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An Experimental Evaluation of Guided Reading and Explicit Interventions for Primary-Grade Students At-Risk for Reading Difficulties

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Abstract

Considerable research evidence supports the provision of explicit instruction for students at risk for reading difficulties; however, one of the most widely implemented approaches to early reading instruction is Guided Reading (GR; Fountas & Pinnel, 1996), which deemphasizes explicit instruction and practice of reading skills in favor of extended time reading text. This study evaluated the two approaches in the context of supplemental intervention for at-risk readers at the end of Grade 1. Students (n = 218) were randomly assigned to receive GR intervention, explicit intervention (EX), or typical school instruction (TSI). Both intervention groups performed significantly better than TSI on untimed word identification. Significant effects favored EX over TSI on phonemic decoding and one measure of comprehension. Outcomes for the intervention groups did not differ significantly from each other; however, an analysis of the added value of providing each intervention relative to expected growth with typical instruction indicated that EX is more likely to substantially accelerate student progress in phonemic decoding, text reading fluency, and reading comprehension than GR. Implications for selection of Tier 2 interventions within a response-to-intervention format are discussed.

Keywords

Reading intervention; guided reading; explicit instruction; early intervention

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Based on studies of early reading interventions, expert panels and individual researchers have recommended that students who are at risk for reading difficulties in the primary grades be provided with explicit, sequential instruction in decoding and word recognition (e.g., Gersten et al., 2008; National Reading Panel, 2000; Torgesen, 2004). Instructional programs of this nature typically include extended opportunities to practice skills in isolation and application in connected text. Research evidence also supports the provision of explicit instruction and practice in reading fluency (Chard, Vaughn, & Tyler, 2002) and comprehension (Shanahan et al., 2010).

Despite this research base, one of the most widely implemented approaches to early reading instruction in the primary grades in schools across the United States is Guided Reading (GR; Fountas & Pinnel, 1996). This approach deemphasizes decontextualized instruction and practice of reading-related skills in favor of extended time spent reading text under the guidance of a teacher who supports the development of effective reading strategies (Fountas & Pinnell, 2012–13). Despite its widespread implementation (Ford & Opitz, 2008), GR has rarely been empirically validated. The purpose of this study is to compare the effects of the two approaches and to examine the effects of each relative to typical school reading instruction, specifically for children at risk for reading difficulties in second grade.

EXPLICIT INSTRUCTION

Torgesen (2004) described explicit instruction as “instruction that does not leave anything to chance and does not make assumptions about skills and knowledge that children will acquire on their own” (p. 363). In explicit approaches, teachers plan lessons based on clear objectives that progress purposefully from less challenging to more challenging skills and content. They provide direct explanations and modeling of concepts, skills, and strategies, along with extended opportunities for guided and independent practice with clear corrective and positive feedback. Explicit instruction approaches most often emphasize synthetic phonics instruction (i.e., teaching individual sound-spelling correspondences and encouraging children to “sound out” words), although any approach to word identification could be taught explicitly. Published early reading programs that incorporate highly explicit instruction often include application of skills in text that is decodable using sound-spelling patterns and intact words that have been previously taught.

GUIDED READING

GR is frequently implemented as a component of classroom reading instruction (Ford & Opitz, 2008; Fountas & Pinnell, 2012) or as a supplemental intervention (e.g., Dorn & Soffos, 2009). In practice, implementations of GR vary widely (Ford & Opitz, 2008). In this article, we define GR as it was described in a seminal book on the topic by Fountas and Pinnell (1996). According to Fountas and Pinnell, the goal of GR is to promote students’ silent, independent reading in increasingly challenging text. GR consists of small-group lessons in which the primary activity is text reading and instruction is focused primarily on reading for meaning. Groups are composed of students who are able to read text on about the same level and use similar text-processing strategies, based on ongoing observations and assessments. Students are matched with leveled text of appropriate difficulty and progress

into increasingly challenging text. GR teachers teach and prompt students to use reading strategies that involve three sources of text information: meaning cues from background knowledge and text context (including cues from illustrations), cues derived from students' understanding of English syntax, and visual information derived from print, including sound–symbol relationships and sound-spellings associated with larger orthographic units such as onsets and rimes. As described by Fountas and Pinnel, word study instruction is primarily embedded in text reading and does not follow a predetermined scope and sequence. Fountas and Pinnell stated that GR should be one part of a primary-grade balanced reading program that also includes teacher read-alouds, text reading and writing in a variety of formats, and mini-lessons designed to teach how letters and words work.

PREVIOUS RESEARCH

Most supplemental early reading interventions investigated in experimental studies have incorporated explicit instruction, and evidence summarized in meta-analyses and research syntheses support the effectiveness of this approach (Al Otaiba & Torgesen, 2007; Cavanaugh, Kim, Wanzek, & Vaughn, 2004; Ehri, Nunes, Stahl, &Willows, 2001; Elbaum, Vaughn, Hughes, & Moody, 2000; Torgesen, 2004; Wanzek & Vaughn, 2007). Supplemental interventions that are provided for extended periods have produced larger effects for children in kindergarten through Grade 1 than for those in Grade 2 and higher (Wanzek & Vaughn, 2007).

There has been less experimental research of interventions that implement a GR approach. We conducted a search of two databases to locate evaluations of GR conducted with students in the primary grades who did not have sensory or intellectual disabilities or autism, identifying two studies that contrasted explicit instruction and GR. Tobin and Calhoon (2009) compared the effects of GR and a highly explicit program that provided direct instruction in phonics and comprehension strategies for first-grade students, reporting few significant differences. GR was associated with significantly better outcomes on one measure of phonemic awareness, and explicit instruction was associated with better outcomes in oral reading fluency. Kamps et al. (2007) compared outcomes for native English speakers and English language learners at risk for reading difficulties when provided with supplemental reading intervention in Grades 1 and/or 2 consisting of either (a) highly explicit decoding and fluency instruction, followed by balanced literacy instruction that incorporated GR, or (b) balanced literacy instruction only. Students in the explicit instruction plus balanced literacy group had significantly better outcomes than those in the balanced literacy only group on measures of decoding at the end of Grade 1 and oral reading fluency at the end of Grade 2. English language learners in the explicit intervention group performed significantly better than those who received only the balanced literacy intervention on measures of decoding, word reading, and comprehension, with large effect sizes. Generalization of this study is somewhat limited because the GR instruction was not well described.

Four studies evaluated GR compared with conditions other than explicit instruction. Hall, Sabey, and McClellan (2005) compared two versions of GR for second-grade students, one with and one without a focus on text structure, with a no-treatment control group. On

measures that were not closely aligned with the text structure lessons, neither GR condition differed significantly from the control group. Similarly, Dymock (1998), randomly assigned 8- to 10-year-old New Zealand children with comprehension difficulties to receive text structure instruction, reading practice, or typical classroom instruction consisting of GR. Eight-year-old students (Grade 3 in U.S. schools) in the text structure and reading practice groups had significantly better outcomes on one of two standardized tests of reading comprehension compared to the GR group, and no other significant differences were found. In a third study, GR was experimentally evaluated as a supplemental English reading intervention for children in Hong Kong. Nayak and Sylva (2013) randomly assigned students to receive (a) GR, (b) an intervention in which children read the same text as the GR group but in e-book format with no teacher-led instruction, or (c) no supplemental intervention. Students in the GR group performed significantly better than the no-treatment group in reading accuracy and comprehension, but there were no significant differences between the GR and e-book interventions. Finally, Savage, Abrami, Hipps, and Deault (2009) examined the effects of two versions of a computer-based phonics-oriented reading program compared to balanced literacy classroom reading instruction that included GR. They reported significantly better outcomes for both computerized instruction conditions compared with balanced literacy on letter-sound knowledge, listening comprehension, phonemic awareness, reading comprehension, and reading fluency.

Based on this review, we concluded that there have been few studies that examined the effects of GR using experimental or quasi-experimental designs, and even fewer directly contrasted explicit instruction and GR as interventions for primary-grade children at risk for reading difficulties. Results have been mixed, and generalization of findings is limited because researchers frequently failed to adequately describe the GR treatment. In several studies GR was only one component of classroom reading instruction, so effects cannot be attributed solely to GR. Because GR is widely implemented, we recognized the need for a randomized experimental study to contrast its effects with those of an explicit approach, particularly for primary-grade students at risk for reading difficulties. We conducted this evaluation within the context of supplemental reading intervention because that allowed us to isolate the effects of GR rather than attempting to identify its effects as one component of multifaceted classroom reading instruction.

RESEARCH QUESTIONS AND HYPOTHESES

The purpose of this study was to experimentally evaluate the effects of explicit instruction and GR for students with reading difficulties. We contrasted the effects of GR with those of an intervention that provided explicit, sequential instruction in word reading and comprehension (EX), and compared both with typical school instruction (TSI; a “business as usual” comparison group). The research questions addressed were: (a) Do students at risk for reading difficulties who receive supplemental reading intervention using a GR approach have better outcomes in word identification, phonemic decoding, reading fluency, and reading comprehension, relative to students who receive reading intervention using an explicit, sequential approach? (b) Do students who receive supplemental GR or EX intervention have better reading outcomes than those who receive the reading instruction and intervention typically provided in schools?

Because of its emphasis on reading connected text for meaning, we hypothesized that students who received GR would perform better than those who received EX in reading comprehension and on a measure of silent reading fluency and comprehension. Because it does not place heavy emphasis on explicit instruction in phonics and word reading, we expected that children in the GR group would perform more poorly on timed and untimed phonemic decoding and word reading than those the EX group. We also hypothesized that students in the GR condition would perform more poorly than those in the EX condition on passage reading fluency because the EX treatment included instruction using a program specifically designed to support fluency. Based on a sizeable literature supporting the effects of providing supplemental reading instruction in the primary grades (e.g., Wanzek & Vaughn, 2007), we hypothesized that both intervention groups would outperform the TSI group on all outcomes.

METHOD

Context

This study took place in two school districts in the southwestern United States. One was located in a large city, and its five participating schools were urban. In the urban district, students were 27% African American, 62% Hispanic, 8% White, and 4% other ethnicities, and 80% were economically disadvantaged based on qualification for the federal free and reduced-price lunch program. The second district was smaller and located near a small city; its four participating schools were best described as suburban and rural. In the smaller district, 11% of students were African American, 81% Hispanic, 6% White, and 1% other ethnicities, and 86% were economically disadvantaged. In both districts, 31% of students were designated as having limited English proficiency.

Participants

All first-grade students in participating schools were screened in the spring of 2009 (n = 886) and 2010 (n = 1,056) to identify those at risk for reading difficulties. In the fall of 2010, a small number of students who were new to the participating schools were screened at the beginning of Grade 2. Two years of recruitment were needed to establish an adequately sized sample for a three-group study. All students who met the criteria of a composite standard score on the Test of Word Reading Efficiency (TOWRE) *or* a Basic Skills Cluster standard score on the Woodcock–Johnson III Tests of Achievement (WJ III; Woodcock, McGrew, & Mather, 2001) less than 93 (i.e., below the 30th percentile) were selected for participation (n = 218). This benchmark has been validated against external criteria as an indicator of adequate response to reading intervention at the end of Grade 1 (Fletcher et al., 2014) and used in several previous studies (Mathes et al., 1995; Torgesen, 2000). These students were randomly assigned to receive supplemental small-group intervention using a GR approach (GR group; n = 74) or an explicit instruction approach (EX group; n = 73), or the typical reading instruction and intervention provided by their schools, with no researcher-provided intervention (TSI group; n = 71). These three groups constituted the intent-to-treat sample.

As an intent-to-treat sample, all randomized students were included in the analysis dataset. However, not all students completed the study. Five of the 218 selected students were lost to attrition during summer break. An additional 29 moved away from their schools during the school year. Two additional students were removed from the study by their parents, two others were removed by their schools due to scheduling conflicts, and a final student was removed due to special education placement and the decision of the individualized education program committee. Seventeen more students were lost when two schools in the urban district withdrew from the study due to changes in school administration prior to the onset of intervention. The resulting sample sizes by condition were EX = 59, GR = 50, and TSI = 53. To examine the effects of attrition, the 56 attritted students were compared to the 162 who completed posttesting. The two groups did not differ in treatment assignment, $\chi^2(1) = 3.39$, $p > .05$, gender, $\chi^2(1) = 0.13$, $p > .05$; race, $\chi^2(3) = 7.04$, $p > .05$; or free lunch status, $\chi^2(1) = 2.01$, $p > .05$, nor did they differ on baseline scores on TOWRE, $t(204) = -1.88$, $p > .05$; WJ III Basic Reading Skills, $t(204) = -1.16$, $p > .05$; Gates-MacGinitie Passage Comprehension, $t(204) = -0.15$, $p > .05$; or age, $t(204) = -0.01$, $p > .05$. The groups did differ on site, $\chi^2(1) = 4.72$, $p = .03$. The difference in attrition for site can be attributed to the withdrawal of two schools in the urban site. Omitting the students lost to school withdrawal and testing for differences between the 39 attritted students and the 162 who completed posttesting shows no differences by site, $\chi^2(1) = 0.29$, $p > .05$.

Table 1 provides the demographic characteristics of participants by condition. Although most students were in Grade 2 during the study, some that were identified at the end of first grade were subsequently retained in and were repeating Grade 1. There were no significant demographic differences between the treatment conditions on grade, $\chi^2(2) = 0.82$, $p > .05$; gender, $\chi^2(2) = 0.09$, $p > .05$; race/ethnicity, $\chi^2(4) = 2.32$, $p > .05$; free/reduced lunch qualification, $\chi^2(2) = 5.15$, $p > .05$; Limited English Proficient status, $\chi^2(2) = 2.06$, $p > .05$; special education status, $\chi^2(2) = 1.91$, $p > .05$; or site, $\chi^2(2) = 0.32$, $p > .05$. The groups did not differ on age, $F(2, 158) = 0.76$, $p > .05$. Altogether, the randomization was successful, with no significant differences among treatment groups or due to attrition.

Intervention Procedures

All three experimental conditions were present in each participating school. Interventionists, who were hired and supervised by the researchers and were either certified teachers or experienced clinical tutors, provided intervention to students in the GR and EX conditions. Intervention was provided during regular school hours to groups of two to four students in a location within students' home schools but outside of the regular classroom. To the extent possible, students were homogeneously grouped according to reading levels; however, our ability to exactly match students within groups was limited due to scheduling restraints imposed by the schools and because, in some schools, small numbers of students qualified for the study. After randomization there might be only two to three students per condition in a school, and they had to be instructed together. If the number of students in any group fell below two due to attrition during the school year, we reformed groups to eliminate 1:1 instruction, or we added a student who had moved into the school after randomization and was not part of our study but was on about the same reading level as the one remaining in the GR or EX group.

Students in the GR and EX conditions received intervention for 45 min, 4 days per week, for 23 to 25 weeks in addition to their regular classroom reading instruction. Intervention was provided on 84 to 90 days, varying from school to school due to holidays, statewide test administration, field trips, and similar circumstances. Attendance records indicated that individual students received the intervention for an average of 59 hr (*SD* = 6). The experimental groups did not differ on intervention attendance ($p > .05$).

Interventions

Guided Reading—The activities implemented in the GR condition were carefully designed to follow the procedures described in Fountas and Pinnell (1996) and a video made by Fountas and Pinnell (2005) that describes and illustrates the implementation of GR. We created an implementation manual for the GR condition by reading the book and viewing the video multiple times; the manual included all lesson components and instructional activities that were described or illustrated in either the book or video. Tutors received copies of the implementation manual and Fountas and Pinnell (1996), and they viewed and discussed the video.

As described in Fountas and Pinnell (2005), a GR lesson has four major components: Introducing the Text, Supporting Effective Reading, Teaching Processing Strategies, and Discussing and Revisiting the Text. There are also two optional components: Extending the Meaning and Working with Words. GR is informed by frequently administered student assessments. In our implementation of GR, teachers implemented the four major components (total of 15–30 min) plus Assessment (5–15 min) in every lesson. They also had the option of implementing Extending the Meaning (up to 20 min), Working with Words (up to 5min), having students reread familiar books for fluency development (up to 20 min), or having most of the group engage in familiar reading practice while the tutor provided up to 10 min per lesson of focused instruction with one student in the group. Following Fountas and Pinnel (1996, 2005), the GR intervention was implemented with short books that were leveled for difficulty but not phonetically decodable. At lower levels, this text typically consisted of a pattern repeated on each page with one or two words changed; those words could be identified using the pictures (e.g., “The duck is in the tub. The water is in the tub. The soap is in the tub.”; Cowley, 1998, pp. 5–7). Text at higher levels also included many words that could not be accessed using basic phonics skills but that might be inferred using the first few letters along with context and illustrations (e.g., *wriggle*, *porpoises*). Tutors shared a large library of books leveled according to the Fountas and Pinnell (1999) system. Lesson components are described in detail next.

Introducing the Text: Each day, the teacher introduced a new text to the group. The book introduction was always preplanned and could include previewing the book’s content by viewing the pictures, using illustrations to make predictions, and similar activities.

Supporting Effective Reading: If the book selected for the day was on an appropriate level for all students in the group, they read simultaneously. Rather than reading chorally, each student typically read quietly to him- or herself at his or her own pace as teachers “listened in” on each reader in turn, observing the behaviors of the children as they read. If the book

was too difficult for one or more students in the group, a more able student might read a part of it alone, with the others rereading it afterward, or students might engage in choral reading for a portion of the text. If time allowed, students reread the text for fluency. When students encountered a difficult word or made an error, the teacher provided instructional scaffolding and prompted students to use an array of strategies designed to direct students' attention to meaning, syntax, and visual cues using prompts from Fountas and Pinnell (1996). Teachers also prompted students to notice and self-correct errors and read fluently, and they reinforced effective strategy use through specific praise, confirming students' attempts at problem-solving words. If students had difficulties reading a word that was accessible to them, the teacher could pause briefly to teach about letters and words during text reading. Teachers supported comprehension by engaging in brief, natural conversations with students focused on the meaning of the text.

Teaching Processing Strategies After Reading: After reading, teachers had students return to specific places in the text, and teachers praised one or two successful or effective reading behaviors a student had used while reading (e.g., self-correcting an error) and provided one or two teaching points by modeling effective processing at points of the book that were difficult.

Discussing and Revisiting the Text: After reading, teachers and students discussed the text. Activities included retelling or summarizing main ideas, discussing literary elements such as problem and solution, or responding to questions related to characters, cause-and-effect relationships, or similar topics.

Assessment: Assessments consisted of running records of text reading or other tasks from the Observation Survey of Early Literacy Achievement (Clay, 2002) or the Developmental Reading Assessment (Beavers, 2006). Teachers were taught to analyze these assessments and use them to guide their lesson planning, including book selection and the programming of optional activities.

Extending the Meaning (Optional): Teachers had the option of engaging in a variety of activities to extend the meaning of the text, including drama, art, or writing. Teachers were provided with a small set of graphic organizers they could use in this part of the lesson.

Working with Words (Optional): Word study included activities specifically described by Fountas and Pinnell (1996), including (a) making, breaking apart, and remaking high-frequency words with magnetic letters; (b) using alphabet linking charts to help students associate letter-sounds to key words; (c) reading alphabet books; (d) reading words from a word wall; (e) manipulating onsets and rimes in words using magnetic letters; (f) making a known word with magnetic letters, then changing one or more letters to form new words; (g) using analogy to read unknown words; and (h) sorting words according to sound-spelling patterns. This word-level instruction did not follow a systematic scope and sequence; rather, it was planned based on teachers' observations of words and sound-spelling patterns that were difficult for students. Word study was limited to 5 min to follow Fountas and Pinnell's description of "engaging the children for a minute or two of word work" (p. 7) after reading.

Explicit Instruction—The EX intervention consisted of (a) explicit, sequential, phonologically based instruction in word reading, phonemic decoding, and spelling (word study), with application of skills in fully decodable text; (b) text reading practice to build fluency; and (c) explicit, sequential comprehension instruction that included listening to or reading nondecodable text. During daily lessons, teachers implemented the word study, fluency, and comprehension components for variable amounts of time depending on student needs. Most students received the comprehensive schedule, consisting of 10 to 15 min of word study, 10 to 15 min of fluency practice, and 15 to 20 min of comprehension instruction. Students who began with very poor decoding (i.e., unable to read the simplest placement passage at target levels of accuracy and fluency) did not receive fluency instruction at first; their lessons consisted of 20 to 25 min of word study with decodable text reading and 20 to 25 min of listening comprehension instruction. Eventually, some students met benchmarks for word reading accuracy; at that point their lessons shifted to 20 to 25 min of fluency and 20 to 25 min of comprehension instruction. All students read connected text in every lesson during one or more lesson components.

Word Study: Word study instruction was provided with two scripted programs that provide explicit, systematic instruction in sound-spelling associations, phonemic decoding, recognition of high-frequency words, and spelling: *Sound Partners* (Vadasy et al., 2005) and the Review Words and Multi-Syllable Words lessons from *Sound Partners Plus* (Vadasy & Sanders, 2007). The combined scope and sequence for the two programs progresses from lessons on simple decodable words (e.g., *log, am*) to lessons on sound-spelling and morphological patterns commonly found in multisyllable words (e.g., *dis, ity*). Both programs include regularly administered mastery tests, which we used for initial student placement and to individualize students' rates of progress through the curriculum. Based on mastery test results, students were provided with extra instruction on objectives with which they had difficulty, and they were able to skip lessons on objectives they had already mastered. *Fluency*. Fluency instruction included repeated reading and modeling activities found to be effective for students with reading difficulties in a synthesis of fluency intervention research (Chard et al., 2002), with student self-monitoring of fluency scores. Students practiced repeated reading of expository text from the *Quick Reads* fluency program (Hiebert, 2003); however, we did not implement the instructional routine recommended with *Quick Reads*. We implemented the following routine: (a) teachers activated background knowledge about the text topic and pretaught two or three challenging words; (b) teachers timed one focus student in the group (rotated daily) as the student read the unpracticed text orally while the others read silently; (c) teachers provided feedback and instruction on words the student missed during this first reading; (d) students read along quietly with the teacher, who provided a model of phrased and fluent reading; (e) students reread the passage three more times individually or with a partner, with teacher feedback; (f) focus student again read orally while timed by the teacher; and (g) teacher asked oral comprehension questions or implemented brief comprehension activities included in *Quick Reads*. Students also maintained graphs of their fluency scores to monitor their own progress.

Comprehension: The EX comprehension program was developed for this study. The program incorporated teacher modeling of comprehension strategies through "think-alouds" and provision of specific feedback to students as they practiced strategies in small groups, with partners, and individually. Its scope and sequence progressed from generally easier (e.g., activating background knowledge) to more challenging strategies (e.g., self-monitoring meaning and repairing misunderstandings). Extended practice was provided on each strategy so that students could develop basic proficiency before the next strategy was introduced. Instruction was supported through posters and graphic organizers. Comprehension lessons made use of a set of narrative and informational trade books selected to support the implementation of the strategies that were being taught (e.g., stories with clearly identifiable characters, problems, events, and solutions for instruction in narrative text structure).When modeling comprehension strategies, and whenever the texts were too difficult for students to read themselves, teachers read the texts to the students.

Interventionists and Training

Intervention in both the GR and EX conditions was provided by 14 tutors hired by the researchers, six of whom tutored during both years of the study. All were female; 11 were White and three African American. Eight had master's degrees, six had bachelor's degrees, and one held an associate's degree in child development and had several years of experience teaching kindergarten in a private school using a specialized early literacy program. Several held multiple credentials, including elementary and early childhood education, English as a second language, gifted and talented education, secondary content areas, and special education. Four were certified reading specialists. Three tutors did not hold state teaching credentials but had 2 to 16 years of experience tutoring students with reading difficulties. Across all tutors, the average years of teaching or tutoring experience was 12.79 (*SD* = 9.41).

To control for teacher effects, most of the tutors provided intervention in both treatment conditions. We took the following steps to guard against contamination: (a) interventionists were selected, hired, coached, and closely supervised by the researchers; (b) we provided explicit training in the differences between the two approaches and the need to maintain a separation between the two; (c) the two conditions used different instructional materials and different student texts; and (d) throughout the study, we conducted ongoing professional development and frequent observations that included training and feedback regarding differentiation between the two conditions. At each wave of fidelity observations, we expected and observed adherence of 85% or better to the procedures in each program by every teacher.

Each year, prior to the onset of intervention, tutors received 4.5 days of professional development divided between the two interventions. They received two additional full-day training sessions during the school year, for a total of about 39 hr of formal training each year. In addition to this training, interventionists met with their site coordinators (i.e., reading coaches) after school 24 to 27 times per school year. These meetings included continued professional development, review of study procedures, and discussion of challenging cases. Finally, each teacher received an average of 16 on-site coaching visits per

year with feedback to strengthen fidelity and quality of instruction and problem solving when students made inadequate progress.

Fidelity and Quality of Implementation—Project coordinators conducted observations of live intervention lessons to verify fidelity and quality of implementation on three occasions across each school year using protocols designed to reflect key features of each intervention, including aspects of instruction that differed between the two interventions. At each time point, each interventionist was observed during two entire small-group lessons—one GR and one EX. Interobserver reliability was reestablished prior to each wave of observations through cross-site visits, during which coordinators reached at least 85% absolute agreement on co-observed live lessons. Observers rated adherence to prescribed program procedures and implementation quality. Program adherence was defined as implementation of the program components as described in the manuals provided to the teachers. For example, for the GR component Supporting Effective Reading, indicators included (a) selects appropriate text, (b) teaches about letters and words only as directed, (c) prompts as directed for effective use of strategies, (d) reinforces effective strategy use, and (e) assures that students are on task. For the EX condition, the implementation of each instructional activity in the word study programs (e.g., letter-sound practice) was rated on six program-specific indicators: (a) implements according to the script, (b) provides correct explicit modeling, (c) provides individual independent practice, (d) corrects errors appropriately, (e) provides extra practice on problem items, and (f) assures that students are on task. Adherence was coded by rating each instructional activity on a 3-point Likert-type rating scale (3 is highest), then each teacher's score was calculated as a proportion of a "perfect" score for that lesson. For the GR treatment, the mean program adherence score across tutors and observations was .94 (*SD* = .04; range = .86–.99). For the EX treatment, the mean rating was .95 (*SD* = .04; range = .87–1.00). Observers also recorded lesson duration; on average, observed GR lessons were 44.26 min long and observed EX lessons were 46.16 min long.

Quality of implementation was rated globally on a 3-point scale, with 1 indicating below average, 2 indicating average, and 3 indicating high quality. For the GR treatment, teachers were rated on three indicators: (a) including all students in activities, (b) maximizing instructional time, and (c) overall lesson quality compared to the ideal GR lesson. In the EX condition, teachers were rated on maximizing instructional time and overall quality compared to the ideal EX lesson. In the GR treatment, the mean quality score across teachers and observations was 2.83 (*SD* = .23). In the EX condition, it was 2.79 (*SD* = .29).

School-Provided Reading Instruction

All students, regardless of group assignment, received regular classroom reading instruction, and many also received school-provided supplemental reading instruction outside of the intervention provided through the study. Classroom teachers and special education teachers who provided participants' regular daily reading instruction completed a questionnaire describing their classroom reading programs, as well as a structured interview documenting the amount and nature of supplemental school-provided reading instruction received by each student.

Classroom Reading Instruction—Most students received daily reading instruction from their classroom teachers, but about 6% in each group received at least a portion of their reading instruction from special education teachers, and 2% to 5% from designated reading intervention teachers (e.g., reading specialists, full-time reading teachers). Some students in all three conditions had several regular and substitute teachers across the school year, resulting in as many as three to five different reading teachers in some classrooms across a single year.

Seventy-one teachers completed the classroom reading instruction questionnaire; however, one taught only math and science and received a questionnaire in error, so we analyzed data for the 70 teachers who provided daily reading instruction to study participants (67 classroom teachers and three special educators). Teachers had an average of 11.50 years of teaching experience (*SD* = 11.21; range = 1–45 years); seven had 3 or more years of experience as a designated reading interventionist. Respondents held from one to four teaching credentials; 90% were certified in elementary education, 39% in early childhood education, 7% in special education, and 3% as reading specialists, and a small number in English as a second language, gifted and talented, and bilingual education. Twenty-nine percent reported that they had participated in more than 8 hr of training in GR, and 32% had more than 8 hr of training in a program that emphasized explicit phonics instruction.

Teachers reported that they taught reading and language arts from 90 to 120 min each day. We asked teachers to rate the percentage of time they typically spent using specific instructional practices and materials in their reading classes. Each teacher rated each practice or material as being used not at all, for less than 25% of the class, from 25% to 50% of class time, from 50% to 75% of class time, or from 75% to 100% of class time. Summarized in Table 2, the results suggest that teachers used a variety of instructional practices and materials in their reading classes. All teachers used a published core reading program, but some did so for a small portion of class time. All said they provided some amount of direct instruction in phonological awareness, phonics, and/or word reading, and 34% named a specific supplemental phonics program they used. About two thirds of the teachers indicated that they implemented GR in their classrooms.

Supplemental School-Provided Reading Instruction—All schools provided supplemental reading instruction to a subgroup of participating students outside of that provided through the study. Teachers reported that 36% of GR students, 46% of EX students, and 34% of TSI students received school-provided supplemental reading instruction varying from occasional tutoring provided by students' classroom teachers to consistent intervention provided by a reading specialist. Mean hours of supplemental instruction received were 77.46 for GR (*SD* = 66.48), 60.04 (*SD* = 50.73) for EX, and 77.02 (*SD* = 51.62) for TSI. The three groups did not differ significantly in the amount of school-provided supplemental reading instruction received, $F(2, 159) = .018$, $p > .05$. Across all groups, about half of the supplemental instruction consisted of tutoring using the same or similar instructional materials and approaches as were used in regular classroom reading instruction.

Classroom teachers provided about half of the additional reading instruction for GR and EX students (GR = 52%, EX = 45%). About 29% of GR students received supplemental instruction from designated reading interventionists, 14% from special educators, and the rest from other persons. About 35% of the EX students received supplemental instruction from designated reading interventionists, 6% from special educators, and the balance from other persons. GR and EX students were most likely to receive additional instruction in small groups (i.e., two to five students) or alternating between small groups and 1:1 depending on need (GR = 81%, EX = 68%); the balance was delivered in larger groups.

TSI students were somewhat less likely to receive their supplemental reading instruction from their regular classroom teachers (33%) and somewhat more likely to be served by designated reading interventionists (46%) than students in the other groups. Four percent of TSI students' supplemental instruction was provided by special educators and 13% by other persons. One TSI student (4%) received ongoing 1:1 intervention, whereas 63% were taught in small groups or varying between 1:1 and small groups, and the rest were instructed in larger groups.

Measures

To address our research questions we measured student outcomes representing four constructs: (a) word reading, including untimed word identification and phonemic decoding; (b) fluency, including timed reading of real words, pseudowords, and connected text; (c) reading comprehension; and (d) a composite of silent reading efficiency and comprehension. We measured silent reading efficiency and comprehension because independent silent reading and reading for meaning are important goals of GR (Fountas & Pinnell, 1996).We analyzed each of these domains separately because the observed skills assessed by specific tests are goals for both interventions. We did not create composites, because the literature often reports outcomes for the specific tests we selected and amalgamation makes empirical synthesis more difficult.

Untimed word reading accuracy and phonemic decoding were measured with the Letter-Word Identification and Word Attack subtests of the WJ III. Students read a list of real words in Letter-Word Identification and a list of nonsense words in Word Attack. Test–retest reliabilities are .85 and .81 for the two subtests, respectively, at the age of interest (McGrew & Woodcock, 2001). Standard scores were evaluated in the analyses. Although Cirino et al. (2013) found that these two constructs assess the same latent variable (i.e., decoding single words, untimed), we assessed these outcomes separately because the two interventions address novel word decoding differently, with more emphasis in the EX condition.

The Sight Word Efficiency and Phonemic Decoding Efficiency subtests of the TOWRE were administered to assess word reading fluency. Students read lists of real words or pseudowords, and the raw score is the number of words or nonwords read correctly in 45 s. Alternate forms reliability exceeds .90, and test–retest reliabilities range from .83 to .96 (Torgesen, Wagner, & Rashotte, 1999). The dependent variable analyzed was the composite standard score. Cirino et al. (2013) found that speeded decoding of single words represented a latent variable differentiated from untimed decoding.

Passage reading fluency was measured using the Texas Primary Reading Inventory (TPRI) Progress Monitoring for Beginning Readers (PMBR; 2006–2008). The TPRIPMBR consists of eight passages at each of Grades 1, 2, and 3 written to conform to specific word-level features and story structure based on what is typically taught at those grade levels. Students read orally for 1 min while the tester records errors, and the score is the number of words read correctly per minute (wcpm). Although some study participants were repeating Grade 1, we administered second-grade passages to all participants in order to standardize the assessment across the sample. To eliminate concerns regarding story equivalence, the same passages were administered at pretest and posttest. We reasoned that students were unlikely to remember the passage from the beginning to the end of the school year, particularly because most could not read more than 10 words correctly during the 1-min assessment at pretest. The TPRI PMBR passage we administered correlates at .78 with the TOWRE Sight Word Efficiency subtest (Center for Academic and Reading Skills & Texas Institute for Measurement, Evaluation, and Statistics, n.d.); in Cirino et al. (2013) the two measures assessed the same latent variable (speeded decoding). We analyzed the TOWRE and TPRI PMBR separately because many interventions consider decoding speed for single words and connected texts different components of instruction.

Reading comprehension was measured using the WJ III Passage Comprehension subtest and the Gates-MacGinitie Reading Comprehension subtest (Gates Comprehension; MacGinitie, MacGinitie, Maria, Dryer, & Hughes, 2000). WJ III Passage Comprehension is a cloze-based assessment in which students read brief sentences or paragraphs and supply missing words. Test–retest reliability is .86 (McGrew & Woodcock, 2001). The standard score was the dependent variable. Gates Comprehension involves reading passages and responding to multiple-choice questions. It was administered to small groups of students. The dependent variable for Gates Comprehension was an extended scale score (M = 100, SD = 15) derived from the Gates–MacGinitie scale score. The coefficient alpha in second grade ranges from .92 to .93 (MacGinitie et al., 2000). Although Cirino et al. (2013) found that these measures indicated the same latent variable, we followed the convention in intervention studies of differentiating cloze and passage reading formats.

Silent reading fluency and comprehension were measured using a pre-publication version of the Test of Silent Reading Efficiency and Comprehension (TOSREC; Wagner, Torgesen, Rashotte, & Pearson, 2010). The TOSREC is a brief, group-administered timed assessment in which students read statements and indicate whether they are true or false; responses require common knowledge (e.g., All birds can swim.). The raw score is the number of correct responses in 3 min. We analyzed the standard score. Alternate form reliability is approximately .93, and concurrent validity with Woodcock Reading Mastery Test Passage Comprehension is .83. In Cirino et al. (2013), timed assessments with a reading comprehension component indicated a different comprehension-loaded variable from timed decoding and text-based comprehension.

Test Administration Procedures

All measures were administered at baseline and posttest by examiners who completed an extensive assessment training program. A manual for training and test administration was

developed and used to train examiners in sessions that included observation of test administration and practice. Prior to assessing a child, each examiner administered the tests to the coordinator, who ensured that examiners followed appropriate procedures. Assessment coordinators were present in all schools during assessment periods and observed examiners at work. All assessments were completed in students' home schools in quiet locations. Oral reading fluency was also measured regularly throughout the intervention by the intervention teachers, but these data were used only to guide instructional decisions and are not included in the analysis.

Data Analysis

A one-way analysis of covariance was conducted for each outcome measure. In each analysis, the posttest served as the dependent variable and the pretest served as the covariate, with treatment serving as the independent variable. Given that there were three groups and thus only three pairwise comparisons among the adjusted means for each level of treatment, Type I errors were controlled by only interpreting differences associated with a significant *F* test for the treatment effect (Maxwell & Delaney, 2003). Three other tests of group differences could have been run that tested one group against the average of the other two groups; however, comparisons with pooled groups would not have had any practical meaning. We therefore limited analyses to the three planned comparisons involving the distinct levels of treatment. We did not evaluate effects using multilevel models because of the small sizes of the tutoring groups; some had only one study participant at the end of the study. In addition, there were no tutoring groups for TSI participants. Groups could have been clustered by classroom teacher but, again, several classrooms had only one participant. The randomization was clearly effective and school level effects minimized by having all conditions in each school.

Standardized effect sizes (Cohen's *d*) were calculated using model-predicted posttest standard score means and standard deviations; thus, they accounted for pretest. We adopted the practices of the United States Department of Education's What Works Clearinghouse (Institute of Education Sciences, 2013), and examined effect sizes for all measures, regardless of statistical significance. To contextualize the treatment effects we also compared the growth made by students in the GR and EX interventions with expected growth for students provided with typical reading instruction, as suggested by Lipsey et al. (2012). As a reference for the tests where standard scores were available we used the average effect size for growth in reading at the 25th percentile from spring of first grade to spring of second grade based on unpublished data currently being prepared for publication that uses longitudinal data sets to estimate expected growth at different levels of performance, similar to Lipsey et al. For the TPRI, a criterion referenced test that does not yield standard scores, we compared treatment effects to observed growth in the TSI group, defined using the mean scores in the TSI group. We used the treatment effect as the numerator and the reference as the denominator to express the deviation from expected growth as a percentage.

RESULTS

Preliminary Analyses

The primary analyses relied on the assumption that the slopes relating preintervention and postintervention scores were parallel for all groups. This assumption was tested by adding a group by preintervention score interaction. The interaction term was not statistically significant ($p > .05$) for each dependent variable.

Preliminary analyses addressed site and cohort effects. In the EX group there was a significant site effect for TOWRE Sight Word Efficiency, $F(3, 55) = 4.05$, $p = .01$, such that students in the urban district scored lower than those in the smaller district. There was also a significant cohort effect for TPRI fluency, $F(3, 55) = 3.37$, $p = .02$. The 2009–2010 cohort was lower than the 2010–2011 cohort. There were no significant Site × Cohort interactions.

Overall Pattern of Results

Table 3 shows the observed means and standard deviations for the baseline and post-test assessments by condition. The results for group comparisons of the model-adjusted means from analyses of covariance are presented in Table 4, with effect sizes. In general, Table 3 shows a stepwise pattern, with more change from pretest to posttest for the EX group relative to the GR group, and then the TSI group for all measures. Little change relative to baseline was apparent for any group on Gates comprehension, and the age-adjusted posttest scores were below baseline levels, although raw scores improved on all measures for all groups.

Word Reading and Phonological Decoding

The test of treatment effect was significant for both models involving untimed decoding measures: Letter-Word Identification, $F(2, 158) = 4.52$, $p < .05$;Word Attack, $F(2, 158) = 5.68$, $p < .01$. Follow-up analyses revealed statistically significant differences between GR and TSI on Letter-Word Identification ($p < .05$) and between EX and TSI on both Letter-Word Identification ($p < .05$) and Word Attack ($p < .01$). As illustrated in Table 4, effect sizes for Letter-Word Identification were small and nearly identical for the two intervention conditions. When compared to expected growth for similar students who receive typical reading instruction, the effects represented 29% and 30% improvements for the GR and EX treatments, respectively.

For Word Attack, GR had small effects relative to TSI, whereas effect sizes favoring EX over TSI were moderate. These effects were reflected in the normative contrast; the GR group exceeded expected growth associated with typical instruction by 27%, whereas EX exceeded normative growth by 54%. The added value of the two treatments over typical instruction was quite similar on Letter-Word Identification, but on Word Attack the added value of the EX intervention was twice that of the GR intervention.

Fluency

Neither of the models for the measures of fluency (TOWRE, TPRI Passage Fluency) resulted in a significant test of treatment effect. In keeping with our data analysis plan, we

did not conduct pairwise tests of significance for these variables. Effect sizes for both fluency measures were small; for the TOWRE, the effect sizes were similar for the two interventions versus TSI, whereas the effects on TPRI Passage fluency were larger for the EX than GR conditions. Similarly, the advantages for the two interventions over typical instruction were similar for the TOWRE, showing 31% and 26% additional gains for GR and EX, respectively. On this test, GR exceed the gains over expected growth in TSI seen in the EX group by 5%. For TPRI Passage Fluency the comparison represented an 11% improvement of GR over TSI, whereas EX outpaced expected growth in TSI by 33%.

Comprehension

The test of the treatment effect was significant for WJ III Passage Comprehension, $F(2, 158) = 3.23$, $p < .05$, but not for Gates Comprehension, $F(2, 156) = 1.24$, $p > .05$. Follow-up analyses revealed a significant difference for WJ III Passage Comprehension between EX and TSI ($p < .05$). Effect sizes for both comprehension variables were small for the GR condition, whereas the EX condition was associated with moderate effects for WJ III Passage Comprehension and small effects on Gates Comprehension. The normative comparison indicated that GR was associated with gains that exceeded expected growth in TSI by 12% for WJ III Passage Comprehension and 9% for Gates Comprehension. Gains associated with the EX group relative to TSI were nearly 4 times higher than those for the GR group on both WJ III Passage Comprehension (42%) and Gates Comprehension (34%).

Silent Reading Fluency and Comprehension

The test of the treatment effect was not statistically significant for the TOSREC, $F(2, 136) = 1.50$, $p > .05$. Effect sizes were moderate for both the GR versus TSI and EX versus TSI contrasts, but the effects of EX were stronger than those of GR. These effects represented improvements above expected growth in the TSI group by 36% and 55% for the GR and EX groups, respectively.

DISCUSSION

The purpose of this study was to contrast the efficacy of GR and EX in the context of a supplemental reading intervention and to compare both approaches to typical school reading instruction. We evaluated outcomes in word reading, reading fluency, and reading comprehension for second-grade students and first-grade retainees identified as at risk for reading difficulties. Students were randomly assigned within schools to receive (a) supplemental intervention consisting of GR, (b) supplemental intervention consisting of EX, or (c) TSI.

Research Question 1

The first research question addressed the evaluation of differences in reading outcomes between the GR and EX groups. We hypothesized that the GR group would perform better than the EX group in reading comprehension and on a measure of silent reading fluency and comprehension and more poorly than the EX group in word reading, phonemic decoding, and oral reading fluency. These hypotheses were not strongly supported, as analyses revealed no significant differences between the GR and EX groups on any variable;

however, effect sizes were larger for the EX group than for the GR group for all but two variables. The two treatments had similar effects for timed and untimed word reading, but EX had stronger effects for untimed phonemic decoding, passage reading fluency, passage comprehension, and a measure of silent reading fluency and comprehension.

To contextualize these results in a meaningful way, we also compared the gains made by students in the GR and EX groups to the gains that at-risk second-grade students would be expected to make when provided with typical reading instruction. On all variables, students who received either the GR or EX intervention made greater gains than they would have made with typical school instruction. The added value of the two interventions was quite similar for untimed real-word reading and a composite of timed reading of real words and pseudowords. On the latter, GR produced a slightly higher (5%) added value than EX relative to typical instruction, but this was the only variable for which GR had stronger effects than EX. In contrast, the EX intervention was associated with substantively higher added value than GR relative to typical instruction on several variables. For example, students in the EX group exceeded the growth that would be expected with typical instruction by 54% on phonological decoding, whereas those who received GR intervention exceeded expected growth by 27% in this domain; thus, EX instruction had twice the added value of GR over typical instruction. On a measure of silent reading fluency and comprehension students in the GR group performed 36% better than they would be expected to perform with typical reading instruction, whereas those in the EX group performed 55% better than expected if provided with typical instruction. On the two measures of comprehension, EX instruction had nearly 4 times the added value of GR over typical instruction. In general, EX instruction, delivered as we did in this study, could be expected to accelerate the progress of at-risk second-grade readers to a substantively larger degree than intervention provided with a GR approach (Stuebing, Barth, Cirino, Francis, & Fletcher, 2008).

We had expected that phonemic decoding and passage reading fluency would be better supported by the explicit phonics instruction and structured repeated reading practice students received in the EX group, but the finding that EX was associated with stronger effects on comprehension was unexpected, as GR students spent more time engaged in text reading and discussion of text. Because the comprehension instruction provided in the EX condition was both explicit and carefully sequenced, our findings align with recommendations by Shanahan et al. (2010) that primary-grade students be provided with explicit instruction in comprehension, beginning with listening comprehension.

Research Question 2

Our second research question addressed differences between each intervention group and the students who received typical school reading instruction. We had hypothesized that both intervention groups would outperform the TSI group on all outcomes. This hypothesis was only partially supported. Contrasts between the GR and EX groups and TSI yielded one statistically significant result for GR and several for EX.

Word Reading and Decoding—Both the GR and EX interventions resulted in significantly better outcomes in word reading compared to typical school-provided reading instruction and intervention, with nearly identical effect sizes. For phonemic decoding, only students in the EX condition had significantly better outcomes relative to typical instruction, and the effect size for this contrast was in the moderate range. It appears that second-grade at-risk readers who receive either GR or a more explicit approach, provided as in this study, could be expected to learn to recognize words better than those who receive typical reading instruction, with little difference between the two approaches; however, students who receive explicit intervention may be better able to decode unknown words they encounter in text. Thus, the ability to decode unknown words using sound–symbol correspondences appears to be best supported through explicit instruction. This is not trivial and may become increasingly important as students encounter more challenging multisyllable words in the intermediate grades. Although our study provides evidence that second-grade students with reading difficulties may learn to recognize words equally well when taught using different instructional approaches, this may not be true for younger students, as those in Grade 2 would have been exposed to basic word reading instruction prior to the intervention. The finding that GR and EX had similar effects on word identification when compared with typical instruction is interesting, given the differences in word study instruction in the two conditions. The EX intervention dedicated more time to direct, explicit word identification and spelling instruction with decontextualized practice in sound-spelling associations and word reading, whereas GR placed greater emphasis on the application of word reading strategies during text reading. EX word study instruction followed a scope and sequence to ensure that easier skills were taught before more difficult ones, whereas the content of word study instruction in the GR condition was based primarily on teacher observations of student needs. Students in the EX condition were taught to use a synthetic phonics approach to "sound out" unknown words, and they applied their skills in fully decodable text. Although students in the GR condition were also taught to blend word parts together to read unknown words, the primary emphasis in this condition was on an analogy phonics approach (i.e., identifying unknown words by analogy to known words and word parts). Research evidence supports the efficacy of both synthetic and analytic phonics when they are directly modeled and taught (National Reading Panel, 2000; Savage et al., 2009). We would emphasize that the approach to teaching word reading implemented in our GR condition, although less intensive and less systematic in terms of scope and sequence, was teacher directed. Similar findings were apparent in a previous comparison of two approaches to Grade 1 intervention that were both explicit and teacher directed but varied in whether they employed a systematic scope and sequence, the amount of time devoted to decontextualized phonics practice, and the use of decodable versus leveled text (Mathes et al., 2005). The importance of teacher-directed instruction for teaching word reading is consistent with recent interpretations of the advantage found for phonics instruction in the National Reading Report (Stuebing et al., 2008).

Alternately, the effects of explicit instruction on word reading may have been stronger if we had delivered it with greater intensity. The primary word study program implemented in the EX condition has demonstrated large effect sizes for word reading in previous studies with students in Grades 2 and 3 (Vadasy, Sanders, & Peyton, 2006; Vadasy, Sanders, & Tudor,

2007), when delivered in a 1:1 format for 30 min, 4 days per week. In our study, students were instructed in small groups 4 days per week. Many students received the program for 20 to 25 min in the first phase of intervention, but this was later reduced to 10 to 15 min as word reading proficiency improved and fluency instruction was added.

Fluency—Because the general models for fluency variables in our analyses did not indicate statistically significant treatment effects, we did not conduct pairwise comparisons on these variables in order to control Type 1 error. In line with the results for word reading, effect sizes on word reading and decoding fluency were similar for the GR and EX groups when contrasted with typical reading instruction. Effect sizes on passage reading fluency suggest stronger effects for the EX than GR interventions, relative to typical instruction, and the EX intervention was associated with growth in oral reading fluency that was 33% greater than would be expected with typical school instruction, 3 times the added value of GR. The approach to fluency instruction in the EX condition included repeated reading of grade-level passages with teacher support and feedback, timed readings, and self-monitoring of fluency progress, using a structured routine. This approach was associated with stronger effects on text reading fluency, relative to typical instruction, than the approach to text reading implemented in GR, which involved rereading familiar text. This was true even though GR students spent relatively more time reading connected text in each lesson. Nevertheless, students in both groups remained seriously impaired in oral reading fluency at the end of the study. According to norms by Hasbrouck and Tindal (2006), average oral reading fluency is 53 wcpm at the end of Grade 1 and 89 wcpm at the end of Grade 2. Students in the GR and EX conditions in the current study, most of whom were in Grade 2, ended the school year reading only an average of 37 to 40 wcpm. Standard deviations were large, indicating substantial within-group differences, but it is clear that most of these students require more intensive fluency intervention. Researchers have frequently reported similar difficulties in remediating fluency in intervention studies conducted with students beyond Grade 1 (Torgesen, 2005). Torgesen noted that this is primarily due to the practice deficit that accumulates because students with reading difficulties spend limited time reading text. For students with impaired word reading who have recently learned to recognize words accurately, automaticity in word recognition could be expected to follow only after multiple exposures to the words in print. Torgesen suggested that students with recently remediated word reading difficulties require extensive time devoted to text reading practice to achieve fluency performance in the average range.

Comprehension—The results for reading comprehension in this study indicate that explicit, systematic instruction in listening and reading comprehension may produce better outcomes, relative to typical instruction, than more informal discussions before, during, and after reading. Although the GR intervention in our study included an optional comprehension component, this instruction was less comprehensive and consistent than the instruction provided in the EX condition. The comprehension program implemented in the EX condition differed from typical comprehension instruction in that it (a) progressed systematically from less challenging to more challenging skills and strategies, (b) included explicit teacher modeling, and (c) provided multiple opportunities to practice a strategy with a partner and individually with feedback before proceeding to the next strategy. This

approach may be more effective for supporting reading comprehension development in students with reading difficulties than less systematic approaches. In typical practice, students are frequently asked to apply comprehension strategies (e.g., “Read these paragraphs and choose the best main idea statements.”) without being directly taught *how* to do so. Providing more explicit and carefully sequenced instruction and more opportunities for practice may be important, especially for students with learning difficulties.

Limitations

This study was conducted with a population of second-grade students at risk for reading difficulties, and GR was implemented as a supplement to regular classroom instruction. The results may not apply to younger students or more proficient readers. Further research of the GR approach with younger students and as a component of classroom reading instruction is warranted. In addition, our results should be interpreted in light of the fact that the same teachers taught both the GR and EX groups. Although we took steps to guard against contamination across conditions, teachers may have sometimes used techniques from one approach in the other condition.

Implications for Practice

Despite these limitations, this study has important implications. First, taken together, the findings support the use of GR for the development of word reading in students with reading difficulties but suggest that a more explicit approach is associated with stronger effects on students’ phonemic decoding, text reading fluency, and reading comprehension. In particular, students with learning difficulties may benefit from instruction in listening and reading comprehension that is more structured, sequential, and explicit than is typically provided.

The fact that students in all study conditions remained severely impaired in oral reading fluency at the end of the study indicates a need for extended opportunities for engaged text reading practice (Torgesen, 2005). This practice is best provided with monitoring and feedback from an adult or a more able peer so that students identify words correctly. Denton and Hocker (2005) pointed out that “students who don’t realize they made an error are likely to repeat it, and when students practice their mistakes, the mistakes become habits” (p. 17). Oral reading fluency has been shown to be closely related to reading comprehension in the primary grades (Fuchs, Fuchs, Hosp, & Jenkins, 2001); thus, fluency intervention may facilitate comprehension development.

Overall, our pattern of findings indicates that consistent, long-term supplemental instruction is likely needed by students who struggle with word reading in second grade. Only a small percentage of students in the TSI group received this kind of ongoing school-provided reading intervention, and the effects of this typical instruction were weaker than the effects of either experimental intervention.

Second-grade at-risk readers may have also benefited from more consistent, differentiated word-level instruction in their classroom reading programs. All teachers who provided daily classroom reading instruction reported that they devoted some portion of the reading period

to direct instruction in phonemic awareness, phonics, and/or word reading, but the proportion of class time devoted to this instruction varied widely across teachers. It is also possible that the objectives that were the focus of classroom word-reading instruction may have been inappropriate for the at-risk students in this study, who, by definition, had impaired word reading at pretest. Students beyond first grade who have not yet learned to read words accurately and fluently likely require differentiated instruction as they amass the foundational reading skills their classmates have already mastered.

A general implication of this study is that students beyond Grade 1who have substantial reading difficulties likely need fairly intensive intervention. This intervention may be best provided using published programs supported by empirical research rather than instruction developed by teachers or others in the school without the guidance of a program. Even when using published programs, interventions can be individualized by determining the focus of instruction (e.g., decoding, fluency, comprehension), selection of programs that are appropriate for students' reading levels, and using mastery tests and other progress monitoring measures to determine how quickly students can proceed through a program or when a change of emphasis is warranted.

Implications for Response to Intervention Models—Information about the effects of various approaches for students with reading difficulties is particularly important as schools design supplemental interventions within response-to intervention frameworks. The current study demonstrated that at-risk readers in second grade are more likely to have improved reading outcomes when they are provided with more consistent, comprehensive supplemental intervention than is often provided as part of typical Tier 2 interventions. Given that the goal of supplemental intervention in response-to-intervention contexts is to accelerate students' academic progress, GR may not be sufficiently powerful as a supplemental intervention for at-risk readers.

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Table 1

Participant characteristics by group

	EX	GR	TSI
Female	46	48	45
Race/Ethnicity			
African American	67	60	60
Caucasian	7	7	3
Hispanic	26	33	38
Economically disadvantaged	87	89	100
Grade			
1	10	16	13
2	90	84	87
Limited English proficiency	2	6	0
Special education	10	5	15
Urban site	56	60	55

Note. Economic disadvantage determined by qualification for federal free or reduced-price lunch program. Values are percentages. EX = explicit instruction; GR = guided reading; TSI = typical school instruction.

Table 2

Percentage of teachers reporting implementation of instructional materials or practices for various proportions of their daily reading instructional time

Instructional Materials and Practices	< 25% of Class Time	25–50% of Class Time	50–75% of Class Time	75% of Class Time	Total % Who Use This Practice
Instructional programs and approaches					
Published core reading program	36	17	14	31	99
Supplemental phonics program	4	13	3	14	34
Guided reading	23	20	11	11	66
Directly teach PA/phonics/word reading	36	23	17	24	100
Type of text students read					
Grade-level text provided with a program	14	33	16	30	93
Decodable or semidecodable text	31	21	17	26	96
Leveled text (as used in guided reading)	20	34	16	27	96
Reading formats					
Independent silent or quiet reading	47	24	9	19	99
Oral reading in small groups	37	26	17	19	99
Oral reading whole class	41	21	14	17	94
Paired/Partner reading	43	26	20	10	99
Teacher read-aloud	47	11	19	17	94
Differentiation of text difficulty					
Students read different text based on reading level	40	13	29	14	96
All students read the same text	44	23	19	10	96

Note. Values are percentages of teachers reporting in each category; PA = phonological awareness.

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Table 3

Observed pretest and posttest means, standard deviations, and mean pretest–posttest differences

			Pretest		Posttest		
Measure	**Group**	***n***	***M (SD)***		***M (SD)***		**Difference**
WJ III Letter-Word	EX	70	84.94	(12.17)	89.24	(9.24)	4.30
Identification	GR	70	86.26	(10.27)	88.52	(11.62)	2.26
	TSI	66	85.30	(11.91)	85.33	(11.68)	0.03
WJ III Word Attack	EX	70	89.81	(12.42)	94.71	(9.95)	4.90
	GR	70	90.41	(12.47)	92.12	(9.40)	1.71
	TSI	66	90.03	(12.40)	90.37	(11.93)	0.34
WJ III Passage	EX	70	81.27	(10.21)	86.92	(8.08)	5.65
Comprehension	GR	70	82.73	(9.61)	84.20	(10.18)	1.47
	TSI	66	81.20	(9.88)	83.25	(9.39)	2.05
Gates MacGinitie	EX	70	82.99	(10.63)	82.94	(10.44)	−0.05
Reading	GR	70	84.79	(10.92)	82.42	(11.92)	−2.37
Comprehension	TSI	66	86.19	(10.93)	82.08	(11.15)	−4.11
Test of Word Reading	EX	70	77.34	(10.24)	83.74	(11.53)	6.40
Efficiency	GR	70	78.61	(10.73)	82.86	(11.81)	4.25
	TSI	66	77.64	(10.69)	79.75	(11.06)	2.11
TPRI Passage	EX	70	17.14	(11.56)	40.02	(21.97)	22.88
Fluency	GR	70	20.24	(12.72)	37.16	(19.90)	16.92
	TSI	66	19.18	(17.29)	32.26	(21.34)	13.08
TOSREC	EX	63	75.29	(10.68)	87.85	(13.82)	12.56
	GR	62	75.19	(9.50)	85.10	(14.06)	9.91
	TSI	57	76.98	(10.57)	84.44	(13.99)	7.46

Note. All are standard scores except Texas Primary Reading Inventory (TPRI) Passage Fluency, which is the number of words read correctly per minute. WJ III = Woodcock–Johnson III Tests of Achievement; EX = explicit instruction; GR = guided reading; TSI = typical school instruction; TOSREC = Test of Silent Reading Efficiency and Comprehension.

Table 4

Group comparisons

Measure	Contrast	*t*	*p*	*d*
WJ III Letter-Word	GR - TSI	2.54	.01	0.32
Identification	EX - TSI	2.68	.01	0.33
	EX - GR	0.04	.96	0.01
WJ III Word Attack	GR - TSI	1.76	.08	0.30
	EX - TSI	3.37	.00	0.59
	EX - GR	1.52	.13	0.26
WJ III Passage	GR - TSI	0.66	.51	0.13
Comprehension	EX - TSI	2.45	.02	0.46
	EX - GR	1.74	.08	0.33
Gates MacGinitie	GR - TSI	0.42	.68	0.10
Passage Comprehension	EX - TSI	1.52	.13	0.37
	EX - GR	1.08	.28	0.25
Test of Word Reading	GR - TSI	2.02		0.34
Efficiency[a]	EX - TSI	1.65		0.29
	EX - GR	−0.43		−0.07
TPRI Passage Reading	GR - TSI	0.81		0.12
Fluency[a]	EX - TSI	2.37		0.36
	EX - GR	1.51		0.23
TOSREC	GR - TSI	1.02	.31	0.40
	EX - TSI	1.72	.09	0.61
	EX - GR	0.62	.53	0.22

Note. WJ III = Woodcock-Johnson III Tests of Achievement; GR = Guided Reading; TSI = Typical School Instruction; EX = Explicit Instruction; TPRI = Texas Primary Reading Inventory; TOSREC = Test of Silent Reading Efficiency and Comprehension.

[a]Because the overall *F* tests for these measures was not significant, we do not report probabilities for pairwise comparisons.