantasy, (17) science fiction fantasy, (18) time travel fantasy, (19) heroic and adventure fantasy, (20) supernatural tales and fantasy (ghosts, magic, and monsters), (21) realistic animal stories, (22) mystery stories, (23) stories of other girls my age (real and realistic fiction), (24) stories of other boys my age (real and realistic fiction), (25) traditional literature (fables, myths and legends, tall tales, etc..).

TABLE 1

Means and Standard Deviations for Pretest Measures

Experimental Condition		ITBS	WCPM	ERAS
Books	*M*	198.60	107.96	56.20
	SD	27.00	35.29	11.28
	n	93	85	91
Books with Oral Reading Scaffolding	*M*	202.20	111.48	53.02
	SD	27.86	38.16	12.61
	n	100	93	97
Books,with Oral Reading and Comprehension Scaffolding	*M*	201.83	107.14	54.74
	SD	28.45	35.90	12.19
	n	100	95	98
Control Group	*M*	203.31	107.50	52.95
	SD	28.11	35.61	11.86
	n	107	100	106
Total	*M*	201.57	108.51	54.17
	SD	27.83	36.16	12.03
	n	400	373	392

Note: ITBS = Iowa Test of Basic Skills, WCPM = Number of words correctly read in 1 minute, ERAS = Elementary Reading Attitude Survey

TABLE 2

Posttest Means and Standard Deviations for ITBS and DIBELS

Experimental Condition	Unadjusted Mean	Adjusted Mean	*SD*	*n*
ITBS (Total Reading)				
Books Only	200.92	203.57	28.67	93
Books with Oral Reading Scaffolding	205.39	204.83	26.53	100
Books with Oral Reading and Comprehension Scaffolding	207.23	207.00	28.57	100
Control Group	204.63	203.07	28.01	107
DIBELS Oral Fluency (WCPM)				
Books Only	114.52	116.07	37.97	81
Books with Oral Reading Scaffolding	123.20	120.18	38.43	89
Books with Oral Reading and Comprehension Scaffolding	121.36	121.00	39.93	89
Control Group	118.12	120.05	35.54	91