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Relative Effectiveness of Reading Practice or Word-Level Instruction in Supplemental Tutoring:
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Abstract

In this quasi-experimental study, which is part of a series of investigations on supplemental reading tutoring variations, the relative effectiveness of more intense decoding instruction or text reading practice was examined. Fifty-seven first-grade students scoring in the lowest quartile for reading skills received either classroom reading instruction or one of two treatments: tutoring in word study with text reading practice, or word study tutoring alone. Individual instruction was provided by trained paraprofessional tutors. At the end of first grade, treatment students significantly outperformed their nontutored peers on measures of reading accuracy, reading comprehension, reading efficiency, passage reading fluency, and spelling. Differential treatment effects on passage reading fluency are examined, taking into consideration pretest skill levels and text reading practice characteristics.

Word identification is the major obstacle for students with reading problems, and the ability to accurately and quickly identify words is essential for reading success. One critical condition for word identification is *phonological awareness,* or knowing that words are composed of individual sounds or phonemes. A second prerequisite is *alphabetic understanding,* or knowing that individual letters in words correspond to sounds and being able to map print onto speech. Early interventions in phonological and explicit phonics instruction have been shown to help students at risk for reading disabilities (RD) and are widely recommended components of effective classroom reading instruction (Adams, 1990; Armbruster, Lehr, & Osborne, 2001; National Reading Panel, 2000). Systematic phonics instruction is also a feature of many supplemental interventions for at-risk beginning readers (Berninger & Traweek, 1991; Blachman, Tangel, Ball, Black, & McGraw, 1999; Foorman, Francis, Fletcher, Schatschneider, & Mehta, 1998; D. Fuchs et al., 2001; Iversen & Tunmer, 1993; O'Connor, 2000; Torgesen, Alexander, et al., 2001; Torgesen, Wagner, Rashotte, Alexander, & Conway, 1997; Vellutino et al., 1996), including one-to-one tutoring (see Elbaum, Vaughn, Hughes, & Moody, 2000).

Students who struggle with word identification often have difficulty becoming fluent readers. Reading practice becomes increasingly important as children acquire complex phoneme awareness and high-quality word representations (Stahl & Murray, 1998). Most early reading interventions include some type of reading practice, including word list and oral storybook reading (Baker, Gersten, & Keating, 2000; Elbaum et al., 2000; Foorman et al., 1998). In fact, many literacy programs schedule the majority of tutoring time for book reading (Pinnell & Fountas, 1997). Tutors often select from lists of leveled books for practice with their students (Blachman, Schatschneider, Fletcher, & Clonan, 2003; Johnston, Invernizzi, & Juel, 1998). Text reading practice is included in supplementary interventions to foster a love of reading and to develop vocabulary and comprehension (National Reading Panel, 2000). Reading practice reinforces decoding and word-level reading skills in authentic connected text, allowing students to develop the fluency required to construct meaning from texts (National Research Council, 1998).

The focus of this article—the nature and level of phonics instruction and oral reading practice provided in supplementary tutoring interventions—is important for several reasons. First, reading practice is the central activity in most tutoring programs (Elbaum et al., 2000). Second, opportunities for classroom oral reading practice are often limited, especially for the lowest skilled readers (Chard & Kame'enui, 2000; Haynes & Jenkins, 1986). Supplementary tutoring may offer the only significant period of oral reading practice and intensive phonics instruction for many at-risk students. Opportuni-

ties for supplementary tutoring are difficult to create in schools, and therefore tutoring activities must be carefully selected for ease and reliable use by tutors and evidence of treatment effectiveness. This article describes a study that compared two forms of phonics-based tutoring designed to promote transfer of learning by children at risk for RD. Our particular concern was the transfer of skill gained from word-level or text-level reading practice scaffolded by a tutor.

Role of Reading Practice

As students begin to acquire decoding skills, they typically engage in two kinds of reading practice: reading individual words and reading connected text. *Word study* is the repeated reading of word lists, often combined with instruction in phonological and phonics skills. For example, the tutor may introduce letter–sound correspondences and have students practice reading words that feature the new correspondences. The tutor may introduce new sight words, have students practice reading and spelling these new words, and review previously taught sight words. Training in individual words improves the quality of lexical representations, leading to automatic activation (Perfetti, 1992) and improved accuracy and speed in reading connected text.

Research shows that practice in reading single words increases speed and accuracy in reading the trained words, with inconclusive results for transfer to comprehension (Fleisher, Jenkins, & Pany, 1979; Levy, Abello, & Lysynchuk, 1997; Tan & Nicholson, 1997). Text-level training transfer to new materials appears to be mediated by reader skill and text type and difficulty. Faulkner and Levy's (1994, 1999) research identified factors that influence the benefits of reading connected text. Good and average readers showed fluency and accuracy transfer to a new text when the two texts shared content, but not when there was a high word overlap only. Poor readers, however, showed the most transfer in speed and accuracy of processing in a second text when there was high word overlap only, and they appeared to benefit from repeated exposure to individual words. Context and content appear most beneficial for readers who already have fluent and accurate word reading skills and who can focus on content rather than word identification. Repeated reading appears to help poor readers to learn more words, and readers lacking automatic word recognition skills—whether due to reader skill or text difficulty—benefit from rereading word lists. Prior exposure to words outside of a meaningful context produced transfer to reading the same words presented in an intact text for poor readers but not for good readers (Faulkner & Levy, 1999). For nonfluent readers, transfer was observed at the single-word level, and text difficulty interacted with reader skill in reading transfer. Studies by Rashotte and Torgesen (1985) and Dohower (1987) have also shown that poor readers benefit from repeated readings with a high word overlap across passages, with transfer to new texts due to improved identification of individual words. Repeated reading of text is recommended as an effective method to develop accuracy and fluency as well as comprehension (National Reading Panel, 2000).

Although many first-grade phonics-based classroom and tutoring interventions include text reading practice (see reviews by Bus & van IJzendoorn, 1999; Ehri, Nunes, Stahl, & Willows, 2001; Elbaum et al., 2000), oral reading fluency outcomes for first graders are often overlooked (L. S. Fuchs, Fuchs, Hosp, & Jenkins, 2001). Bus and van IJzendoorn (1999) reported that for the subset of nine randomized preschool–primary studies of phonological awareness training that included reading activities, the reading outcome effect (aggregating measures for reading words and sentences) was somewhat lower (d = .88) than for purely phonetic training programs (d = .96). However, text reading fluency was not explicitly examined or disaggregated from the combined reading outcome variable category. In Ehri et al.'s (2001) review of systematic first-grade classroom phonics instruction (most of which included text reading practice), effects for reading text orally (aggregating both accuracy and fluency outcomes) averaged d = .23, whereas the effects for decoding regular words averaged d = .98. Finally, in their meta-analysis of one-to-one tutoring interventions that often featured phonics instruction and text reading (28 of the 42 study samples included first graders only), Elbaum et al. (2000) reported an average effect size of d = .48 for oral passage reading. These findings underscore the challenge of closing the fluency gap for children with RD, which is often widened by growing differences in reading practice (Torgesen, Rashotte, & Alexander, 2001).

Text Type and Difficulty

Two considerations in choosing texts for reading practice are text type and difficulty. In their review of fluency practices, Kuhn and Stahl (2000) concluded that more difficult texts were associated with stronger reading effects. Faulkner and Levy (1994) found that poor readers who read difficult text seemed to focus more on individual words rather than on text content and showed transfer when texts shared words rather than content. One widely used measure of text difficulty, in particular for beginning readers, is *decodability.* Decodable text can be defined as text with "1) a proportion of words with phonically regular relationships between letters and sounds, and 2) a degree of match between the letter/sound relationships represented in text and those the reader has been taught" (Mesmer, 2001, p. 122). Decodable text is implicitly recommended in systematic phonics instruction to encourage students to practice taught decoding strategies (Armbruster et al., 2001), and its use is explicitly required in many recent state reading adoptions (Allington

& Woodside-Jiron, 1998). Decodability includes features such as word regularity, frequency, complexity, and lesson-to-text match, and its definition continues to be a matter of discussion (Hiebert, 2002; Mesmer, 2001).

Although decodable text is often recommended for beginning readers and students with reading problems (Adams, 1990; Anderson, Hiebert, Scott, & Wilkinson, 1985; Hiebert, 1998; Mesmer, 1999), there is limited research to support its use. One of the few studies of decodable text was conducted by Juel and Roper-Schneider (1985). Using a quasi-experimental design, they followed two groups of first graders who received the same scripted, synthetic phonics instruction. One group read from a phonics-oriented basal series emphasizing decodable text, and the other group read from a basal series emphasizing high-frequency words. Text type appeared to influence students' word reading strategies in the first two thirds of the year, at which testing point the decodable group scored significantly higher than the high-frequency group on decoding skills. Although at the end of the year there were no significant differences between the groups on tests of decoding, reading comprehension, or reading vocabulary, the decodable group scored significantly higher on a switch list of words that were not common to both basal programs and was most influenced in word reading ability by word regularity, whereas the high-frequency group appeared most influenced by word repetition. The authors concluded that strategy use during reading was strongly influenced by the type of text used.

In this regard, decodable text has been recommended to reinforce the application of word-level decoding skills. Oral reading practice in decodable text may help students to develop a self-teaching strategy (Jorm & Share, 1983; Share & Jorm, 1987); students' successful decoding encounters in text provide opportunities to form orthographic representations that underlie skilled reading. As Ehri's (Ehri & Sweet, 1991; Ehri & Wilce, 1985, 1987) work has demonstrated, even beginning readers with limited letter-sound knowledge and phonemic awareness possess the self-teaching skills to learn words.

Text considerations like decodability appear to be more important for less skilled students who require more scaffolded literacy experiences. Two studies have suggested that decodable text is most useful for readers who do not yet apply letter–sound relationships to recognize words. In Juel and Roper-Schneider's (1985) study, text type influenced strategy use during the first two units of the year, when it is most important for students to attend to word features. In a brief, 14-day, first-grade phonics intervention comparing the contribution of reading practice for highly decodable and less decodable text, Mesmer (2005) also found that text decodability supported the application of letter–sound relationships for first graders at the partial alphabetic phase of word recognition and enabled students' progress to the full alphabetic phase.

Other reading researchers and practitioners (Brown, 1999/2000; Mesmer, 1999) have documented in teacher case studies that the use of decodable text (a) offers students practice in letter–sound correspondences they have been taught, (b) enables students to respond to these letter patterns automatically, and (c) helps students move into full alphabetic phase reading (Ehri & McCormick, 1998). Decodable text may operate as a temporary support, allowing students to rapidly associate letters with sounds and to generalize knowledge of taught word features to novel words. Text and instruction that are well integrated may be most effective in scaffolding the development of beginning word reading skills (Gaskins et al., 1997; Mesmer, 1999).

Purpose of Study

This study is part of a series of investigations into effective instructional variations in supplementary tutoring provided by paraprofessionals. The studies in this series have used *Sound Partners* (Vadasy et al., 2004) as the core phonics-based program. *Sound Partners* is a one-to-one supplementary phonics-based intervention provided by paraprofessional tutors to first graders in the lowest quartile in reading skills. Instruction includes letter–sound correspondence, decoding and spelling instruction, and reading practice on decodable texts. A complete description of the program has been presented in earlier studies (Jenkins, Peyton, Sanders, & Vadasy, 2004; Jenkins, Vadasy, Firebaugh, & Profilet, 2000; Vadasy, Jenkins, Antil, Wayne, & O'Connor, 1997a, 1997b; Vadasy, Jenkins, & Pool, 2000; Vadasy, Sanders, Peyton, & Jenkins, 2002). Both treatments in the current study included *Sound Partners* phonics instruction. We contrasted these treatment groups with a no-treatment control group that received only regular classroom reading instruction. It should be noted that because the interventions in this study were supplementary, all students are assumed to have practiced reading in texts both in their classroom and at home, as is the case in other studies of supplementary instruction. The treatment comparison addresses the practical question of how to best allocate instructional time in supplementary instruction for at-risk students.

To allow us to detect the contributions of treatment variations to student outcomes, we (a) conducted weekly treatment fidelity observations of tutors and students, (b) calculated interrater reliability for tutoring fidelity ratings, (c) used norm-referenced measures of reading and spelling, and (d) designed treatments to average 40 h per student. To increase the generalizability of findings, we selected school sites that served students from both middle class and low-income backgrounds, and classroom teachers were not aware of student treatment assignments.

Specificity of treatment effects were determined by examining whether students tutored in *Sound Partners* with

oral reading practice in decodable texts (Reading Practice condition) demonstrated differential benefits in fluency and comprehension compared to decoding, word identification, and spelling skills; and conversely, whether students tutored in *Sound Partners* with more intensive word study (Word Study condition) demonstrated greater benefits in decoding, word identification, and spelling compared to fluency and comprehension skills. Although these differential effects seem self-evident, researchers often overlook the contributions of specific intervention components to student reading outcomes (D. Fuchs et al., 2001). The current study addresses two questions:

1. What are the effects of phonics-based supplementary reading interventions?
2. What does oral reading practice add to the effects of word study instruction?

Method

Participants

Students. Participants were recruited from 12 urban, demographically similar schools in a large northwestern school district. Of the schools participating, 6 were assigned as treatment sites, 5 as control sites, and 1 included both treatment and control students.

During the first month of first grade, 22 teachers referred students they judged to be at risk for reading difficulties for screening. Ninety-nine first graders met the screening criteria for study participation, which included (a) students whose parents gave consent for study participation, (b) students who were not repeating first grade, and (c) students who scored at or below a standard score of 90 (25th percentile) on the Reading subtest of the *Wide Range Achievement Test–Revised* (WRAT-R; Jastak & Wilkinson, 1984). Upon confirmation of study eligibility, students at treatment sites were assigned to tutors (and thus to treatments) based on classroom schedules and tutoring availability. Of the students meeting study eligibility criteria, 78 completed all phases of the study. Attrition of 21 students (21%; from 99 to 78) included students moving out of area (6 treatment, 6 control) and students receiving insufficient treatment (8 in one treatment and 9 in the other) due to interruptions in tutoring (e.g., attendance rate less than 2 *SD* of mean attendance), inconsistent tutoring (e.g., switching tutors or treatments midyear), or incorrect tutoring (e.g., students whose tutors earned low fidelity ratings).

Of the 78 students completing all phases of the study, 57 are included in the analyses (original groups included 26, 19, and 33 for Reading Practice, Word Study, and controls, respectively). Matched comparison groups were selected by matching triads of students (1:1:1) as closely as possible to maximize group sizes on a pretest composite score calculated by averaging the *z* scores of all pretest scores. This procedure resulted in equal group sizes of $n = 19$ each. Pretest composite scores for matched groups were $M = -.07$ ($SD = .66$), $M = -.06$ ($SD = .53$), and $M = -.05$ ($SD = .61$) for Reading Practice, Word Study, and Control group students, respectively. One-way analyses of variance (ANOVAs) on the matched groups' pretest composite scores showed that groups were equivalent on pretest measures for both treatment–control and treatment–treatment comparisons, $F(1, 55) = .0005$, $p = .98$, and $F(1, 36) = .0002$, $p = .99$, respectively.

As shown in Table 1, which describes student characteristics, students identified for limited English proficiency or Special Education services were not excluded from participation.

Classroom Instruction. Teachers completed a self-report survey at midyear describing their classroom reading instruction. The use of decodable text is not mandated in the state or district in which the study was conducted, and the district-adopted reading programs were *A Legacy of Literacy* (Houghton Mifflin, 1999) and *Pegasus II* (Kendall Hunt, 1999). The design priority for these texts used in the children's classrooms is primarily literary experience rather than skills support. Classroom characteristics are described in Table 2.

Tutors. Nineteen paraprofessional tutors hired and paid by their respective schools were randomly assigned to treatments by research staff prior to training; however, four tutors' treatment assignments were switched prior to training due to conflicts between the training schedule and the tutors' schedules. After training was completed, nine tutors were assigned to one treatment (Reading Practice) and 10 were assigned to the other (Word Study). Within each treatment, more than half of the tutors (6 each) had at least 1 year of *Sound Partners* tutoring experience and participated in our previous research (Jenkins et al., 2004). Experienced tutors received approximately 2 h of initial training in treatment instruction, and new tutors received approximately 4 h of training. During initial training, research staff presented and modeled each instructional component and then supervised tutors as they practiced the components. Tutor training included explicit correction procedures for each lesson component. For example, if a student encountered a phonetically regular word that the student could not read, the tutor provided scaffolded assistance to sound it out. Specifically, the tutor would ask the student to identify the difficult sound (e.g., "What is the first sound?"); supply a sound, portion, or entire word as necessary; have the student read the word again smoothly; and then have the student reread the entire sentence in which the word appeared. To correct a student who misread a magic *e* word (e.g., reads *ride* as *rid*), the tutor was trained to remind the student of the rule: "Is there an *e* at the end of the word? Then what is the middle vowel sound? Try it again. Now read the en-

TABLE 1
Student Characteristics

Characteristic	RP[a] N	RP[a] %	WS[a] N	WS[a] %	Control[a] N	Control[a] %	Treatment vs. control $\chi^2(1)$	RP vs. WS $\chi^2(1)$
Sex								
Female	8	42.1	7	36.8	9	47.4	0.324	0.110
Male	11	57.9	12	63.2	10	52.6		
Ethnicity								
Caucasian	6	31.6	7	36.8	10	52.6	1.786	0.117
Noncaucasian	13	68.4	12	63.2	9	47.4		
Black	4	21.1	2	10.5	2	10.5		
Hispanic	3	15.8	5	26.3	3	15.8		
Other	6	31.6	5	26.3	4	21.1		
Special instruction								
English language learner	7	36.8	10	52.6	7	36.8	0.324	0.958
Special education	1	5.3	2	10.5	2	10.5	0.110	0.000

Note. *RP* = Reading Practice treatment group; *WS* = Word Study treatment group. Yate's correction for continuity used for any expected cell frequency less than 5. All *p*s > .05.
[a]*n* = 19.

TABLE 2
Classroom Reading Instruction Characteristics

Characteristics	RP teachers[a] *M*	RP teachers[a] *SD*	WS teachers[a] *M*	WS teachers[a] *SD*	Control teachers[a] *M*	Control teachers[a] *SD*	Treatment vs. control *F*(1, 23)	RP vs. WS *F*(1, 16)
Minutes allocated for reading instruction	73.3	35.00	66.7	23.85	82.1	22.70	0.969	0.223
Direct/explicit teacher instruction[c]	25.6	17.93	15.6	6.82	29.3	15.39	1.835	2.445
Word recognition instruction	15.6	3.91	18.6	15.96	19.3	6.07	0.232	0.311
Reading comprehension instruction	20.6	8.82	24.7	22.10	34.3	23.70	1.971	0.276
Partner reading	13.3	9.01	17.2	15.43	22.1	8.09	1.811	0.426
Independent reading/assignments	24.7	13.25	21.1	10.24	25.7	13.05	0.273	0.418
	N	%	*N*	%	*N*	%	$\chi^2(1)$	$\chi^2(1)$
Word recognition instructional content								
Phonics in isolation	9	100	9	100	6	86	0.250	0.000
Phonics in all instruction	9	100	8	89	6	86	0.010	0.000
Sight words	9	100	9	100	7	100	0.000	0.000
Word families	9	100	9	100	6	86	0.250	0.000
Overall approach to reading instruction								
More emphasis on literature than skills	2	22	2	22	1	14	0.012	0.000
Equal emphasis on literature and skills	5	5	6	67	6	86	0.499	0.000
More emphasis on skills than literature	2	22	1	11	0	0	0.217	0.000

Note. RP teachers = teachers whose students were in the Reading Practice treatment group; WS teachers = teachers whose students were in the Word Study treatment group. Surveys missing for two teachers: 1 with RP students and 1 with Control students. For minutes data, *F*-test *p* values were not adjusted for number of tests conducted. For frequency data, Yate's correction for continuity used for any expected cell frequency less than 5. For minutes of Direct/Explicit Teacher Instruction, Levene's test indicated heterogeneous variances; actual means, standard deviaitons, and *F*-test results report, as *F* test on square-root transformed data was not significant, *p* > .05.
All *p*s > .05.
[a]*n* = 9. [b]*n* = 7.

tire sentence." For phonetically irregular words, the tutor was trained to supply the word, have the student repeat the word, and then have the student reread the entire sentence. After training, tutors were provided with weekly on-site coaching and modeling throughout the year, during which time research staff also gathered observation data on treatment fidelity.

Treatment Interventions

Both treatments included supplementary individual tutoring using components from *Sound Partners* phonics-based early reading instruction (Vadasy et al., 2004). Tutoring sessions were scheduled for 30-min sessions during the school day, 4 days per week, from October through May. Tutoring sessions typically occurred during the classroom reading block, and tutors often tutored concurrently in the library or resource room. The two treatments differed in the use of tutoring time (see Table 3). Reading Practice treatment sessions included *Sound Partners* phonics-based instruction for 15 to 20 min of each session, followed by oral text reading practice in decodable texts for the remaining 10 to 15 min. The time allocated for text reading practice increased from 10 min to 15 min in the second half of the year. Word Study treatment sessions consisted of 30 min of *Sound Partners* phonics-based instruction in the alphabetic principle and word-level reading skills and did not include oral text reading practice during the tutoring time. The activities in both treatments were short and varied to maintain tutor and student engagement. The treatments are described in the following sections and are summarized in Table 3.

Word Study. Letter–sound correspondence was taught explicitly for about 7 min in each lesson. The tutor introduced and modeled a new letter sound in almost every lesson. Correspondences included single consonants and vowels and some two-letter vowel teams and consonant digraphs. The student practiced saying the sounds associated with the letters or letter pairs recently introduced and then also practiced writing the letters that matched the sounds. Word study group students also practiced the alphabetic principle with a picture cue card activity to review common phoneme–spelling correspondences. The one- and two-letter spelling units were organized on the cards into 10 orders of difficulty (one-letter consonants, two-letter consonant blends, two-letter other consonants, closed vowels, open vowels, vowel teams, r-controlled vowels, l-controlled vowels, magic *e* vowels, and schwa vowels). After being introduced to the sounds by the tutor, the student pointed to each spelling unit and said the letter name, picture word cue, and letter sound (e.g., "*g*, gate, /g/"). Then the student practiced the same set of correspondences going from letter sounds to letter names (e.g., "gate, /g/, *g*"). This systematic training in phoneme–spelling correspondences was used by Berninger (1998). Word Study group students and tutors also used the letter–sound cards as a strategic cue during reading and spelling when needed.

For about 1 min, students practiced phoneme segmentation. The tutor said a word out loud and the student (a) repeated the word, (b) pointed to a 2–4-part graphic box (Elkonin, 1973) and segmented the word into 2 to 4 phonemes, and then (c) swept his or her finger under the boxes while saying the whole word. Students began with onset-rime segmenting and progressed to four-phoneme words with initial or final consonant blends.

Students practiced decoding activities for about 10 min of each lesson. In one activity, the student pointed to each word in a list of decodable words on a lesson page, sounded out the word without stopping between sounds, then said the word fast. Only letter sounds that had been previously introduced were used in these phonetically regular words. The tutor then selected three to six words on which the student needed extra practice and dictated those words for the student to write and spell on paper. In the second half of the program, the Word Study group students had 2 min of extra practice reading and spelling six decodable words or six nonwords to reinforce letter pairs (digraphs, vowel teams) that had been recently introduced. Over the course of the lessons, the tutor introduced reading words with the endings *s*, *ed*, *ing*, and *y*. Endings were first introduced as an oral task (e.g., tutor pointed to the ending, modeled saying a word with the ending, and asked the student to say a word with that ending). The student then read a mixed list

TABLE 3
Time Allocated for Treatment Components

Components	RP minutes	WS minutes
Word study		
Letter sounds, decoding, segmenting, spelling and sight words	15–20	15–20
Added word study		
Letter sounds, decoding with silent-e, two letter consonant and vowel pairs, and repeated word list reading	—	10–15
Oral reading in decodable tests	10–15	—

Note. RP minutes = approximate number of minutes spent during a single tutoring session in Reading Practice treatment; WS minutes = approximate number of minutes spent during a single tutoring session in Word Study treatment.

of words with and without endings. Likewise, tutors introduced students to the "magic *e*" rule: "If a word has an *e* at the end, the middle vowel says its name, and the *e* is silent." The student then practiced identifying words with and without a silent *e*, identifying the middle vowel and its sound, and reading mixed lists of silent *e* and non–silent *e* words.

For about 3 min, students practiced reading irregular words to provide them with a secondary word recognition strategy. The tutor introduced and modeled reading a new sight word, and then the student reviewed a group of sight words by saying each word, spelling it, and reading it again. Sight words were drawn from a high-frequency word list (Fry, 1997) as well as from the storybooks assigned to the respective lessons for the Reading Practice group. Students also pointed to and read one or two sentences that were constructed solely to add practice reading previously taught sight words.

For the last 5 to 7 min of each lesson, word study group students practiced reading 10-item word lists to further develop automatic word recognition. The 29 word lists were developed for three-lesson intervals, beginning on Lesson 15. Each list contained five words randomly selected from storybooks read by the Reading Practice group students and five words randomly selected from the first 300 most frequent words on the Fry instant word list (Fry, 1997). Students read and spelled orally each word at least three times.

Reading Practice. For students in this group, the first 15 to 20 min of each session were almost the same as the Word Study group's instruction. This group did not, however, have added practice with the letter–picture sound cards (about 5 min), nor did they have added practice later in the lessons on words featuring two-letter spelling units (about 3 min) or practice reading word lists for automatic word recognition (5–7 min). This allowed students about 15 min for oral reading practice in storybooks selected to match the sequence of sounds and sight words introduced in the lessons (approximately 1 book every two lessons, for a total of 46 books). Storybooks were drawn from three sets of *Bob Books* (Maslen, 1999) and contained a total of 1,201 unique words, 76.6% of which were considered decodable based on phonics elements covered in the lessons by the time the word was first introduced in the storybooks (see Table 4). During storybook reading, the student (a) read the new book assigned for each lesson two times, (b) reread the book assigned to the most recent previously completed lesson, and then, if time allowed, (c) reread other previously read books from earlier lessons. Tutors were instructed to choose the book reading method most appropriate for the student: *independent reading*, with the student reading most or all of the words with occasional tutor assistance; *partner reading*, with the student and tutor reading together; or *echo reading*, with the tutor reading one line of text and the student reading the same line after the tutor. Students read for 10 min per session in Lessons 1 to 49 and for 15 min per session in Lessons 50 to 100.

Table 4 describes characteristics of word lists and texts used in the Reading Practice and Word Study groups and shows word exposure differences between treatments. Word exposure is described for all 100 lessons in each treatment as well as for the average number of lessons completed (86), a more accurate measure of actual word exposure during treatment. The comparison in Table 4 describes only word exposure that differed between treatments, as both groups had equivalent exposure to the *Sound Partners* activities during 15 to 20 min of the tutoring session (i.e., the shared letter–sound correspondence, segmenting, and decoding activities). Based on average lesson coverage (Lessons 1–86), the Reading Practice treatment provided exposure to almost seven times as many total words (4,901 vs. 720) and almost four times as many unique (words counted on their first appearance only) words (813 vs. 222) as the Word Study condition. The Reading Practice group encountered unique words an average of 6.03 times, compared to 3.24 times for the Word Study group. A total of 235 words overall overlapped between treatments; this represented 19.6% of the unique words that the Reading Practice group students encountered, and 87.4% of the unique words that the Word Sudy group students encountered.

Treatment Integrity

Treatment integrity was assessed through (a) student completion of lessons and (b) tutor fidelity to instructional components. Student attendance records were collected monthly and included the number of tutoring sessions that the student attended as well as the specific lessons covered during each tutoring session. On-site tutor observations were conducted weekly by two researchers using a 41-criterion checklist of critical tutor and student behaviors required for full implementation (including error correction procedures) of the 11 lesson components. For example, one criterion for the phoneme segmenting activity was, "Tutor has student point to each box when segmenting." Activities were rated on a dichotomous scale, and the highest percentage possible was 100%. Tutors were also rated on a 16-item checklist on their use of tutoring time (e.g., "Tutor has materials organized.") and instructional delivery (e.g., "Corrects all errors immediately."). For all criteria, researchers scored only items they could observe during the on-site visit. For example, if an observer arrived during the middle of a tutoring session, the observer did not rate components implemented at the beginning of the session. Furthermore, if a student did not require scaffolding or error correction during a particular observation, the observer did not score those criteria.

TABLE 4
Word Characteristics of Texts and Word Lists for Treatment Groups

Characteristic	RP texts			WS texts		
	M	*N*	%	*M*	*N*	%
Lessons 1–86						
Average word frequency	6.0			3.2		
Sum of all words		4,901			720	
Unique words		813			222	
300 most frequent words (Fry, 1997)		189	23.2		128	57.7
Decodable words		623	76.6		144	17.7
Nondecodable words		190	23.4		78	9.6
Holistically taught		76	9.3		4	0.5
Singletons		490	60.3		0	0.0
Decodable		360	44.3		0	0.0
Nondecodable		130	16.0		0	0.0
Lessons 1–100						
Average word frequency	6.8			3.2		
Sum of all words		8149			870	
Unique words		1201			269	
300 most frequent words (Fry, 1997)		226	18.8		155	57.6
Decodable words		903	75.2		171	63.6
Nondecodable words		209	24.8		98	36.4
Holistically taught		96	8.0		6	2.2
Singletons		732	60.9		0	0.0
Decodable		535	44.5		0	0.0
Nondecodable		197	16.4		0	0.0

Note. RP texts = texts assigned to lessons for Reading Practice treatment group; WS texts = texts assigned to lessons for Word Study treatment group. Grand mean lesson completion: $M = 86$ ($SD = 12.8$); RP lesson completion: $M = 85$ ($SD = 14.2$); WS lesson completion: $M = 87$ ($SD = 11.4$); RP Lessons 85 and 86 were assigned the same text. Singletons = number of unique words that occur only once in a set of texts described (frequency of word = 1). Percentages use total number of unique words in the denominator.

Measures

Pretest. Receptive vocabulary was measured with the *Peabody Picture Vocabulary Test–IIIA* (PPVT-IIIA; Dunn, Dunn, & Dunn, 1997), which required students to select a picture that best illustrated the meaning of an orally presented label. Testing was discontinued after the student missed 8 out of 12 items in a set. Test–retest reliability is .93 for 6- to 10-year-olds.

Letter knowledge was assessed using two measures, both of which displayed the uppercase letters of the alphabet twice in random order (total of 52 letters displayed). For Letter Naming, students were asked to name as many letters as they could in 1 min. For Letter Sounds, students were asked to say the sounds for as many letters as they could in 1 min (only hard consonant and short vowel sounds were accepted as correct). Reliability on a similar rapid letter naming measure is reported at .93, with predictive validity at .73 to .98 (Kaminski & Good, 1996).

Two phonological measures were used. The *Comprehensive Test of Phonological Processing* (CTOPP; Wagner, Torgesen, & Rashotte, 1999) Nonword Repetition subtest assessed the student's ability to repeat nonwords. Test–retest reliability for 5- to 7-year-olds is .68. Testing was continued until 3 consecutive items were missed or until all items were administered. The *Modifed Rosner Syllable Deletion*, a modification of Rosner and Simon's (1971) *Test of Auditory Analysis* (Berninger, Thalberg, DeBruyn, & Smith, 1987), consists of 10 items requiring the deletion of one syllable from a multisyllabic word, with half of the items requiring deletion of the initial syllable and half requiring deletion of the final syllable. The score is the number correct. The test–retest stability coefficient reported by Berninger et al. (1987) is .81.

Reading accuracy skill was assessed using three measures. The *Wide Range Achievement Test–Revised* (WRAT-R; Jastak & Wilkinson, 1984) Reading subtest measured letter knowledge (naming 13 uppercase letters and identifying the first 2 letters in the student's name) and word reading skills. Testing was discontinued after 10 consecutive missed items. Internal consistency reliability is .95 for 7-year-olds. The *Woodcock Reading Mastery Test–Revised/Normative Update* (WRMT-R/NU; Woodcock, 1987/1998) Form H

Word Attack subtest required the reading of pseudowords that increased in difficulty until six consecutive items were missed or until all items were administered. Split-half reliability is .94 for first graders. The WRMT-R/NU Form H Word Identification subtest required the reading of increasingly difficult words. Testing was discontinued after six consecutive missed items. Split-half reliability for first graders is .98.

Spelling was assessed with the WRAT-R Spelling subtest, which required students to copy marks, write their names, and spell dictated words. Testing was discontinued after 10 consecutive items were missed. Typically, the standard score is calculated from a raw score total that includes copied marks and name spelling as well as words correctly spelled. Internal consistency reliability for 7-year-olds is .92. Similar to Juel (1988), we calculated a raw score based solely on the number of words correctly spelled (out of a possible total of 46), which assumes 20 points for copying marks and name spelling.

Posttest. Posttests included all pretest reading accuracy and spelling measures, with four additional measures. Two reading efficiency measures were given: the Phonemic Decoding and Sight Word subtests of the *Test of Word Reading Efficiency* (TOWRE; Torgesen, Wagner, & Rashotte, 1999). The Phonemic Decoding subtest required reading as many nonwords as possible in 45 seconds from a list that increased from 2-phoneme nonwords to 10-phoneme nonwords. Test–retest reliability for 6- to 9-year-olds is .90. The Sight Word subtest required reading as many words as possible in 45 seconds from a list that gradually increased in difficulty. Test–retest reliability for 6- to 9-year-olds is .96. Reading comprehension was assessed by the WRMT-R/NU Passage Comprehension subtest. Students were asked to restore a word that was missing from a series of sentences and short passages. Testing was discontinued after six incorrect responses. Split-half reliability is .94 for first graders. To assess students' context reading skills, students orally read from three grade-level passages. For each passage, the number of words read correctly and the percentage of words read correctly were recorded. The three scores were averaged to form an overall passage reading fluency rate and accuracy score.

Two of the passages were drawn from two *Primary Phonics* storybooks, *Mac Gets Well* and *The Goat* (Makar, 1995). Based on the instruction common to both treatments in the first 50 *Sound Partners* lessons, these passages were judged to be both highly decodable (in relation to the phonic elements taught) and highly readable (in relation to the sight words taught), with 75.8% of the passage considered decodable and 91.6% readable. The third passage, *With My Brother* (Houghton Mifflin, 1999), was considered to be at the end of first-grade reading level (D. Marsten, personal communication, March 8, 2000) and featured many high-frequency words; it was judged not to be predictable and to be less decodable and readable than the first two passages (45.3% decodable and 54.7% readable). Word repetition was differentially higher for the more decodable passages: *Mac Gets Well* contained 52 unique words out of a total of 168 words (69.0% word repetition); *The Goat* contained 43 unique words out of a total of 179 words (76.0% word repetition); and *With My Brother* contained 64 unique words out of a total of 110 words (41.8% word repetition).

For the combined passages, we computed the overlap between passage words and unique words for each treatment (texts and word lists for Reading Practice and Word Study groups, respectively). There was a 7.7% overlap (of 93 words) between words read during Reading Practice tutoring (1,201 words) and words contained in posttest passages, and a 16.4% overlap (of 44 words) between words read during Word Study tutoring (269 words) and posttest passage words. Interestingly, 42 of the words overlapping between treatment and posttest passages were shared by both treatments. That is, 3.5% (42 of 1,201) of overlapping words in Reading Practice group texts were also words practiced in Word Study word lists, and 15.6% (42 of 269) of overlapping words in the Word Study word lists were words practiced in Reading Practice group texts.

Attention. Research staff also collected data on student attention. Researchers observed treatment students throughout the year and rated students' overall attention at midyear using a 5-point scale (1 = *very poor,* 5 = *very good*) based on students' ability to focus on instruction, stay on task, and transition across different activities (Stage, Abbott, Jenkins, & Berninger, 2003).

All tests were individually administered by testers trained and supervised by research staff. Testers were trained to administer each of the assessments according to the instructions in the user's manual; training included explanation, modeling, and supervised independent practice for each measure.

Results

All analyses, unless noted otherwise, use standard scores and were completed using SPSS for Windows 10.0.1 (SPSS, 1999) and Microsoft Excel XP (Microsoft, 2001) software. All posttest effect sizes (Cohen's *d*) were calculated by dividing the difference between the regressed adjusted means (adjusted for pretest covariate) by the square root of the mean square error.

Demographic Analyses

Students. Results from chi-square analyses (two-tailed) on student characteristics (see Table 1) revealed no significant differences between groups. An analysis of variance (ANOVA) for treatment students' attention ratings collected during tutoring sessions at

midyear (1 = *very poor*, 5 = *very good*) revealed that students had similar attention ratings—Reading Practice group students averaging $M = 3.5$ ($SD = 1.29$) and Word Study students averaging $M = 3.2$ ($SD = 1.36$)—and did not significantly differ from each other, $F(1, 35) = 0.440$, $p = .51$. One Reading Practice group student's rating was missing from analysis. Mean interrater reliability for attention ratings for six sampled students (from both treatments) was $M = .93$ ($SD = .12$).

Teachers. Of the 22 classroom teachers (14 with treatment students, 7 with control students, and 1 with both treatment and control students) asked to complete a self-report survey, all but 2 were returned (data were missing for 1 teacher with treatment students and 1 teacher with control students). For teachers who completed the surveys, there were no significant or systematic differences in classroom reading instruction reported (see Table 2). The total number of minutes spent on reading instruction was similar for all teachers, $M = 73.3$ ($SD = 35.00$), $M = 66.7$ ($SD = 23.85$), and $M = 82.1$ ($SD = 22.70$) for Reading Practice, Word Study, and control group students, respectively. Likewise, there were no differences between teachers in the minutes per day spent on varying aspects of reading instruction (e.g., word recognition and reading comprehension) or on teachers' instructional approaches.

Treatment Integrity

Students. There were no significant differences between the two treatments in the number of tutoring lessons or tutoring sessions completed. Reading Practice group students completed a mean of 84.8 ($SD = 14.19$) *Sound Partners* lessons and attended an average of 88.4 ($SD = 9.65$) tutoring sessions (or 44.2 h of tutoring); similarly, Word Study group students completed a mean of 87.2 ($SD = 11.44$) phonics lessons and attended an average of 87.8 ($SD = 11.46$) tutoring sessions (or 44.0 h of tutoring). Based on these attendance means and the average time spent on differential reading practice, Reading Practice group students spent approximately 18.4 h reading decodable texts, and Word Study group students spent approximately 18.2 h on added decoding practice.

Tutors. Research staff conducted a total of 437 tutor observations over the course of the year, with a mean of 20 observations per tutor and a mean of 6 observations per student. For each treatment, we computed the mean percentage of criteria that the tutors met for lesson components, use of time and instructional delivery, and overall tutoring. In a series of one-way ANOVAs, we found no differences between treatments for any criteria, with overall mean fidelity percentages of $M = 95.3\%$ ($SD = 5.18\%$) and $M = 95.1\%$ ($SD = 7.23\%$) for Reading Practice and Word Study treatments, respectively, $F(1, 19) = 0.006$, $p = .94$. Interrater reliability was assessed by examining the results of paired tutor–student observations conducted within a 20-day time frame. Using observers' reported percentages of overall treatment fidelity for a given tutor–student pair (both Reading Practice and Word Study treatments), we divided the smaller percentage by the larger percentage. For example, Observer A may have rated a particular tutor–student pair at 90% fidelity, and Observer B may have rated the same tutor–student pair at 99% fidelity 4 days later. To capture interrater reliability for this example, we divided 90% (the lower rating) by 99%, giving a reliability score of .91 for the observation. Mean overall interrater reliability for 16 sampled tutor–student pairs was .98 ($SD = .06$), with an average of 6.0 days ($SD = 5.09$) between observations.

Pretest

Prior to analyzing groups at pretest, we calculated intercorrelations (Pearson's r) among the pretest measures, including receptive language, letter knowledge, phonological processing, reading accuracy, and spelling. Correlations ranged from $r = -.11$ ($p > .05$) between PPVT-IIIA and WRAT-R Spelling to $r = .79$ ($p \leq .001$) between WRAT-R Reading and WRAT-R Spelling. Receptive language was significantly correlated with phonological processing measures; letter knowledge measures were significantly correlated with the word identification measure; and reading accuracy measures were significantly correlated with one another.

We used multivariate analysis of variance (MANOVA) to analyze outcomes for multiple measures of similar constructs (letter knowledge, phonological processing, and reading accuracy) and one-way ANOVAs for individual measures. No significant pretreatment differences were found (see Table 5).

Posttest

Prior to analyzing treatments at posttest, we calculated intercorrelations among posttest measures. All measures were positively correlated (all ps $\leq .001$), ranging from $r = .41$ between WRAT-R Spelling and passage reading fluency rate to $r = .89$ between WRAT-R Reading and WRMT-R Word Identification. To control the Type I error rate, multivariate analyses of covariance (MANCOVAs) were conducted to analyze measures of similar constructs, including reading accuracy, reading efficiency, and passage reading fluency skills, with the standard score of the WRAT-R Reading pretest used as the covariate for the standardized reading accuracy and efficiency, and the raw score of the WRAT-R Reading pretest used for the raw score passage reading fluency measures. The WRAT-R Reading raw score but not the standard pretest score correlated with fluency measures at posttest. Combining conceptually similar measures into skill sets allowed us to address our original questions whether more intensive word study differentially influences reading accuracy and spelling outcomes and whether oral reading practice differen-

TABLE 5
Pretest Means and Standard Deviations

Measure	RP[a]		WS[a]		Control[a]		Treatment vs. control		RP vs. WS	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*dF*	*F*	*dF*
Age (years)	6.6	0.32	6.6	0.33	6.6	0.24	0.073	1, 55	0.086	1, 36
Receptive language										
PPVT-IIIA	93.8	18.22	88.1	16.25	90.8	24.78	0.000	1, 55	1.030	1, 36
Letter knowledge							0.196	2, 54	1.952	2, 35
Rapid Letter Naming	30.4	14.29	37.6	8.23	36.4	18.16	0.353	1, 55	3.632	1, 36
Rapid Letter Sounds	10.8	9.63	16.7	13.85	14.5	12.98	0.041	1, 55	2.279	1, 36
Phonological processing							0.031	2, 54	0.353	2, 35
CTOPP Nonword Repetition	8.6	3.25	8.2	1.90	8.3	1.73	0.039	1, 55	0.181	1, 36
Modified Rosner Syllable Deletion	6.3	2.91	5.5	2.82	5.7	3.09	0.050	1, 55	0.723	1, 36
Reading accuracy							1.181	3, 53	0.273	3, 34
WRAT-R Reading	79.5	8.02	81.0	6.52	80.0	5.75	0.019	1, 55	0.386	1, 36
WRMT-R Word Attack	90.1	8.35	90.1	11.06	85.9	7.08	2.764	1, 55	0.000	1, 36
WRMT-R Word Identification	86.5	9.16	86.1	6.42	85.0	7.36	0.359	1, 55	0.034	1, 36
Spelling										
WRAT-R Spelling	86.0	8.60	84.4	6.91	88.0	6.78	1.757	1, 55	0.415	1, 36

Note. RP = Reading Practice treatment group; WS = Word Study treatment group. Standard scores used for all measures except Age, Rapid Letter Naming, Rapid Letter Sounds, and *Modified Rosner Syllable Deletion* (raw scores). ANOVAs used for Age, Receptive Language, and Spelling MANOVAs used for Letter Knowledge, Phonological Processing, and Reading Accuracy. PPVT-IIIA = *Peabody Picture-Vocabulary Test–Version IIIA* (Dunn, Dunn, & Dunn, 1997); CTOPP = *Comprehensive Test of Phonological Processing* (Wagner, Torgesen, & Rashotte, 1999); WRAT-R = *Wide Range Achievement Test–Revised* (Jastak & Wilkinson, 1984); WRMT-R = Woodcock Reading Mastery Test–Revised (Woodcock, 1987/1998). Copying-marks and name-writing portions of the WRAT-R Spelling test asssumed correct. *F*-test *p* values were not adjusted for number of tests conducted. For Rapid Letter Naming and WRMT-R Word Attack, Levene's tests indicated heterogeneous variances between groups; actual means, standard deviations, and *F*-test results reported, nonparametric Mann-Whitney *U* tests were not significant, $p > .05$.
All *p*s > .05.
[a]$n = 19$.

tially influences fluency and comprehension outcomes. Analysis of covariance (ANCOVA) was conducted to analyze reading comprehension and spelling posttests, with the WRAT-R Reading pretest standard score used as the covariate. The WRAT-R Reading pretest score was selected as the covariate because it was used as a primary study participation screening criterion and it was significantly correlated with all posttest measures.

Posttest analyses (see Table 6) revealed significant main effects for treatment students compared with controls on all posttest skill sets except reading efficiency. Analysis of individual test measures, however, revealed significant treatment effects for all measures except passage reading fluency rate. Effect sizes ranged from .43 to 1.33 and averaged .91 across all measures. Comparisons of the two treatment groups revealed no significant main effects for treatment group (Reading Practice vs. Word Study), with the notable exceptions of passage reading fluency rate ($d = .73$) and accuracy ($d = .50$).

When the raw scores of standardized measures were analyzed using identical analysis methods, treatment–control effects were only slightly larger than those reported in Table 6; raw score treatment effects averaged across all measures were $d = .95$ (treatment > control) and $d = .35$ (Reading Practice > Word Study). Analysis of raw scores revealed significant main effects for treatment students on all skill sets, including reading efficiency. However, raw score analysis of the treatment groups revealed the same patterns found in the standard score analyses; there were no significant differences between the two groups on any measures except passage reading fluency rate and accuracy.

Discussion

Tutored students in both treatments scored significantly higher at posttest on reading accuracy, reading comprehension, passage reading fluency, and spelling measures than nontutored controls. Effect sizes for word reading accuracy were larger (averaging $d = 1.23$) than effect sizes for timed word reading efficiency ($d = .62$) or passage reading fluency ($d = .77$) measures (Torgesen, 1998). These findings add to the body of research on the benefits of explicit word-level instruction for students at risk for RD, including supplemental one-to-one instruction provided by nonteacher tutors.

TABLE 6
Posttest Means and Standard Deviations

Measure	RP[a]			WS[a]			Control[a]			Treatment vs. control			RP vs. WS		
	M	*SD*	Adj *M*	*M*	*SD*	Adj *M*	*M*	*SD*	Adj *M*	*F*	*dF*	*d*	*F*	*dF*	*d*
Reading Accuracy										7.607***	3, 52		0.179	3, 33	
WRAT-R Reading	99.1	14.34	99.7	100.0	11.19	99.3	86.1	13.13	86.3	18.508***	1, 54	1.21	0.014	1, 35	.04
WRMT-R Word Attack	109.1	12.29	109.6	111.3	8.62	110.9	96.4	12.92	96.6	22.329***	1, 54	1.33	0.166	1, 35	–.13
WRMT-R Word Identification	103.7	11.22	104.3	104.8	8.49	104.3	93.7	12.16	93.9	16.426***	1, 54	1.14	0.000	1, 35	.00
Reading Comprehension															
WRMT-R Passage Comprehension	100.0	8.92	100.3	97.7	7.02	97.4	92.0	10.30	92.1	8.356**	1, 54	.81	1.396	1, 35	.39
Reading Efficiency										2.656	2, 53		0.372	2, 34	
TOWRE Phonemic Decoding	93.2	9.51	93.4	94.1	9.25	93.8	88.3	9.43	88.4	4.494*	1, 54	.60	0.014	1, 35	–.04
TOWRE Sight Word	92.1	10.16	92.3	91.3	9.00	91.0	85.7	10.48	85.8	5.166*	1, 54	.64	0.188	1, 35	.14
Passage Reading Fluency										8.441***	2, 53		2.676	2, 34	
Rate (words correct per minute)	35.2	21.73	36.8	26.6	10.83	25.0	23.8	22.73	23.4	2.323	1, 54	.43	4.822*	1, 35	.7
Accuracy (percentage correctly read)	0.81	0.136	0.82	0.75	0.124	0.73	0.62	0.251	0.61	15.238***	1, 54	1.10	4.415*	1, 35	.50
Spelling															
WRAT-R Spelling	94.8	13.07	95.3	92.2	10.05	91.6	84.2	8.00	84.3	11.915***	1, 54	.97	1.171	1, 35	.35

Note. Standard scores used for all measures except Passage Reading Fluency (raw scores). Effect sizes (Cohen's *d*) are based on the differences between adjusted means divided by the square root of the mean square error. MANCOVAs for Reading Accuracy and Reading Efficiency use WRAT-R Reading pretest scores as covariate; MANCOVA for Passage Reading Fluency uses WRAT-R Reading pretest raw scores as covariate. ANCOVAs for Spelling and Reading Comprehension use WRAT-R Reading pretest standard score as covariate. RP = Reading Practice treatment group; WS = Word Study treatment group; WRAT-R = *Wide Range Achievement Test–Revised* (Jastak & Wilkinson, 1984); WRMT-R = *Woodcock Reading Mastery Test–Revised* (Woodcock, 1987/1998); TOWRE = *Test of Word Reading Efficiency* (Torgesen, Wagner, & Rashotte, 1999).

[a]$n = 19$.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

On most posttreatment measures, the treatment groups performed comparably. The exception was the significantly higher passage reading fluency rate for Reading Practice group students, and a similar advantage in passage reading accuracy, compared to students who did not practice oral reading with their tutors. Word Study group students, who received more intensive phonics and word analysis instruction, did not show advantages in reading or spelling accuracy.

Limitations

These findings must be considered in light of potential limitations in study design. First, conclusions are restricted to treatments that are supplementary to students' basic classroom reading instruction. We did not observe the implementation of classroom reading instruction. Nevertheless, we have no evidence that there were systematic differences between treatments stemming from teachers' reported reading approaches or time spent on reading instruction. Second, although we did not control for students' outside reading practice, we have no evidence for systematic differences between treatments. Third, tutors did not record precisely the number of times that students reread books in the Reading Practice treatment, nor the number of times that students reread individual sight words in the Word Study treatment, limiting our ability to link reading fluency outcomes to precise rereading procedures. Fourth, differences between treatments in the intensity of word study may not have been great enough to influence word reading outcomes. Fifth, this study used only decodable texts in the Reading Practice treatment; therefore, we cannot conclude from these findings if outcomes might have differed if nondecodable texts had been used. However, we can infer that outcomes would likely be similar, as this question was examined at length by Jenkins et al. (2004). In that study, there were no significant or practical differences on any measure (including the same passage reading fluency measures that were used in this study) between one group of students who practiced reading highly decodable texts and another group who practiced reading less decodable texts (both groups received the same phonics-based tutoring). Sixth, the students selected to participate in this study scored in the lowest quartile in reading skills, which allows for limited generalizability to students at highest risk for reading problems. Seventh, the nature of passage reading fluency measures used in the study may have influenced the students' fluency rate performance (L. S. Fuchs et al., 2001). Passage reading difficulty may substantially influence reading fluency for students with RD. Torgesen, Rashotte, and Alexander (2001) reported that when passages permitted reading at an independent level (two or fewer errors per passage on GORT-3; Wiederholt & Bryant, 1992), students demonstrated nearly average fluency; Torgesen et al. found that the size of students' sight word vocabulary was most strongly related to text reading rate. In the present study, the overlap between the unique words that students practiced in each treatment (texts for Reading Practice and word lists for Word Study) and the words read in the posttest passages was similar, averaging 11% for Reading Practice and 19% for Word Study. An average of three exposures to words in each treatment may not have allowed students to add the words to their sight word vocabulary. Finally, this study is quasi-experimental in that treatment and control groups were matched after treatment on pretest levels. However, no systematic pretest differences in student characteristics were found between groups.

Implications for Intervention

The benefits of oral reading practice provided in interventions with repeated readings (averaging three rereadings; Kuhn & Stahl, 2000) are well established (National Reading Panel, 2000). Findings in this study suggest that in the context of supplementary tutoring, oral reading practice in grade-level texts (a) significantly improves grade-level passage reading fluency rate and (b) yields equivalent reading and spelling accuracy outcomes compared to equivalent time spent on word reading and phonic analysis.

Reading Practice. The speed of processes used to identify novel words may be a factor underlying individual differences in reading fluency (Torgesen et al., 2001), and, as noted previously (Levy et al., 1997; Tan & Nicholson, 1997), practice in reading single words and practice in reading words in context have both been found to increase reading rate for new passages containing the practiced words. In this study, 10 to 15 min of reading practice on grade-level, decodable texts during supplementary tutoring produced higher posttest passage reading fluency rates in grade-level text than 10 to 15 min of intensive word study, despite the somewhat higher overlap between the words practiced by Word Study group students and the words in the fluency posttest passages (19% in Word Study vs. 11% in Reading Practice). The fluency rate advantage for Reading Practice may have resulted from opportunities to apply decoding skills in text applications rather than at the word level. More intense word-level tutoring did not confer an advantage in word reading accuracy or spelling. The mean composite passage reading fluency rate for Reading Practice group students at end of first-grade posttest was 35 words correct per minute (wcpm), compared to 27 wcpm for Word Study students and 24 wcpm for nontutored students. The benchmark goal for end-of-first-grade fluency established by the University of Oregon's *Dynamic Indicators of Basic Early Literacy Skills* (DIBELS; Good & Kaminski, 2001) is 40 or more wcpm for all first-grade students, including those in the lowest 10% for reading skills, and is associated with an adequate slope of progress (Good, Simmons, & Kame'enui, 2001; Good, Simmons, & Smith, 1998). According to the DIBELS benchmarks, the fluency rates for all three groups in this study were dismal.

However, in the Reading Practice group, 7 students (37%) met the 40 wcpm criterion, compared to 1 (5%) for Word Study, and 4 (21%) for controls.

The individualized scaffolding and support that tutors provided during reading practice may also have contributed to Reading Practice group students' higher fluency rate and accuracy. Student attention significantly predicted timed reading outcomes for the tutored students, and attention may play a role in consolidating skills as students develop fluency in connected text (Berninger, Abbott, Billingsley, & Nagy, 2001). The ability to attend to word features during oral reading may influence students' ability to form orthographic representations that underlie sight word knowledge (Torgesen, Rashotte, Alexander, Alexander, & MacPhee, 2003; Wolf & Bowers, 1999). The reading practice activity may have more fully engaged students who have difficulty attending to word-level instruction.

Text and Tutor Scaffolds. Others have suggested that decodable text most benefits students who need scaffolding to move from a partial alphabetic to a full alphabetic stage of word recognition (Ehri & McCormick, 1998; Mesmer, 1999). Our assessment procedures did not allow us to determine whether students' developmental reading levels were scaffolded by decodable texts (Mesmer, 2005). The decodable texts used by the Reading Practice group students may have scaffolded reading fluency rate. However, text decodability did not significantly influence student reading outcomes when decodability was manipulated in a similar study (Jenkins et al., 2004). We and the many paraprofessional tutors we have supervised over the past decade have found decodable texts that are integrated with phonics-based instruction to be a valuable scaffold to help students learn basic word recognition skills.

If reading practice features rather than text type contributed to treatment fluency differences, it is important to accurately characterize the text reading support provided by tutors in this study. Tutor scaffolding included a variety of features (e.g., supporting the student's successful reading practice, releasing responsibility, and using cueing strategies) described by Gaskins, Anderson, Pressley, Cunicelli, and Satlow (1993). During initial training, tutors were taught to consistently observe two simple rules for text reading: (a) students always fingerpoint to track the words they are reading in the text; and (b) students always reread a sentence in which they make an error. Researchers regularly reminded tutors to follow these procedures. Morever, most tutors became quite sensitive to each student's strengths and weaknesses. We observed tutors routinely using the following correction procedures when a student had difficulty reading or misread a word: (a) isolating the difficult sound in the word; (b) directing the student to any familiar letter combination, word ending, or feature that had already been taught; (c) if the student was attempting to sound out a sight word, cueing the student that "it's a sight word," to help the student adjust word identification strategies; (d) reminding the student to notice a final *e* if the student mispronounced the vowel in a magic *e* word ("Is there an *e* at the end of the word?"); and (e), if needed, switching from independent oral reading to echo or partner reading to model accurate reading.

Decodable text had two advantages in this supplemental intervention. It offered students many opportunities to practice their emerging decoding skills, and it consistently prompted nonteacher tutors, unversed in the benefits of cognitive or behavioral models of instruction, to provide the forms of assistance and cues that called on students to practice their new skills. Tutors and parents might use these simple yet instructionally specific strategies to support oral reading practice for students with RD who need added cognitive and emotional support (Torgesen, 1998). Although we strongly agree that phonics instruction should be accompanied by reading practice in matched text, the findings in this study also underscore the benefits of explicit training in word reading strategies for low-skilled first graders. Both types of supplementary instruction were effectively provided by paraprofessional tutors.

These findings on the effectiveness of paraprofessional tutors are timely. Children from poor, non-White, and non–native English speaking backgrounds are much more likely to have difficulty learning to read (National Research Council, 1998). These are the children most likely to be enrolled in the lowest quality schools (Lee & Burkam, 2002) with the fewest resources and the greatest pressures to raise student reading scores. Paraprofessionals are not nearly as effectively used in these schools as they might be. Training in research-based instruction like *Sound Partners* can help paraprofessionals meet new Title I standards for assisting effectively in reading instruction.

Conclusion

This study addresses several gaps in the research on components and implementation of supplementary interventions for students with reading problems. First, the findings describe the contribution of oral reading practice when combined with phonics instruction. Scaffolded oral text reading practice produced significantly higher fluency than word study only, although still well below the grade-level benchmark. A 30-min period of word study did not produce higher levels of word reading and spelling than a 15–20-min period. The findings reported in this study suggest that first-grade fluency outcomes may be sensitive to levels of carefully scaffolded oral reading practice provided by minimally trained, cost-effective paraprofessional tutors.

Second, the findings address a gap in studies on the use of decodable texts, many of which fail to control for the actual phonics instruction-to-text match *implemented* by teachers—a critical aspect of using decodable text—and describe only the phonics instruc-

tion *prescribed* in teachers' materials (Mesmer, 2001). Because this study involved tutors who followed scripted phonics instruction, who had no other teaching materials or reading philosophy to draw on, and whose implementation was closely monitored by researchers with high interrater reliability, it provides a strong test of a phonics instruction and decodable text reading interface.

These findings add to those we have reported previously on the benefits of phonics-based supplementary tutoring for first graders in the lowest quartile on beginning reading skills. The treatment comparison in this study suggests that the scaffolded oral reading practice provided in *Sound Partners* may help students to consolidate word-level reading skills, perhaps through other text supports like illustrations, story structure, and word repetition, including high-frequency and decodable words (Hiebert, Brown, Taitague, Fisher, & Adler, 2003; Menon & Hiebert, 1999). Furthermore, daily tutor scaffolding and individualized corrections may provide critical support in context reading skills (Torgesen, 1998). During their 4 days a week of tutoring, Reading Practice group students routinely used their improving word reading skills. Although this added up to only about 17 h of oral reading practice (and we assume that students in all three groups engaged in text reading practice in the classroom and at home), the text and tutors' supports likely made this time more beneficial than an equivalent amount of silent reading, small group choral reading, or independent reading practice. One cannot help but wonder how much additional scaffolded reading practice would be needed to bring these students closer to their grade-level fluency benchmarks.

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AUTHORS' NOTES

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