Published in final edited form as:
J Lit Res. 2006 January 1; 38(4): 357–387. doi:10.1207/s15548430jlr3804_1.

Teaching Children to Become Fluent and Automatic Readers

Melanie R. Kuhn,
Department of Learning and Teaching, Rutgers, the State University of New Jersey

Paula J. Schwanenflugel,
Department of Educational Psychology and Instructional Technology, University of Geogia

Robin D. Morris,
Department of Psychology, Georgia State University

Lesley Mandel Morrow,
Department of Learning and Teaching, Rutgers, the State University of New Jersey

Deborah Gee Woo,
Department of Literacy Education, New Jersey City University

Elizabeth B. Meisinger,
Department of Psychological Services Dallas Independent School District

Rose A. Sevcik,
Department of Psychology, Georgia State University

Barbara A. Bradley, and
Department of Curriculum and Teaching, University of Kansas

Steven A. Stahl
Department of Curriculum and Instruction University of Illinois, Urbana–Champaign

Abstract

The purpose of the study was to examine the effects of two instructional approaches designed to improve the reading fluency of 2nd-grade children. The first approach was based on Stahl and Heubach's (2005) fluency-oriented reading instruction (FORI) and involved the scaffolded, repeated reading of grade-level texts over the course of each week. The second was a wide-reading approach that also involved scaffolded instruction. hut that incorporated the reading of 3 different grade-level texts each week and provicled significantly less opportunity for repetition. By the end of the school year. FORI and wide-reading approaches showed similar benefits for standardized measures of word reading efficiency and reading comprehension skills compared to control approachcs. although the benefits of the wide-reading approach emerged earlier and included oral text reading fluency skill. Thus, we conclude that fluency instruction that emphasizes extensive oral reading of grade-level text using scaffolded approaches is effective for promoting reading development in young learners.

Over the past several years. there has been a renewed focus on what it means to be a fluent reader. as well as on ways in which teachers can aid the transition from deliberate. monotonous reading to tluid and expressive reading (e.g., Kuhn & Stahl, 2003: National Reacling Panel, 2000; Rasinski & Hoffman, 2003). However, although there is general agreement that tluency is an essential component of skilled reading. there continue to be both theoretical and practical questions regarding the ways in which instruction can best be implemented to facilitate fluent

Correspondence should be addressed to Melanie R. Kuhn, Rutgers Graduate School of Education, 10 Seminary Place, New Brunswick, NJ 08901–1183 melaniek@rci.rutgers.edu.

reading. This article reports on a large-scale study of two instructional interventions that have been successful in assisting the reading development of second graders from schools with moderate to high levels of poverty.

Two major, recent reviews of fluent reading (Kuhn & Stahl, 2003; National Reading Panel, 2000) indicate that fluency-oriented approaches to literacy instruction are effective at increasing students' accurate and automatic word recognition, assisting with their comprehension, and promoting their use of prosodic features, such as stress. Pitch. and suitable phrasing. These approaches include repeated readings (Dahl. 1979; Samuels, 1979), as well as a range of methods that integrate repetition as part of their practice, such as reading while listening (Chomsky, 1978), cross-aged reading (Labbo & Teale, 1990), and paired repeated reading (Koskinen & Blum, 1984). One key aspect of these approaches is that they combine extensive opportunities to read connected text with the provision of scaffolding. That is. they provide learners with support through either feedback or modeling that emphasizes appropriate decoding, phrasing. and expression.

However, when comparing approaches that implement repetition with those based on the scaffolded reading of a more extensive range of texts, Kuhn and Stahl (2003) found little difference in learner achievement. Given this. it is unclear whether the gains in fluency result from the repetition per se or from the scaffolded reading of significant amounts of connected text. To gain a better understanding of this issue. we contrasted two interventions. one based on the scaffolded repetition of a single text and a second based on the supported reading of multiple texts, to determine their effectiveness within the literacy curriculum.

Fluency's Role in Reading

Fluent reading is typically defined by three constructs (Kuhn & Stahl, 2003: National Reading Panel, 2000). Most commonly. these constructs include quick and accurate word recognition (Jenkins. Fuchs, van den Broek. Espin, & Deno. 2003). and. when oral reading is considered, the appropriate use of prosody (Cowie, Douglas-Cowie, & Wichmann. 2002; Schwanenflugel, Hamilton, Kuhn, Wisen-baker, & Stahl, 2004). Some definitions also include comprehension as part of fluent reading (Fuchs. Fuchs, Hocp. & Jenkins, 2001: Wolf & Katzir-Cohen, 2001). as fluency is seen as a factor in readers' ability to understand and enjoy text (e.g., Jenkins et al., 2003: Rasinski & Hoffman, 2003: Samuels, 2006).

According to automaticity theorists, reading is composed of several concurrent elements, including decoding and comprehension (LaBerge & Samuels, 1974). However. individuals have a limited amount of attentional resources available for reading (orany other cognitive task). As a result, attentional resources spent on decoding are necessarily unavailable for comprehension (Kintsch, 1998: Stanovich. 1984). Fortunately, as word recognition becomes automatic. less attention needs to be expended on decoding and more cognitive resources can be devoted to the construction of meaning.

According to automaticity theory. the most effective way for students to develop such automatic word recognition is through extensive exposure to print (Adams, 1990: Samuels, 1979: Stanovich, 1983). Such practice leads to familiarity with a language's orthographic patterns and allows learners to recognize words with increasing accuracy and automaticity. thereby permitting readers to focus on text meaning rather than simply on the words.

In addition to automatic word recognition. prosody may be an important indicator of fluent reading (Schwanenflugel et al., 2004). Reading prosody consists of those elements that cumprise expressive reading. including intonation, emphasis, rate, and the regularly reoccurring patterns of language (Flanks. 1990: Harris & Hodges, 1981, [1995]). When readers are able to apply these elements to text, it serves as an indicator that they can transfer elements

that are present in oral language to print (Dowhower, 1991: Schreiber, 1991). Some recent research has suggested that prosody in fluent reading may serve primarily as an indicator that a child has achieved automaticity in text reading (Miller & Schwanenflugel, 2006; Schwanenflugel et al., 2003). However. the exact role of prosody in reading comprehension is open to further research (e.g., Cowie et al., 2002: Levy, Abello, & Lysynchuk. 1997; Schwanenflugel et al., 2004; T. Shanahan, personal communication. December 2. 2004).

Approaches to Fluency Instruction

Research on fluency has focused on two types of learners: students making the transition to fluency at what is considered to be a developmentally appropriate point, usually around the second and third grade. and struggling readers who have experienced difficulty with this transition (Kuhn & Stahl. 2003). The two primary approaches used with the latter group have been unassisted repeated readings, in which a learner reads a text repeatedly until a desired level of fluency is attained, and assistedreading. in which achild reads atext with the support of a model, be it a skilled reader, a tape recording, or computer narration (Dowhower, 1989). Further, the majority of fluency strategies have been designed for individual learners or dyads.

In addition to these approaches. a small number of studies examined classroom extensions of assisted reading instruction. It is important to note that when we discuss assisted reading instruction we are referring to reading that is scaffolded or supported in some way. In other words, rather than expecting the students to work through a given text independently, these approaches provide some type of help with their word recognition, phrasing, or use of expression. This usually occurs as a form modeling, such as is provided through choral or echo reading or through books on tape and CD-ROMs. These were designed for whole classes or small groups of students and can be used for both struggling readers and their nonstruggling peers. The first of these approaches was the oral recitation lesson (ORL; Hoffman, 1987; Hoffman & Crone, 1985), which presented a framework for effectively implementing a basal reading lesson over the course of a week. It combined teacher modeling. a focus on comprehension at the beginning of the weekly lessons. echo reading. and student mastery of a portion of the text. Although the approach was not evaluated statistically, anecdotal evidence indicated that the students' rate: accuracy, and comprehension improved. Further, teachers found the ORL to be an effective instructional approach.

Two studies looked at shared reading as part of a second-grade literacy curriculum (Eldredge, Reutzel, & Hollingsworth, 1996; Reutzel, Hollingsworth, & Eldredge, 1994). In the first study (Eldredge et al.. 1996), the shared bookexperience (SBE; Holdaway, 1979) was found to be superiorto a traditional basal approach (i.e., round-robin reading) on measures of fluency and experimenter-designed comprehension measures but not on a standardized comprehension test. In the second study (Reutzel etal., 1994), the ORL was compared to the SBE. No significant differences were found between the ORL and the SBE groups on measures of tluency, vocabulary, and four measures of comprehension. However. the SBE group scored significantly higher when answering implicit questions on an experimenter-developed measure and on the word analysis subtest of a standardized achievement test; they also made significantly fewer oral reading miscues.

Other research also built on the ORL. including that by Morris and Nelson (1992), who modified the approach for small groups by developing a 3-day lesson plan for struggling readers that implemented teacher modeling, partner reading, and echo reading. The students also practiced a 100-word passage from these texts several times to improve their accuracy and automaticity. The results indicated that the students made gains in terms of their rate and word recognition and also demonstrated growth on two scales of word recognition. However, the study did not use a control group or present statistical results.

Rasinski, Padak, Linek, and Sturtevant (1994) used a similar format in their fluency development lesson (FDL); however, they based their reading on short texts rather than stories. Again. the FDL incorporated teacher modeling, choral reading, and paired practice. Because of the short texts, teachers were able to do the lesson in a daily 15-minute session over a 6-month period. The students in the treatment group showed gains in reading rate when compared to children getting traditional literacy activities. However. the differences between the experimental treatment and the control in overall reading level as measured by an informal reading inventory were not statistically significant.

The fluency-oriented reading instruction (FORI) program (Stahl & Heubach, 2005) is also based on the ORL. This approach was designed for whole-class instruction with second graders using grade-level material. The lessons were designed to maximize the amount of connected text children read, incorporated repetition and partner reading, and had a comprehension focus. This program was carried out by four teachers in two schools during the first year and was expanded to 10 teachers in three schools for the second year. Using the Qualitative Reading Inventory-I1 (QRI-II; Leslie & Caldwell, 1995) to determine instructional level, children in both years demonstrated greater gains than generally would have been expected: 1.88 years' growth in the first year of the intervention and 1.77 years' growth in the second year. Further. all but two students who began second grade reading at a primer level or higher were reading at a second-grade level or higher by the end of the year. However, the study lacked a control group.

In sum, of the six studies that examined the effects of classroom approaches designed to increase fluency, three used a control group. Of the three controlled studies, only one found clear evidence that the fluency-oriented lessons produced significantly better achievement than traditional. or round-robin, reading instruction. However, given the large gains reported by Stahl and Heubach (2005) and the general effectiveness of tluency instruction (Kuhn & Stahl, 2003; National Reading Panel, 2000), we considered it useful to examine these approaches through more controlled research.

Repeated or Wide Reading

When discussing the effectiveness of repeated reading approaches, a second issue emerges regarding the role of the repetition itself: Does the effectiveness of repeated reading approaches stem specifically from the repetition of texts or from the more general benefits that may be derived from extensive scaffolding of oral reading practice? In fact, Kuhn and Stahl's (2003) review of fluency-oriented instructional approaches indicated support for the latter idea. Overall, they found that studies comparing repeated reading with the equivalent amounts of scaffolded, but nonrepetitive, reading produced similar gains. It may be the case that, in general. the amount of reading carried out in typical classrooms is not extensive enough to support the development of fluent and automatic reading for many students. For example, Gambrel1 (I 984) found that, in the primary grades, children read connected text for less than 9 minutes per day on average, with some struggling readers reading as little as I or 2 minutes per day (see also Leinhardt. Zigmond, & Cooley. 1981). Other observational studies (e.g., Berliner. 1981; Leinhardt et al., 1981) have found that the amount of reading of connected text at an appropriate level was the best predictor of children's growth in reading achievement. Thus. the amount of reading that students complete plays an important role in their overall achievement (see Allington. 2002; Krashen, 2001). It may be. then, that fluency-oriented approaches work simply by increasing the amount of supported reading that children do and that it is this that leads to gains in achievement, rather than the repetition per se. Yet, to date, there has been little research that looks at this possibility.

One short-term study has attempted to look at this issue. Kuhn (2004–2005) contrasted repeated reading with a broader, but scaffolded, approach to fluency. The study consisted of four groups of five to six students that met for 15 to 20 minutes, three times per week, for a 6-week period. The first group repeatedly read a single story three times over the course of a week, the second group echo- or choral-read three different texts per week, the third group listened to three stories each week but did not have a copy of the text, and the final group did not receive any literacy instruction beyond what was occurring in their regular classroom. Results on the Test of Word Reading Efficiency (TOWRE; Torgesen. Wagner, & Rashotte, 1999) and the QRI-II (Leslie & Caldwell, 1995) indicated that the repeated reading and wide reading groups made greater gains on word recognition in isolation, correct words per minute. and prosody when compared to the control and listening-only groups: however, only the wide reading group made gains in terms of comprehension. Because the study was conducted over a relatively short period of time and with small numbers of children, it is possible that a lengthier, more comprehensive intervention might produce different results.

Given these findings, the purpose of this study was to examine the effects of two instructional approaches designed to improve the reading fluency of second graders. The first of these approaches is based on Stahl and Heubach's (2005) FORI method, which involved the scaffolded, repeated reading of a single story or text over the course of a week. The second implemented a wide-reading approach to fluency instruction that also involved scaffolding, but incorporated the reading of three different texts each week. This approach allowed for a contrast between the effects of extensive and supported repetition with the supported reading of a broader amount of text. Both approaches were compared to a control condition that incorporated a range of literacy instruction typical of the schools in which these children were situated, including shared reading. guided reading, and round-robin reading.

To evaluate the effectiveness of the approaches for promoting reading tluency, we used three assessments that targeted distinct skills. First, we assessed the children's sight word reading efficiency. Because there is a high degree of overlap among the core vocabulary for texts at these reading levels, both approaches were expected to benefit sight word reading (Hiebert & Fisher. 2005). Next. we assessed the students' oral reading fluency for connected text. We were uncertain whether there might be differential effects for the programs on text reading tluency. For example. Logan's (1997) instance theory of automaticity claims that automaticity is accrued while learning to read at sublexical, lexical, and phrase levels during each instance of reading a text. Children might be expected to accrue a variety of distinct traces at the phrase level from wide reading, and thus the wide-reading approach might foster superior text reading fluency because children would have this variety of traces from which to draw. On the other hand. all the distinct phrase-level traces accrued during wide reading might not be significant in terms of automaticity because they were not practiced often enough. creating an advantage for the repetition or leading to no discernable effects for one approach to fluency practice over the other. Finally, we evaluated the effects of the approaches on children's reading comprehension to ensure that the approaches were not resulting in the creation of word callers (i.e.. "fluent" readers who are unable to comprehend text).

We were also interested in evaluating short- and long-term use of the program. Kuhn's (2004–2005) short-term study indicated broader effects for the wide-reading group compared to their peers in the repeated reading condition. As such, we felt it was important to learn whether certain of the practices (e.g., repetition or wide reading) benefited from being carried out over a long term to be effective, or whether the benefits of one of the approaches to fluency might be seen in a shorter time.

METHOD

Participants

Twenty-four second-grade classrooms in New Jersey and Georgia participated in the research. The classrooms were part of eight schools that were randomly assigned as a unit to a particular condition. The New Jersey site consisted of two intervention schools and one control school in a suburban location. The three suburban schools served a predominantly working-class population with a free and reduced lunch rate of approximately 40% across the district. The population of this school district was very diverse. with children coming from households in which one of 33 languages were spoken as the primary home language. Although all the children in the classrooms participated in the intervention, students who were receiving English language support services did not take part in the assessments.

The Georgia site included four intervention schools and one control school in two urban locations. The schools at the southeastern site served a moderately high to high proportion of households of low socioeconomic status (SES), with between 50% and 90% of the students receiving free and reduced lunch (Georgia Office of Student Achievement, 2004). All five schools at these sites were low achieving. Four of the five schools served a majority African American population; the fifth school was more ethnically diverse.

In terms of overall demographics, the mean age of the students who were assessed was 7 years, 7 months (*SD* = 5 months; range = 6 years. 6 months–9 years, 9 months) at pretest. Forty-six percent of the participants were girls and 54% were boys. In terms of ethnicity, 51 % were African American. 23% were White, 21 % were Hispanic American. 5% were Asian American, and 1% was identified as other. Twenty-four percent of the children participated in the control condition, 41 % in the FORI condition. and 35% in the wide-reading condition. Overall. 60% of the sample was from the southeast sites, and 40% was from the site in the northeast.

All of the students took part in the curriculum component of the program (either the intervention component or their traditional instruction). Of these, 349, or 88% of the 396 students who were pretested based on parental consent, took part in the full assessment battery over the course of the study. None of the schools was participating in the Reading First initiative at the time of the intervention.

Assessments

To examine the effects of the program. a number of standardized reading assessments were used; these measured word reading efficiency, oral reading of connected text, and reading comprehension. Measures were chosen for fidelity both to the constructs that constitute tluent and effective reading at the second-grade level and to established levels of reliability and concurrent validity. Age-based standard scores were used in all analyses.

Word reading efficiency—To measure children's reading of isolated words, we used the TOWRE (Torgesen et al., 1999). The TOWRE is a list of words arranged in increasing order of difficulty. Children are asked to read as many words as they can within 45 seconds, and scores are based on the number of words correctly recognized. Despite its brevity, the TOWRE Sight Word Efficiency subtest has high reliability (.90–.97), with alternate form reliabilities ranging between .93 and .97, and high concurrent validity (.80–.94) with other measures of reading, according to the test publisher (Torgesen et al., 1999). Further. Schwanenflugel et al. (2004) found that the TOWRE Sight Word Efficiency subtest accounted for 76% of variance in the Wechsler Individual Achievement Test (WIAT: 1992) reading comprehension measure, more than any other measure included in that study, and was an excellent predictor of prosodic reading of text. Age-based standard scores based on the norms provided in the test manual

were used in all analyses. This assessment was given three times during the school year. Form A was administered in the first month of the school year. Form B was administered in the winter, and Form A was readministered in the last month of school.

Oral reading of connected text—The Gray Oral Reading Test (4th ed. [GORT–4]; Wiederholt & Bryant, 2001) was used to measure children's oral reading of connected text. The GORT–4 consists of a series of increasingly difficult passages that are read aloud. Scoring is based on the number of reading errors and the time it takes to read each passage. According to Wiederholt and Bryant (2001). the GORT–4 has reliability indexes ranging from .87 to .96 in the age ranges used in this study. and concurrent validity estimates with other measures of reading ranging from .39 to .89 (*Mdn r* = .64). We base our findings here un the test fluency score, which combines reading rate and accuracy and provides a global picture of the students' oral reading skills. The GORT–4 was administered concurrently with the other assessments. Form A was administered in the first month of school, Form B in the winter. and Form A again in the final month of school.

Reading comprehension—The Rending Comprehension subtest of the WIAT (1992) consists of a series of passages that children are directed to read silently or orally, as they choose. The reading of each passage is followed by questions that the child answers aloud in his or her own words. The test is individually administered and uses basal and ceiling rules to determine starting and stopping points. Scoring is based on the number of questions answered correctly. The manual reports high reliability coefficients for the Reading Comprehension subtest for both fall and spring of the second-grade year (.90–.91), as well as acceptable concurrent validity estimates of the subtest with other measures of reading (.43–.85, *Mdn* = . 78). This assessment was given concurrently with the other assessments only in the first and final months of school to minimize test–retest issues, as there is only one form of the test.

Procedures

Assessments—Each child was tested individually by a trained assessor following the standardized test protocol. However, the order of assessments was counterbalanced so that half the participants received the TOWRE followed by the GORT–4, which was followed by the WIAT. and the other half received these assessments in the reverse order. Because the districts used different school calendars, time of testing varied from district to district, but children were tested at equivalent points in the school year. Children were tested within the first 3 weeks of the school year, and then at approximately 20 weeks and 30 weeks into the school year.

Teacher professional development—As noted earlier, schools were randomly assigned to one of the three treatments: FORI, wide reading, or control. The teachers in our intervention schools participated in two 2-hour sessions of formal professional development at the beginning of the school year. Although the training was parallel and led by the same researcher, the FORI and wide-reading teachers participated in separate sessions. In other words, immediately prior to the beginning of the school year, all the FORI teachers in the Georgia site took part in their professional development sessions together, as did the wide-reading teachers. This pattern was repeated at the New Jersey site. The first session introduced the teachers to the instructional procedures and provided them with the appropriate general lesson plan for their intervention (see the Appendix). The second session centered on a videotape that demonstrated the use of fluency-oriented procedures in a second-grade classroom. Using the video as a starting point, the teachers and researchers discussed the ways in which the strategies on the tape could be integrated into their classrooms using the procedures outlined in the training. After 3 to 4 weeks, the researchers and the teachers met to discuss the program and to resolve any issues that arose during the first month of implementation. Because of the straightforward design of the interventions. the approaches could be implemented with a

minimal amount of professional development. In addition. contact continued among the researchers. the observers. and the teachers throughout the year. This contact was both informal (providing feedback after the observation, etc.) and formal (meetings after school).

Along with the formal professional development sessions, all teachers were given the opportunity to order grade-level books for their classrooms (the majority of which were identified as second-grade texts using Fountas and Pinnell's [1999] guidelines). This ensured that a minimum number of reasonably challenging texts were available for the students to use in the program. Further, all teachers were provided with an honorarium for the time they spent participating in the professional development and for facilitating data collection. Control teachers were provided with an equivalent book allowance, but there were no restrictions regarding the types of books that could be ordered for their classrooms. They were also provided the same honorarium, but took part in the professional development only after the intervention was completed.

Professional development emphasized that fluency-oriented instruction should be viewed as an important part, but only a part of the second-grade reading curriculum. The fluency activities were integrated into the broader literacy curriculum that included decoding, writing, and other literacy activities, although the exact format of this instruction varied from school to school and sire to site. Also, each site used a different reading program: basal, literature anthology, or guided reading. Thus, fluency-oriented instruction was the only constant against a backdrop of varied literacy viewpoints and practices. Our role in dealing with this variation was to assist the teacher in thinking of ways to integrate the fluency program into his or her preferred literacy program. The control teachers also used a variety of literacy activities ranging from round-robin reading to guided reading and reading workshops.

The intervention teachers used either an approach that focused on text repetition (i.e., FORI) or an approach that focused on the supported reading of a number of tests (i.e., wide reading). Both approaches brought comprehension to the forefront of the lessons, made use of modeling, and supported the students' reading through a weekly lesson plan (see the Appendix). Both approaches also used grade-level texts and all children read from the same materials as a central part of these approaches.

FORI—This is an adaptation of the approach developed by Stahl and Heubach (2005) involving the gradual release of support (Vygotsky, 1978) from a more knowledgeable reader (i.e., the teacher) over the course of a week through the use of an organized lesson plan (see the Appendix). At the beginning of the week. the teacher carried out full responsibility for the fluent rendering of the passage. By the end of the week, the children were expected to be able to read the same text on their own.

The teachers used texts for the program that were considered to be at grade level. The rationale was that the degree of support provided by the program would help children. even those reading below grade level, to read the passages successfully by the end of the week. Over the course of the year, this would gradually bring children's reading skills up to grade level. The teachers bad considerable latitude in the types and genres of texts used. The majority of the texts used came from the basal readers or literature anthologies and were predominantly, although not exclusively. narratives; however, many teachers also used class sets of trade books arid expository texts outside their basals.

Following the lesson plan, teachers began the week by introducing a text through a range of preteaching activities. They then read the week's selection aloud while the students followed along in their own copy. This provided students with the opportunity to see the words as they were pronounced without having to decode them independently and, simultaneously, to listen

to a good, prosodic model of the text. These read-alouds were followed by a discussion of the text As mentioned earlier, we felt that a comprehension focus early in the lesson was important to emphasize the construction of meaning as the primary purpose for reading (Hoffman & Crone, 1985). This discussion often involved teacher questioning, but teachers occasionally opted to use alternative approaches such as graphic organizers (e.g., story maps) or response-oriented instruction.

On the second day. teachers completed an echo reading of the text. In this component, teachers read two or three sentences aloud to the children. The students then "echoed" the teacher by reading these same sentences aloud. As the year progressed, the passages became longer so that it was not uncommon for students to echo an entire paragraph. The goal of reading several sentences aloud at one time was to exceed the children's short-term memory spans, thereby focusing them on word identification to echo the passage segments correctly. On this day, children also had the option of completing activities associated with the text, such as written responses. The homework connected with the program also started on the second day with the children bringing the text home to read to a family member or friend. The underlying conviction was that children should have established enough mastery of the text to begin reading it on their own or with limited assistance from a more knowledgeable other. For the remainder of the week, homework was dependent on the amount of continued support needed to develop comfort with the primary selection. Children who had achieved mastery of the text were allowed to read books of their own choosing. If a child needed extra support, he or she was asked to bring the text home to read again for homework.

On the third day, students completed a choral reading of the text. In choral reading, the entire class reads the text simultaneously with the teacher, giving learners another supported opportunity to read the text. The teachers were responsible for monitoring the children to ensure that they were actively engaged in the oral reading of the text. This was followed by a partner reading of the text on Day 4. Partner reading was considered important because it allowed each child to read half of each week's text independently. Partners were selected in one of two ways: Either the students self-selected their partners, or the teachers paired more skilled readers with less skilled peers. Both of these approaches have been shown to promote on-task behavior and cooperation during partner reading (Meisinger, Schwanenflugel, Bradley, & Stahl, 2004). If time permitted, the partners would switch pages and read through the text again (e.g., the student who read the odd pages would now read the even pages and vice versa).

On the final day, children completed extension activities related to the text, or finished other activities associated with the text. Depending on the number of times students read the selection at home, they read each selection between four and seven times over the course of the week.

Wide reading—The wide-reading component was based on a modification of the FORI and the wide-reading approach discussed earlier (Kuhn, 2004–2005; see the Appendix). Although many of the principles outlined for fluency-oriented approaches (e.g., modeling fluent reading, scaffolded reading) were incorporated, rather than reading a single text repeatedly, the students in the wide-reading component read three texts over the course of the week. The first day of the lesson plan paralleled the FORI lesson with the teacherreading the text aloud while the students followedalong and responded to it. On the secondday, the children echo-read the story. and if time allotted, they partner-read the text as well, although this partner reading hardly occurred in practice. Although the students had followed along in the text on Day 1, this was the only time they were responsible for an oral rendering of the text. Extension activities for the story took place on the third day. On the fourth and fifth days, the children echo-read and discussed a second and third text selected from class sets of trade books provided by the researchers. As with the FORI program, teachers used texts designated as being appropriate for second grade, according to leveling guides (e.g., Fountas & Pinnell. 1999). A variety of

text types. the majority of which were narratives, were used. However, a number of expository titles were also available. As with the FORI program, both the basal or literature anthology selection and the additional texts were sent home for students to reread. As a result, the wide-reading group read the primal·y text between two and four times (depending on whether the partnerreading and the home reading were completed), and read the two secondary texts once or twice (again depending on whether partner reading or home reading occurred inaddition to the echo reading). Thus, the differences between this intervention and the FORI intervention involved not only the number of texts read during the week but the number of rcreadings per text.

Control Classrooms—In addition to the intervention classrooms. there was a range of control classrooms at the two sites. Because the schools were randomly assigned to one of the two experimental conditions or to the control condition, there was no specific reading program planned for a comparison. Rather. the reading instruction consisted of existing practice in the classrooms and schools and included a range of instruction, such as shared reading, reading workshops, and guided reading. The most common grouping formats were whole-class and small-group instruction, which match these instructional approaches. The students also spent their class time fairly evenly divided among comprehension instruction, text reading. and word work. There was a great deal of teacher-directed hoard work. Students also frequently used textbooks and worksheets as opposed to trade books. In terms of oral reading, round-robin reading and teacher read-alouds were used far more frequently than any other forms of oral reading. However, some choral and repeated reading was used as part of the literacy instruction, along with a small amount of partner reading.

Remedial treatment—In addition to the intervention. a remedial treatment was implemented across both the treatment and control classrooms. This intervention was designed for the six lowest achieving children in each classroom. These children were all at the emergent reading level despite their second-grade standing. Previous research (e.g., Stahl & Heubach, 2005) indicated it was unlikely that such learners could take full advantage of fluency instruction without a supplemental program to acquire knowledge of print concepts and a minimal level of word recognition. The remedial intervention was designed to assist these learners through the provision of intensive instruction and was based, in part. on an adaptation and integration of the Retrieval. Automaticity. Vocabulary Elaboration. and Orthography program (RAVE-0) of Wolf, Miller, and Donnelly (2000) and the Phonological and Strategy program (PHAST) of Lovett. Lacerenza. and Borden (2000). The remedial instruction took place for 45 minutes per day by instructors trained in the preceding procedures and supplemental to the children’s regular classroom program.

Classroom observations—Throughout the year, each class, including the control classrooms, was observed two or three times by trained observers using a modified version of the *CIERA School Change Classroom Observation Scheme* (Taylor & Pearson, 2000). which incorporated an additional level of codes corresponding to the core activities of the two FOR1 interventions. This modified system was used to determine program fidelity (Kuhn, Woo, Bradley, & Smith, 2003). All observations were scheduled with the teachers and lasted for 30 to 40 minutes, depending on the length of the reading instruction. Detailed notes on classroom activities were taken by observers trained to use the CIERA School Change Classroom Observation Scheme (Taylor & Pearson, 2000; Taylor, Pearson, Peterson. & Rodriguez. 2003) and on the activities found in the two interventions. The *CIERA School Change Classroom Observation Scheme* allows for both qualitative and quantitative data analysis. Specifically, in the CIERA rubric, the observer takes qualitative field notes for a 5-minute period; this is coupled with 2 minutes of coding into seven categories, or levels, and a notation of the number of students on task. The coding levels identify who is giving the instruction,

how the students are grouped, the general or primary focus of instruction, the way in which that focus is implemented (e.g., if the students are working on reading, are they reading connected text or developing vocabulary). the materials being used, the style of teacher interaction, and the expected pupil response. Observers took detailed field notes on all activities occurring during reading instruction; however, they were not blind to the condition at the participating schools. Because fluency-oriented instruction constituted only part of the students' formal reading curriculum, additional activities beyond the core fluency activities were also observed. One observer at each site was responsible for the observations. Prior to coding the observations, the field notes were deidentified as to teacher, name, and condition. Then, one coder who was blind to the condition of the participating classroom coded all field notes. A second coder, also blind to the condition of the participating classroom, coded a subset of 15% of the field notes. Cohen's kappa indicated an intercoder reliability of .90 on these classroom activity codes. Disagreements were discussed until a consensus could be reached.

RESULTS

Classroom Observations

Once reliability on classroom activity codes had been obtained, the 5-minute segments were examined for the presence or absence of one of the core activities of the fluency-oriented instruction interventions: teacher read-aloud, repeated reading, choral reading, echo reading, or partner reading. As anticipated. teachers who had received professional development on the fluency-oriented instruction interventions were observed using core fluency activities in a greater percentage of segments than teachers not receiving this professional development (control $M = 5.8\%$. $SD = 5.8$; repeated $M = 13.3\%$. $SD = 7.1$; and wide $M = 15.5\%$, $SD = 10.6$); $F(2, 20) = 3.17$, $p < .05$ (one-tailed)There was no main effect of site or interaction between site, $F(1, 20) = 1.29$, $p = .270$, and condition, $F(2.20) = 1.39$, $p = .273$. Simple contrasts indicated that teachers in both interventions used core activities more than the control teachers (both $p < .05$). who spent less time engaged in the reading of connected text. Thus, professional development established change in teacher behavior in the direction of enhancing teachers' use of fluency practices compared to control teachers.

A perusal of Table 1 shows how these tluency interventions changed the distribution of activities in the literacy classroom. In these classrooms, there was a shift in grouping strategies compared to controls. $\chi^2(6, N = 24) = 20.64$. $p < .01$. Given the increased emphasis in the intervention classrooms on shared text (teacher read-aloud, echo reading, and choral reading) and partner reading. there was more whole-class activity, less small-group work, and an increased emphasis on pairing students to work together. There was a concomitant shift toward the core activities that were the focus of the interventions. $\chi^2(10, N 24) = 31.61$, $p < .001$, such as the focuson connected text, teacher reading aloud, partner reading, echo reading, choral reading, and, in the FORI classrooms, a focus on repetition of text as well. There was an increased emphasis on reading in these classrooms, rather than other language arts such as spelling. writing, and so on, $\chi^2(2, N = 24) = 25.09$, $p < .001$. Similarly, these classes indicated a decreased emphasis on word decoding skills and round-robin reading, $\chi^2 (6, N = 24) = 29.85$, $p < .001$. Further, participation in the interventions led to greater use of the fluency strategies. $\chi^2(10. N = 24) = 19.93$, $p < .05$, with teachers more likely to be seen reading aloud or listening to children read. Overall. these analyses indicate that the interventions integrated an increase in the time students spend reading connected text, a key element in reading development (Kuhn & Stahl, 2003;National Reading Panel, 2000), and a decrease in in-effective practices such as round-robin reading (e.g., Allington, 1983;Rasinski & Hoffman, 2003).

A separate analysis was carried out to determine the degree to which intervention teachers could be considered to be following the intervention as described in their professional

development. Each day's observations for each intervention were rated for overall fidelity using a 5-point scale, ranging from 1 *(no fidelity at all)* to 5 (very *high fidelity).* Again. a .90 interrater reliability was obtained on these general ratings and disagreements discussed until consensus could be reached. On these ratings, 80% of the FORI intervention teachers received fidelity ratings of 3 *(some fidelity)* or better (fidelity rating M = 3.8, SD = 1.1) and 80% of the wide-reading intervention teachers received ratings of 3 or better (M = 3.8, *SD* = 1.4). $t(18) = .60$, $p = .559$. Only one wide-reading teacher was viewed as not showing fidelity to activities described in professional development. Thus. general fidelity to the practices recommended in professional development was similar for both the FORI and wide-reading conditions.

Children's Assessments

Prior to carrying out analyses of the effectiveness of the FORI and the wide-reading approaches to fluency instruction, raw scores on each assessment were converted to standard scores as directed by their corresponding test manuals using age-based norms.. Age-based norms were used to control for differences across sites in terms of age of school entry and starting date of the school year (Crone & Whitehurst. 1999: Stipek & Byler, 2001). Analyses were carried out on the standard score for each measure separately because we had substantive interest in the distinct information provided by each. In each case, we predicted that children receiving the fluency interventions would have higher standardized assessment scores than those in the control groups.

Because our data had a hierarchical structure (i.e., children were nested within classrooms), hierarchical linear modeling (HLM) was used to correct for statistical issues associated with the lack of independence among scores of children nested within each classroom and to correct for the intraclass correlation among scores that may result. as recommended by Kreft and de Leeuw (1998), and Raudenbush. Bryk, Cheong, and Congdon (2001). For each model, dummy coded variables were created to serve as Level 2 (classroom) variables for each of the interventions. These dummy codes served as independent variables in the HLM analysis to distinguish intervention from control children.

An analysis of covariance approach to HLM was used to control for a priori variation in children's reading scores at the beginning of the study so that pretest-adjusted changes in reading scores could be examined. Thus, pretest standard scores on each assessment served as the Level I (children) covariate for the analyses of intervention effectiveness.

Further, prior to analyzing whether the interventions accounted for significant variation in children's standardized assessment scores, a null model analysis including pretest scores was carried out to evaluate whether there was significant classroom-level variation in outcome scores at the child level controlling for prior achievement. For all assessments, there was significant classroom-level variation in children's scores in both winter and spring outcome data ($p < .05$), indicating a rationale for using HLM to analyze assessment data.

For all analyses, we included a slope as well as an intercept parameter to analyze for potential differential effectiveness of the interventions for classrooms with generally low-skilleii versus generally high-skilled readers at pretest. In no case did we observe a significant differential slope in the benefits observed for the interventions as a function of initial pretest level (all $p > .05$), Thus, for the findings presented here. we can assume that the results apply to classrooms with initially higher skilled as well as lower skilled children according to pretest.

The fact that we had carried out midyear and year-end assessments allowed us to examine the issue of dosage. or the implementation period length needed for the intervention to show results. For each assessment. separate analyses were carried out using winter test standard scores to evaluate the effectiveness of short-term use of the two fluency-oriented programs and using

spring test standard scores to evaluate longer term use of the methods. These separate analyses were designed to determine the relative dosage (i.e., approximately 45% vs. 90% of an academic year) of the fluency-oriented instruction necessary to produce changes in fluency-related reading skills. Table 2 presents the unadjusted raw scores, the pretest-adjusted mean standard scores, and their corresponding percentile ranks on winter and spring assessments. Later we report the results for analysis of standard scores but analysis of raw scores produced similar results except in one case where noted.[1]

An HLM analysis was carried out using the intervention codes as the predictor variables, the pretest standard scores as a covariate, and the winter TOWRE standard scores as the dependent variable. This analysis indicated that children receiving the FORI intervention did not show significantly improved sight word reading scores compared to control children. $t(23) = .99$, $p = .335$, but children receiving the wide-reading intervention did show a significant improvement in sight word reading scores compared to controls. $t(23) = 3.39$, $p = .003$. Thus, differential benefits of short-term use of the intervention were shown only for the wide-reading intervention.

The benefits of long-term use of the classroom interventions were examined by evaluating spring assessments using HLM. This analysis indicated a significant improvement in intervention children's sight word reading scores for both FORI intervention children, $f(23) = 4.08$, $p = .001$, and wide-reading intervention children, $t(23) = 3.75$, $p = .001$, compared to control children. Together. the model including both interventions accounted for 44.0% of the classroom-level variance in children's spring sight word reading scores compared with the null model. In fact, the remaining classroom-level variance in children's scores was no longer significant once the interventions were included in the model, $\chi^2(23, N = 26) = 26.14$, $p = .294$. Thus, although the benefits on sight word reading efficiency emerged early for children receiving the wide-reading instruction. by the end of the school year, the children receiving the FORI caught up so that benefits for both types of fluency instruction could be found.

A similar analysis examined the short-term effects of fluency-oriented instruction on children's GORT–4 tluency standard score. Results found that children receiving the FORI intervention did not display a significant improvement in text reading skill. $t(23) = .87$, $p = .393$, compared to control children. In contrast, the children receiving the wide-reading intervention did show a significant improvement in text reading skill, $t(23) = 2.16$, $p = .041$, compared to control children. This difference, however, just missed significance when raw scores were used. $t(23) = 2.00$, $p = .057$. Together. the interventions accounted for 9.9% of the classroom-level variance in children's winter text reading scores compared with the null model.

The benefits of long-term use of the instructional interventions on children's text reading skills were examined by evaluating children's spring GORT-4 assessments. This analysis indicated a significant improvement in text reading skill for children receiving the wide-reading intervention, $t(23) = 2.30$, $p = .031$, but not for children receiving the FORI intervention, $t(23) = .94$, $p = .360$, compared to control children. Together, the more complex model including both interventions accounted for 4.6% of classroom-level variance in children's spring text reading score compareci to the null model. Unlike sight word reading efficiency, the benefits on text reading tluency seemed to be relegated to children receiving the wide-reading instruction. Wide-reading instruction's superiority for promoting text oral reading tluency over control classrooms emerged by the winter time point and was maintained throughout the year.

[1]An analysis of raw scores produced similar results with the sols exception that the wide-reading intervention did not produce significant benefits over controls on the GORT-4 by the winter time point.

It was important to demonstrate that the benefits of the fluency interventions were not limited solely to word- and text-reading skills at the expense of reading comprehension. In fact. theoretically, we predicted that improvements in reading tluency would be accompanied by improvements in reading comprehension. Moreover, as noted earlier. some definitions of fluent reading include good reading comprehension (Fuchs et al., 2001).

As before, the benefits of long-term use of the tluency-oriented instruction programs were examined by evaluating their effects on spring reading comprehension standard scores using HLM. This analysis found significant improvements in children's reading comprehension scores for both the FORI intervention, $t(23) = 2.28$, $p = .032$, and wide-reading intervention, $t(23) = 2.62$, $p = .016$, compared to control children. Together, the model including both the tluency-oriented instruction interventions accounted for 17.5% of the classroom-level variance in children's spring reading comprehension scores in contrast to the null model. Moreover, once the classroom-level interventions were included into the model, the remaining classroom-level variance in children's scores was no longer significant, $\chi^2(23, N = 76) = 19.34$, $p > .50$. Thus. improvements in efficient word reading skills attributable to the interventions were accompanied by improvements in reading comprehension skill as well.

One question that emerges from our analyses is the comparative benefit of the wide-reading approach versus FORI approaches. An analysis contrasting the relative effectiveness of the approaches yielded no significant differences for sight word efficiency at either the winter, $t(23) = 1.60$. $p = .122$, or spring, $t(23) = .55$, $p = .590$. time points. Similarly, there were no significant differences between the two approaches on oral reading fluency at the winter, $t(23) = 1.34$, $p = .193$. or spring, $t(23) = .74$, p = .466, time points. There were no significant differences between the wide-reading and FORI approaches on reading comprehension at the spring time point, $t(23) = .26$, $p = .795$. Thus, in general, it appears that the two approaches were similarly effective in promoting skills related to the development of reading fluency.

DISCUSSION

Results indicate that the FORI and wide-reading approaches. with their scaffolding and their simple classroom structure, are useful for reading instruction in the second grade. This study found better growth for both of the interventions on word reading efficiency and reading comprehension relative to the growth experienced by children in the control classrooms. These benefits emerged earlier for the wide-reading approach when compared to the control classrooms than they did for the FORI condition. The wide-reatling group also made gains in terms of reading fluency when compared to the controls. Thus. our approaches might be viewed as generally more beneficial than some other approaches to improving reading skills in second-grade students. Because a variety of schools serving low- to middle-SES populations that had experienced underachievement in reading participated in the study, and because we used an experimental design, we can generalize our findings to other schools of this type.

From their review of the literature on fluency instruction. Kuhn and Stahl (2003) posited that wide-reading approaches might benefit the development of reading as much as repetition—an underlying tenet of fluency theory to date (e.g., Samuels, 1979). This study confirms that the wide-reading approach did at least as well as the FORI approach in terms of comprehension and word recognition when compared to the control groups; however, the wide-reading approach here did include a minimal number of repetitions, so further research is necessary to confirm whether a version of wide reading with no repetition would produce similar results. These gains also appeared by the winter time point for the wide-reading approach. Further, the wide-reading approach made gains in terms of connected text reading as well.

These findings help narrow down exactly what is and is not important about fluency-oriented instructional practice. One consistent feature across the two interventions is the amount of time engaged in the oral reading of text. Both interventions were designed to increase the sheer amount of classroom time spent reading. Students carried out choral reading. echo reading. and partner reading over the course of the week. According to the classroom observations, this increased the amount of time students spent reading in comparison to the controls. In terms of word reading efficiency and reading comprehension, whether one or three texts were used per week did not differentially determine the general effectiveness. We believe that the similarity of our two interventions on these components of literacy development may be attributed to certain aspects of texts as well. For instance, it has been well-established that around 100 words account for more than half of the running words in texts used through third grade (Adams. 1990). There are sublexical letter–sound correspondences inherent in word structures that are important for reading in all texts (Coltheart & Leahy. 1992). The vocabulary is somewhat controlled in these texts (Hiebert. 1999) and, although our teachers used a variety of text types (particularly in the wide-reading approach), most texts cohered to a narrative structure (Duke. 2000). As a result of these commonalities, practice on one of these texts was fairly equivalent to practice on another. Perhaps. then, it is not that surprising that the effects of the two interventions were fairly similar.

What is surprising. however, is the breadth of differences that emerged between the wide-reading group and the control groups. Gains for the wide-reading group emerge early, with significant gains made in terms of oral text reading when compared to the control groups. We believe that these differences. as well as the differences between the FORI and the control groups. may have developed as the result of the way text is encoded in memory.

Instance Theory of Automaticity

Recent versions of automaticity theory. in particular the instance theory of automaticity proposed by Logan (1997), have important implications for interpreting our findings. According to Logan. each time a reader attends to text. an instance or trace of that text is automatically encoded in memory at the sublexical. lexical. phrase. and text levels. As these instances build up—within a relatively few repetitions (three to five according to many authors; e.g., O'Shea, Sindelar, & O'Shea. 1985. [1987]; Reutzel. 2003)—they become relatively easier to retrieve (following the power law of learning: Logan, 1997). As a result, a given instance becomes readily available for retrieval at a later point.

The development of these instances can occur in one of two ways. First. as in the FORI approach. repetition can strengthen a given encoding, allowing the particular text instance (and its corresponding phrase. lexical. and sublexical traces) to be retrieved more quickly. Second. as in the wide-reading approach, many instances (and their corresponding phrase. lexical, and sublexical traces) can be encoded through exposure to a range of texts. Because of their emphasis on the extensive use of scaffolded oral reading of text. both approaches should ease the encoding and retrieval of a range of similar print. This is due to the ability of memory to bring similarly encoded texts into consciousness when exposed to new text. However, the large number of traces established through the wide-reading condition may have led to a wide range of traces at the phrase and text levels in memory. Because children in the wide-reading condition had a greater range of well-encoded higher level traces available in memory, it is likely that, when reading new texts, a wider range of traces become activated. thus contributing to the demonstration of improved text oral reading fluency in the wide-reading group over the control group. However, both FORI and wide-reading groups displayed growth in sight word reading efficiency compared to controls. From the standpoint of this theory. this finding can emanate from the word-level traces established during the extensive oral reading practice provided by both interventions. Analyses of children's school-based early reading materials

indicate a great similarity among texts at the lexical level. if for no other reason than the preponderance of high-frequency words in text (Adams, 1990; Hiebert, Martin. & Menon, 2005). This implies that, in terms of word recognition. practice on one text is similar to practice on another and results in similar gains on children's sight word reading efficiency compared to controls.

Commonalities and Differences

Despite the minor differences in the findings for the two interventions compared to controls, the children in the two programs ended up with skills that were not significantly different from each other. Thus, we consider both approaches to be successful and would recommend either of them for classroom use, depending on the resources available in a given school community. The wide-reading intervention is more resource intensive, requiring class sets of two additional grade-level texts for each week of the school year. Although some schools may lack the funds for the large number of texts that the wide-reading intervention requires, our classrooms partially solved this problem by sharing texts across second-grade classrooms. Older basal series or class sets of magazines for young readers may also supplement the texts currently in use.

If improved comprehension is the "gold standard" against which all reading intementions are measured. both interventions might be considered successful. We also believe that the benefits associated with the interventions may be attributed to three features: (a) the use of texts that challenged many of the children, (b) the use of scaffolded reading techniques to support the reading of such texts. and (c) the significant amount of time (2040 minutes a day) that children spent reading connected text as part of the programs. Because these features are common to both approaches, we feel coinfortable recommending them as part of the broader literacy curriculum.

Scaffolding challenging texts—Our results confirm earlier findings (Kuhn, 2004–2005: Stahl & Heubach, 2005) that children can benefit from reading texts that are considered to be beyond their instructional level, if scaffolding techniques that provide immediate feedback and modeling are used and if oral reading practice is provided. These latter features may be especially important for allowing young struggling readers to read texts at grade placement rather than at their reading levels. Because selections in typical second-grade basal texts range from late first to third grade. much of the inaterial struggling readers are expected to read is of a considerably higher than the level at which they can decode comfortably. However. with the scaffolding provided through repetition or inodeling (e.g., the use of echo, choral. and partner reading), students were able to read text that would have otherwise been considered frustrating.

This suggests a different approach than the commonly used notion (e.g., Fountas & Pinnell, 1999) that instruction should be matched children's skill level. This study suggests that this approach may not always be the most effective, at least when the goal is fluency and learners are focused on the improvement and consolidation of their emergent skills. When children read with a variety of supports, such as those provided with these fluency-oriented approaches, they are able to read texts at a higher difficulty level than their instructional level would suggest—texts that would otherwise be considered to be beyond their ability. Reading richer texts benefits children by exposing them to a wider variety and volume of words as well as a greater range of concepts. Both variety and volume of text would seem necessary for the development of good decoding and comprehension skills (Adams, 1990; Beck. McKeown. & Kucan, 2002; Guthrie, 2004; Nagy, 1988).

This is not to say that children should be given a text of disproportionate difficulty. Presumably, there is a limit to how difficult texts might be before these fluency approaches would fail. Stahl and Heubach (2005) suggested that. with strong support, children could benefit from texts in

which they could read 85% of the words correctly. We think that a construct similar to that of Vygotsky's (1978) notion of the zone of proximal development might be used for choosing both texts and appropriate support activities. That is, when the texts are difficult given the child's reading skill level. then more support in terms of scaffolding. repetition. and additional home reading should be provided. gradually releasing responsibility for fully decoding the text from the more knowledgeable adult to the less skilled child. When the texts are closer to the child's reading level, it might be possible to provide less scaffolding while still supporting reading development.

Text characteristics—Aside from the scaffolding provided by these interventions, several text characteristics may contribute to their effectiveness as well. Because the texts used in this study were at the second-grade level. they tended to be relatively more linguistically complex than those struggling readers might have ordinarily experienced as part of their reading day. All students were exposed to trade books, informational texts, and basal reading texts or literature anthologies. Although the core vocabulary of these texts likely had a significant degree of overlap (Adams. 1990). as children move to higher levels, texts tend to have more words, less repetition, and less easily decoded words (Hoffman, Sailors, & Patterson, 2002). Further, texts are more engaging and linguistically complex than those used at the lower levels. By focusing on grade-level materials for all children, it is reasonable to assume that the children reading below grade level at the beginning of the year were exposed to more interesting, although less accessible, text than they might otherwise have been. When texts are limited, children miss out on the kinds of engagement needed to learn from and enjoy books in later grades (Guthrie, 2004). However. the support provided by the scaffolded reading methods described here provided children the opportunity to succeed in the reading of more challenging texts. Further, because of the length and complexity of the texts used in this study, learners were required to process the words rather than merely memorize short text segments. This requires attention to and analysis of words. key components in the development of specific lexical representations and automatic word recognition (Adams. 1990; Perfetti, 1992).

Increased practice—Finally, we want to stress that a key ingredient in our fluency interventions is the coherent focus on the oral reading of texts during reading instruction. Often. classroom practice includes very little oral reading practice, and much of the oral reading practice that does exist takes on the form of round-robin reading, which has been shown to be ineffective (Ash, Kuhn. & Walpole, 2003; Rasinski & Hoffman. 2003). However, effective oral reading approaches can take a number of forms, including echo. choral. and partner I·rading, as discussed earlier. Similarly, the traditional forms of repeuted reading (Dowhower. 1989; Samuels. 1979) and offshoots such as reading-while-listening (Chomsky, 1978) and cross-aged reading (Labbo & Teale. 1990) are also effective means of developing oral reading. Such approaches are critical to fluency instruction and a key element in reading engagement. They allow learners to transfer decoding instruction to connected text and provide students with opportunities to practice what they have learned about word recognition in their reading. Further, by allowing students to internalize their decoding skills, such oral reading instruction prevents them from becoming "glued to print" (Chall. 1996. p. 46).

Challenge versus frustration—Despite the effectiveness of these approaches, it must be stressed that fluency-oriented instruction is not for all children. In previous work. Stahl and Heubach (2005) determined that children at an emergent level, or those unable to read preprimer texts independently, failed to benefit from such instruction. However, in this study. we chose not to eliminate children receiving remedial instruction from our analyses because we wanted to focus on benefits to classrooms as a whole. Instead, we provided remedial readers in both control and intervention classrooms with techniques drawn from supplemental reading programs known to be successful with struggling readers (Lovett et al.. 2000; Wolf et al.,

2000). By combining these effective practices for struggling readers with the tluency-oriented instruction interventions, these children were able to participate fully in regular classroom instruction.

Future directions for research—Given that. when compared to other aspects of reading, relatively little research had been conducted on fluency, we viewed this study as one that could establish basic understandings regarding a number of processes involved both in fluent reading and fluency instruction. Future research needs to focus more carefully on the role of intervention on emel·gent characteristics of text reading, such as prosodic reading. Although many researchers consider prosody to be a critical element in fluent reading (Erekson, 2003: Kuhn & Stahl. 2003: Rasinski & Hoffman. 2003). its role in the reading process in general and on comprehension in particular remains unclear (e.g., Levy et al.. 1997; Schwanenflugel et al., 2004). We chose not to measure children's expressiveness for this reason. However, expressive reading is likely to connect to engagement and motivation (Morrow & Asbury, 2003; Optiz & Rasinski, 1998), so future research might consider changes in reading prosody as an additional outcome measure. One reason we model expressive oral reading is to introduce learners to the enjoyment that comes with reading a variety of texts. When students can adopt the elements of fluent reading in their own rendering of texts. there is a higher likelihood that they will engage with print than would be the case if their own reading is distluent. Thus. future research needs to consider the role of classroom practices for enhancing reading fluency on student engagement.

Conclusions—By the end of the year. the FORI and wide-reading approaches had demonstrated a positive impact on children's reading skills. As a result. we conclude that increasing the amount of time children spend reading challenging connected text with the proper scaffolds will lead to improvements in word reading efficiency and reading comprehension, confirming the results of Leinhardt et al. (1981) and Berliner (1981), among others.

As noted at the outset. for many children to become successful readers. they need to make accelerated progress. Such progress will look different in different grades and for different goals. One such goal is that children should be able to read text appropriate for their grade placement with fluency. The programs assessed here seem to have been successful in providing such progress. By moving children toward the goal of reading grade level text. either through repetition or through increasing the amount of text read with support. FORI and wide-reading fluency instruction have the potential to help us meet our goal of "leaving no child behind."

Acknowledgments

This research was supported in part by the Interagency Education Research Initiative, a research program jointly managed by the National Science Foundation, the Institute of Education Sciences in the U.S. Department of Education, and the National Institute of Child Health and Human Development in the National Institutes of Health (NIH Grant 7 R01 HD040746–06) Steven A. Stahl served as the principal investigator until his untimely death in May 2004. This article is dedicated to his memory. We thank Kay Stahl for her advice and assistance. We thank Claire Smith, Matt Quirk, Emily Moore, Susan Parault, Jessie Powers, Rebecca Gara, Eileen Cohen, Justin Wise, Hye-Kyeong Pae, Jennifer Harrison, Samantha Johnson, Whitney Cook, and Justin Miller for assisting in data collection. We also extend our gratitude to the many teachers and administrators in the public school districts who so graciously participated in this research project.

References

Adams, MJ. Beginning to read: Thinking and learning about print. Cambridge MA: MIT Press; 1990.

Allington RL. Fluency: The neglected reading goal. The Reading Teacher 1983;36:556–561.

Allington, RL.; Farstrup, AE.; Samuels, SJ. What research has to say about reading instruction. Vol. 3. Newark DE: International Reading Association; 2002. Research on reading/learning disability interventions; p. 261-290.

Ash, GE.; Kuhn, MR.; Walpole, S. Flying in the face of research: Inservice teachers & their use of round robin reading (research in progress). Paper presented at the meeting of the National Reading Conference; Scottsdale, AZ. 2003 Dec.

Beck, IL.; McKeown, MG.; Kucan, L. Bringing words to life: Robust vocabulary instruction. New York: Guilford; 2002.

Berliner, DC. Academic learning time and reading achievement. In: Guthrie, JT., editor. Comprehension and teaching: Research review. Newark, DE: International Reading Association; 1981. p. 203-226.

Chall, JS. Stages of reading development. Vol. 2. Fort Worth TX: Harcourt-Brace; 1996.

Chomsky, C. When you still can't read in third grade? After decoding. what?. In: Samuels, SJ., editor. What research has to say about reading instruction. Newark DE: International Reading Association; 1978. p. 13-30.

Coltheart V, Lcahy J. Children's and adults' reading of nonwords: Effects of regularity and consistency. Journal of Experimental Psychology 1992;18:718–729. [PubMed: 1385612]

Cowie R, Douglas-Cowie E, Wichmann A. Prosodic characteristics of skilled reading: Fluency and expressiveness in 8–10-)ear-old readers. Language and Speech 2002;45:47–82. [PubMed: 12375819]

Crone DA, Whitehurst GJ. Age and schooling effects on emergent literacy and reading skill. Journal of Educational Psychology 1999;Y1:603414.

Dahl, PR. An experimental program for teaching high speed word recognition and comprehension skills. In: Button, JE.; Lovitt, T.; Rowland, T., editors. Communications research in learning disabilities and mental retardation. Baltimore: University Park Press; 1979. p. 33-65.

Dowhower S. Repeated reading: Theory into practice. The Reading Teacher 1989;42:502–507.

Dowhower S. Speaking of prosody: Fluency's unattended bedfellow. Theory Into Practice 1991;30:158–164.

Duke NK. 3.6 minutes per day: The scarcity of informational texts in first grade. Reading Research Quarterly 2000;35:202–224.

Eldredge JL, Reutzel DR, Hollingsworth PM. Comparing the effectiveness of two oral reading practices: Round robin reading and the shared book experience. Journal of Literacy Research 1996;28:201–225.

Erekson, J. Prosody: The problem of expression influency. Paper presented at the annual meeting of the International Reading Association; Orlando. FL. 2003 May.

Fountas, IC.; Pinnell, GS. Matching books to readers: Using leveled books in guided reading. K-3. Portsmouth, NH: Heinemann; 1999.

Fuchs LS, Fuchs D, Hosp MK, Jenkins JR. Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. Scientific Studies in Reading 2001;5:239–256.

Gambrell, LB. How much time do children spend reading during teacher-directed reading instruction?. In: Niles, JA.; Harris, LA., editors. Changing perspectives on research in reading/language processing and instruction, Thirty-third yearbook of the National Reading Conference. Rochester NY: National Reading Conference; 1984. p. 193-198.

Georgia Office of Student Achievement. 2001–2002 Annual education accountability reports. 2004. Retrieved January 18, 2005, from http://reportcard.gaosa.org/yr2002/

Guthrie, J. Teaching for literacy engagement: Practices. policies. and pitfalls; Paper presented at the Governor's Literacy Forum; New Brunswick. NJ. 2004 Oct.

Hanks, P., editor. The Collins English dictionary. Glasgow, Scotland: William Collins; 1990.

Harris, TL.; Hodges, RE. A dictionary of reading and related terms. Newark, DE: International Reading Association; 1981.

Harris, TL.; Hodges, RE. The literacy dictionary: The vocabulary of reading and writing. Newark, DE: International Reading Association; 1995.

Hiebert EH. Text matters in learning to read. The Reading Teacher 1999;52:552–556.

Hiebert EH, Fisher CW. A review of the National Reading Panel's studies on fluency: The role of text. The Elementary School Journal 2005;105:443–460.

Hiebert EH, Martin LA, Menon S. Are there alternatives in reading textbooks? An examination of three reading programs. Reading & Writing Quarterly 2005;21:7–32.

Hoffman J. Rethinking the role of oral reading. Elementary School Journal 1987;87:367–373.

Hoffman, JV.; Crone, S. The oral recitation lesson: A research-derived strategy for reading basal texts. In: Niles, JA.; Lalik, RV., editors. Issues in literacy: A research perspective, 34th yearbook of the National Reading Conference. Rochester NY: National Reading Conference; 1985. p. 76-83.

Hoffman JV, Sailors M, Patterson EU. Decodable texts for beginning reading instruction: The year 2002 basis. Journal of Literacy Research 2002;23:269–298.

Holdaway, D. The foundations of literacy. Sydney, Australia: Ashton-Scholastic; 1979.

Jenkins JR, Fuchs LS, van den Broek P, Espin C, Deno SL. Sources of individual differences in reading comprehension and reading fluency. Journal of Educational Psychology 2003;95:719–729.

Kintsch, W. Comprehension: A paradigm for cognition. Cambridge, UK: Cambridge University Press; 1998.

Koskinen, PS.; Blum, IH. Repeated oral reading and the acquisition of fluency. In: Niles, JA.; Harris, LA., editors. Changing perspectives on research in reading/language processing and instruction, 33rd yearbook of the National Reading Conference. Rochester, NY: National Reading Conference; 1984. p. 183-187.

Krashen S. More smoke and mirrors: A critique of the National Reading Panel report on fluency. Phi Delta Kappan 2001;83:119–123.

Kreft, I.; de Leeuw, J. Introducing multilevel modeling. Thousand Oaks, CA: Sage; 1998.

Kuhn MR. A comparative study of small group fluency instruction. Reading Psychology 2004–2005;26:127–146.

Kuhn MR, Stahl SA. Fluency: A review of developmental and remedial practices. Journal of Educational Psychology 2003;95:3–22.

Kuhn, MR.; Woo, D.; Bradley, B.; Smith, CH. Classroom effects influency development; Paper presented at the annual meeting of the National Reading Conference; Scottsdale. AZ. 2003 Dec.

Labbo LD, Teale WH. Cross-age reading: A strategy for helping poor readers. The Reading Teacher 1990;43:362–369.

LaBerge D, Samuels SJ. Toward a theory of automatic information processing in reading. Cognitive Psychology 1974;6:293–323.

Leinhardt G, Zigmond N, Cooley W. Reading instruction and its effects. American Educational Research Journal 1981;18:343–361.

Leslie, L.; Caldwell, J. Qualitative Reading Inventory–II. Boston: Longman; 1995.

Levy BA, Abello B, Lysynchuk L. Transfer from word training to reading in context: Gains in reading fluency and comprehension. Learning Disability Quarterly 1997;20:173–188.

Logan GD. Automaticity and reading: Perspectives from the instance theory of automaticity. Reading & Writing Quarterly: Overcoming Learning Difficulties 1997;13:123–146.

Lovett MW, Lacerenza L, Borden SL. Putting struggling readers on the PHAST track: A program to integrate phonological and strategy-based remedial reading instruction and maximize outcomes. Journal of Learning Disabilities 2000;33:458–476. [PubMed: 15495548]

Meisinger EB, Schwanenflugel PJ, Bradley BA, Stahl SA. Interaction quality during partner reading. Journal of Literacy Research 2004;36:111–140. [PubMed: 19830259]

Miller J, Schwanenflugel PJ. Prosody of syntactically complex sentences in the oral reading of young children. Journal of Educational Psychology 2006;98:839–843. [PubMed: 19777079]

Morris D, Nelson L. Supported oral reading with low achieving second graders. Reading Research and Instruction 1992;32:49–63.

Morrow, LM.; Asbury, E. Current practices in early literacy development. In: Morrow, LM.; Gambrell, LB.; Pressley, M., editors. Best practices in literacy instruction. Vol. 2. New York: Guilford; 2003. p. 43-63.

Nagy, WE. Teaching vocabulary to improve reading comprehension. Newark, DE: International Reading Association; 1988.

National Reading Panel. Report of the subgroups: National Reading Panel. Washington, DC: National Institute of Child Health and Development; 2000.

Optiz, MF.; Rasinski, TV. Good-bye round robin reading: 25 effective oral reading strate. Portsmouth, NH: Heinemann; 1998.

O'Shea LJ, Sindelar PT, O'Shea DJ. The effects of repeated readings and attentional cues on reading fluency and comprehension. Journal of Reading Behavior 1985;17:129–142.

O'Shea LJ, Sindelar PT, O'Shea DJ. The effects of repeated readings and attentional ƨuɐƨ on the reading fluency and comprehension of learning disabled readers. Learning Disabilities Research 1987;2:103–109.

Perfetti, CA. The representation problem in reading acquisition. In: Gough, PB.; Ehri, LC., editors. Reading acquisition. Hillsdale, NJ: Lawrence Erlbaum Associates; 1992. p. 145-174.

Rasinski, TV.; Hoffman, JV. Reading Research Quarterly. Vol. 38. 2003. Oral reading in the school curriculum; p. 510-SZZ.

Rasinski TV, Padak N, Linck W, Sturtevant B. Effects of fluency development on urban second-grade readers. Journal of Educational Research 1994;87:158–165.

Raudenbush, S.; Bryk, A.; Cheong, YF.; Congdon, R. HLM5: Hierarchical linear and nonlinear modeling. Lincolnwood, IL: Scientific Software International; 2001.

Reutzel, DR. Fluency: What is it? How to assess it? How to develop it!; Paper presented at the annual meeting of the International Reading Association; Orlando, FL. 2003 May.

Reutzel DR, Hollingsworth P, Eldredge L. Oral reading instruction: The impact on student reading development. Reading Research Quarterly 1994;29:40–62.

Samuels SJ. The method of repeated readings. The Reading Teacher 1979;32:403–408.

Samuels, SJ. Reading fluency: Its past, present, and future. In: Rasinski, T.; Blachowicz, C.; Lems, K., editors. Fluency instruction: Research-based best practices. New York: Guilford; 2006. p. 7-20.

Schreiber PA. Understanding prosody's role in reading acquisition. Theory Into Practice 1991;30:158–164.

Schwanenflugel PJ, Hamilton AM, Kuhn MR, Wisenbaker J, Stahl SA. Becoming a fluent reader: Reading skill and prosodic features in the oral reading of young readers. Journal of Educational Psychology 2004;96:119–129. [PubMed: 19777077]

Stahl SA, Heubach K. Fluency-oriented reading instruction. Journal of Literacy Research 2005;37:25–60.

Stanovich KE. The interactive-compensatory model of reading: A confluence of developmental, experimental, and educational psychology. RASE: Remedial & Special Education 1984;5:11–19.

Stipek D, Byler P. Academic achievement and social behaviors associated with age of entry into kindergarten. Applied Developmental Psychology 2001;22:175–189.

Taylor, BM.; PearsonP, D. The CIERA School Change Classroom Observation Scheme. Minneapolis: University of Minnesota; 2000.

Taylor BM, Pearson PD, Peterson DS, Rodriguez MC. Reading growth in high-poverty classrooms: The influence of teacher practices that encourage cognitive engagement in literacy learning. The Elementary School Journal 2003;104:3–28.

Torgesen, J.; Wagner, R.; Rashotte, C. Text of Word Reading Efficiency. Austin, TX: PRO-ED; 1999.

Vygotsky, L. Mind in society. Cambridge MA: Harvard University Press; 1978.

Wechsler Individual Achievement Test. San Antonio. TX: Psychological Corporation; 1992.

Wiederholt, JL.; Bryant, BR. Gray Oral Reading Tests. Vol. 4. Austin, TX: PRO-ED; 2001.

Wolf M, Katzir-Cohen T. Reading fluency and its intervention. Scientific Studies in Reading 2001;5:211–239.

Wolf M, Miller L, Donnelly K. Retrieval, automaticity, vocabulary elaboration, orthography (RAVE-O): A comprehensive, fluency-based reading intervention program. Journal of Learning Disabilities 2000;33:375–386. [PubMed: 15493098]

TABLE 1

Percentage of Observed Segments In Which Classroom Activity Occurred

Activity	Type	Control	FORI	Wide
Grouping	Whole classroom	67.4	76.6	68.9
	Small group	30.1	10.9	16.9
	Pairs	4.4	15.3	18.0
	Individual	13.6	15.3	8.7
Subject	Reading	63.1	84.7	84.7
	Other language arts	74.3	28.2	39.9
Intervention activity	Use of connected text	43.2	46.8	54.6
	Listening to teacher read	16.0	16.9	17.5
	Partner reading	3.9	10.9	18.0
	Echo reading	***0.0***	16.9	19.7
	Repeated reading	3.9	26.6	15.9
	Choral reading	4.4	8.9	6.6
Question types	Factual	41.3	28.6	45.3
	Reflective or inferential	10.2	16.2	22.4
	Vocabulary	10.7	17.3	26.8
	Word decoding	40.3	23.2	9.7
	Round robin rending	16.0	3.2	4.9
	Other	52.9	32.2	30.5
Typea of materials	Basal narratives	32.5	36.7	37.3
	Trade hook narratives	21.3	19.0	28.4
	Basal informational	2.9	8.9	8.2
	Trade book informational	3.9	0.8	19.1
	Worksheets	32.5	26.2	30.6
	Board/onchart work	32.0	20.2	8.2
	Other	6.8	17.3	10.3
Teacher activity	Telling	65.0	65.7	55.7
	Question and answer	49.0	46.0	51.4
	Listening	38.3	52.4	51.4
	Coaching	16.5	15.3	10.9
	Read aloud	10.7	25.8	33.3
	Other	34.0	21.4	23.0
Expected student response	Reading	28.2	47.2	0.3
	Reading with turn-taking	23.3	14.1	17.5
	Oral responding	16.0	18.5	13.7
	Oral turn-taking	42.2	34.7	40.4
	Listening	57.7	58.5	50.8
	Writing	31.1	22.6	20.8
	Other	14.0	20.1	8.7

Note. FORI = fluency-oriented reading instruction.

TABLE 2

Raw Scores, Pretest Adjusted Mean Standard Scores, and Percentile Ranks for the Assessments as a Function of Fluency Intervention Condition

			Assessment		
Assessment Point	**Condition**	**Score Type**	**TOWRE Sight Word Efficiency**	**GORT-4 Reading Fluency**	**WIAT Reading Comprehension**
Pretest	Control	Raw	30	16.5	93
	FORI	Raw	37	111.2	10.5
	Wide	Raw	42	20.1	13.2
	Adjusted mean	SS	96	7.1	99.0
		PR	39	19.0	47.0
Winter	Control	Raw	39	21.3	
		SS	97	8.0	
		PR	42	74.0	
	FORI	Raw	12	25.7	
		SS	98	8.1	
		PR	15	29.0	
	Wide	Raw	52	34.8	
		SS	100	8.9	
		PR	50	36.0	
Spring	Control	Raw	43	30.3	13.2
		SS	98	8.8	99.0
		PR	15	34.0	17.0
	FORI	Raw	48	32.0	11.7
		SS	102	9.I	101.0
		PR	55	38.0	53.0
	Wide	Raw	56	41.3	17.0
		SS	101	9.3	102.0
		PR	57	41.0	55.0

Note. TOWRE = Test of Word Reading Efficiency: GORT-4 = Gray Oral Reading Test, 4th Edition; WIAT = Wechsler Individual Achievement Test: SS = standard score: PR = percentile rank. The *TOWRE* is scaled such that M = 100, *SD* = 15. and raw scores represent the number ***of*** words read correctly in 45 sec.; the *GORT-4* is scaled such that *M* = 10, *SD* = 3, and raw scores are summed combined ratings for time and accuracy: and *WIAT* is scaled such that *M* = 100. *SD* = 15, and raw scores represent the number of passages for which questions were answered correctly.

APPENDIX

FORI and Wide-Reading Lesson Plans

	Monday	Tuesday	Wednesday	Thursday	Friday
FORI lesson plan	Teacher introduces story Teacher reads story to class, class follows along, discusses story Option: Teacher develops graphic organizers Option: Class does activities from basal	Students echo-read story	Students choral-read story Option: Students begin partner reading	Students partner-read story	Students do extension activities; These may include writing in response to story, etc. Option: Teacher keeps running records of children's reading
Home reading	Students read 15–30 minutes per day in a book of their choosing	Students take story home and read to parents (or other)	Students read 15–30 minutes per day in a book of their choosing	Students read 15–30 minutes per day in a book of their choosing	Students read 15–30 minutes per day in a book of their choosing
Wide-reading instruction lesson plan	Teacher introduces story Teacher reads story to class. class follows along, discusses story Option: Teacher develops graphic organizers Option: Class does activities from basal	Students echo-read story	Students do extension activities: These may include writing in response to story. etc. Option: Teacher keeps running records of children's reading	Option: Student.; echo- or choral-read story (2) Option: Student\ partner-read story Option: Students do prereading or extension activities (writing, etc.)	Option: Students echo- or choral-read story (3) Option: Students partner-read story Option: Students do prereading or extension activities (writing. etc.)
Home reading	Students read 15–30 minutes per day in a book of their choosing	Students take story home and read to parents (or other)	Students read 15–30 minutes per day in a book of their choosing	Students read 15–30 minutes per day in a book of their choosing	Student\ read 15–30 minutes per day in a book of their choosing

Note. FORI = fluency-oriented reading instruction. Although this is laid out on a weekly lesson plan grid, the plan should not be rigid. It a story is difficult. a teacher may choose to spend more time in preparation tor reading. If a story is long. a teacher may choose to spend more time on echo reading or partner reading. The point is to make this lesson format adaptable for a large number of children. stories. and teachers. Reading at home should also he adjustable. If a child is mastering the story. then he or she should have other options. In addition. it is essential that children work on grade-level material\.