

# Using Planned Enrichment Strategies with Direct Instruction to Improve Reading Fluency, Comprehension, and Attitude toward Reading: An Evidence- Based Study

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## Abstract

In this study, we used a randomized design to investigate the effects of an enriched reading program on 226 urban elementary students' (third through sixth grade) reading comprehension, oral reading fluency, and attitude toward reading in 2 elementary schools. The School-wide Enrichment Model in Reading Framework (SEM-R) provides enriched reading experiences by exposing students to books in their areas of interest, daily supported independent reading of challenging self-selected books using differentiated reading instruction, and interest-based choice opportunities in reading. Prior to the study, a daily 1-hour afternoon remedial literacy program was mandated by the district using workbooks and test-preparation instruction in an attempt to increase reading scores. In the study, 14 teachers were randomly assigned to teach the treatment or a control group during this afternoon literacy block, and students were randomly assigned either to participate in the SEM-R treatment group or to a control group that continued to receive remedial reading instruction and test preparation for 12 weeks. In addition, all students participated in the direct instructional approach, Success for All, for 90 minutes each morning. Results on oral reading fluency tests and attitudes toward reading scales indicated that students in the SEM-R treatment group scored statistically significantly higher than control students in both oral reading fluency and attitude toward reading.

Recent research has suggested that the children who are most likely to experience reading difficulties throughout their school years are those who attend a low-achieving school, have limited English proficiency, are unfamiliar with standard English dialect, or live in communities of poverty (Allington, 2001; Snow, Burns, & Griffin, 1999). Few randomized studies have investigated interventions designed to increase the reading

achievement of urban students using options other than remediation. In this study, we implemented an enrichment reading approach called the Schoolwide Enrichment Model in Reading Framework (SEM-R) (Reis et al., 2005) to investigate whether such an approach might improve elementary students' reading fluency and attitude toward reading as compared to a method involving test preparation and remediation. This research was conducted in two urban elementary schools consistently cited as low scoring with a diverse student population of children from predominantly low socioeconomic status families. In these schools students participated in the direct instructional approach, Success for All (SFA) (Slavin, Dolan, Madden, Karweit, & Wasik, 1992; Slavin & Madden, 1999, 2000), as the core reading/language arts program for 90 minutes each morning. To increase reading achievement on the statewide assessment, a district mandate was issued for teachers to provide an additional hour-long daily afternoon literacy block with remedial instruction and test preparation in place of social studies and science classes. For 2 years prior to our study, the afternoon time block was used for unsystematic remedial reading instruction and practice for this statewide test.

In this study we used an experimental design to randomly assign students in grades 3–6 to one of two conditions during an afternoon literacy block and to randomly assign teachers to teach either the treatment or control group students. All students received reading instruction in the SFA program for 90 minutes each morning. Control students continued their participation in the additional hour-long literacy block previously in place in the afternoon, working on a nonsystematic series of remedial reading activities and practice sessions for the statewide achievement test. Treatment students participated in a planned enrichment program called the SEM-R with three components. In the first component, read-aloud opportunities introduced students daily

to high-quality literature from a variety of genres. In the second component, students received individualized, differentiated reading instruction to increase their daily independent reading of self-selected books that were slightly to moderately above their current reading levels and to stimulate interest in reading. In the third component, students had time to select from a series of enriched reading activities based on their interests.

### Background of the Study

Children enter kindergarten with a wide range of skills and degrees of readiness (West, Denton, & Germino-Hausken, 2000). Many students struggle with reading. *The 2002 Nation's Report Card on Reading*, issued by the National Assessment of Educational Progress (NAEP, 2002), indicated that 36% of U.S. fourth graders and 25% of U.S. eighth graders read below a basic level, and researchers associated with the NAEP study believe that these students could not demonstrate an understanding of the literal meaning of text, identify main ideas, make inferences, or relate what they had read to personal experiences. This failure may result in students' inability to make successful transitions to increasingly challenging academic work. In the schools in which we conducted our research, direct instruction and remedial approaches to reading instruction had produced some gains in achievement, but these had fluctuated over time. Many students were from impoverished homes and communities and, as Allington (2001) suggested, teachers in these schools believed that "the problem is poverty. . . . Rich kids read, poor kids don't" (p. 14). Research has suggested that little reading occurs in high-poverty classrooms for students of all achievement levels (Reis et al., 2005). In this study the systematic skills instruction provided in Success for All was supplemented with the SEM-R, an enrichment approach based on the enrichment theories of Renzulli (1977) and Renzulli and Reis (1985, 1997) and the philosophy of the Accelerated Schools Project (ASP) (Levin, 1987).

Renzulli's work is also theoretically aligned with Bransford, Brown, and Cocking's (2000) syntheses of scientific studies of learning, suggesting that effective instruction enables children to build on previous knowledge through inquiry and increased metacognitive reasoning. An enriched, interest-based reading approach focusing on exposure to high-interest books could improve both reading fluency and attitudes toward reading and counteract the national trend noted by McKenna, Kear, and Ellsworth (1995) that students' attitudes toward reading decline in elementary and middle grades, regardless of ability.

#### Declining Reading Proficiency for Diverse Students

In a recent study conducted by the ACT (2006), the scores of 1.2 million high school students who took the ACT college entrance test showed that only 51% of 2005 high school graduates who took the exam had the reading skills needed to succeed in college or job training programs. These results represented the lowest proportion in more than a decade. Of particular significance in this study was the high percentage of culturally diverse and low-income students who were unprepared for college-level reading, including 79% of Black students, 67% of Hispanic students, and 33% of students from families with annual incomes below \$30,000. Research by the Education Trust (2006b) showed that reading achievement among Latino students increased during the 1970s and 1980s but declined precipitously in the 1990s. Moreover, the most recent NAEP assessment indicated that only 14% of fourth-grade Latino students read at a proficient or advanced level, and 57% could not read at even a basic level (Education Trust, 2006b). Similar findings were summarized for African American students (Education Trust, 2006a): only 12% of fourth-grade African American students read at a proficient or advanced level, and 61% read below a basic level. Other research about children from low-

achieving schools has demonstrated that, even when these students participate in reading interventions that are well regarded and show benefits, they usually fall behind again in the middle grades (Foorman, Francis, Fletcher, Mehta, & Schatschneider, 1998; Hiebert, 1994).

Although there is no definitive explanation for the relatively low percentage of proficient Latino and African American readers, research has suggested that all students *can* learn to read at high levels but may be hindered by societal and individual barriers. Thompson (2004), for example, found that African American students like to read, but that their school practices may be counterproductive to their success. These practices include low expectations, a culturally limited curriculum, and lack of respect for diversity, suggesting that an enrichment program in reading based on choice and interests might address some of these concerns.

#### The Schoolwide Enrichment Model

The SEM-R enrichment-based reading program evolved from the Schoolwide Enrichment Model (SEM) (Renzulli, 1977; Renzulli & Reis, 1985, 1997) that is widely used with academically talented or high-potential students but also has been used to provide enrichment for all students in schools. This talent-development approach provides enriched learning experiences and higher learning standards for all children with a focus on a broad range of enrichment experiences to expose students to new ideas and skills and follow-up advanced learning for academically talented children interested in further investigation. The SEM-R emphasizes enrichment for all students through engagement in enjoyable, challenging learning experiences based on students' interests.

Studies of the SEM have demonstrated its effectiveness in schools with widely differing socioeconomic levels and program organization patterns (Olenchak, 1988; Olenchak & Renzulli, 1989). The SEM

has been implemented in over 2,000 schools across the United States (Burns, 1998). The effectiveness of the model has been studied in over 20 years of research and field testing about (a) the effectiveness of the model as perceived by key groups, such as principals (Olenchak, 1988); (b) student creative productivity (Delcourt, 1993; Reis & Renzulli, 1982; Starko, 1988); (c) student personal and social development (Olenchak, 1991); (d) the use of SEM with culturally diverse or special-needs populations (Baum, 1985, 1988; Baum, Renzulli, & Hébert, 1999; Emerick, 1988); (e) student self-efficacy (Schack, Starko, & Burns, 1991; Starko, 1988); (f) the use of SEM as a curricular framework (Reis, Gentry, & Park, 1995); (g) learning styles and curriculum compacting (Reis et al., 1993); and (h) long-term effects (Delcourt, 1993; Hébert, 1993). This research has shown that the model is effective at serving high-ability students in a variety of educational settings and in schools serving diverse ethnic and socioeconomic populations. These studies have also suggested that the pedagogy of the SEM can be applied to various content areas, implemented in a wide variety of settings, and used with diverse groups of students.

### **Purpose of the Study**

Few, if any, carefully designed experimental studies have investigated the effects of enrichment-based approaches, such as supporting students in reading challenging high-interest books independently, on the reading fluency of students at all ability levels. In fact, in a recent evidence-based evaluation of instructional approaches designed to increase reading achievement, the National Reading Panel (2000) concluded that "based on the existing evidence, the NRP can only indicate that while encouraging students to read might be beneficial, research has not yet demonstrated this in a clear and convincing manner" (p. 3-3). This finding is surprising given the strong theoretical support for the relation between overall reading achievement and time en-

gaged in independent reading (e.g., Cunningham & Stanovich, 1998). In response to this finding, the panel called for research on the effectiveness of enrichment approaches that encourage students to engage in more independent reading and emphasized the need for rigorous experimental studies that measure a range of reading outcomes, including both reading fluency and comprehension. This study is one attempt to address this goal.

### **Method**

We used a randomized design to evaluate the effectiveness of the SEM-R program in which students were randomly assigned either to the treatment or control group and teachers were randomly assigned either to implement the SEM-R treatment or to continue teaching the preexisting, nonsystematic remedial reading activities and state achievement test preparation in the daily afternoon literacy block. All students continued in their regularly scheduled 90-minute SFA morning reading program. The following research question guided the study: Do students who participate in the SEM-R score significantly higher on measures of oral reading fluency, comprehension, and attitude as compared to students who participate in remedial activities and preparation for the state achievement test?

#### **Sampling Procedures**

Recruitment of schools for the study was completed the year before the implementation of the treatment. Ten principals from an urban school district in a professional development partnership with the researchers' university attended a meeting describing the study at the district central office. All schools had diverse student populations and a majority of students identified as both economically disadvantaged and culturally and linguistically diverse. We held subsequent meetings with interested principals about study participation and the need for random assignment to treatment and control groups. Two principals agreed to par-

ticipate, schedules were arranged, and we randomly assigned students and teachers to treatment or control groups. The principals in the two elementary schools, Center and Empire, identified a person to serve as a research liaison in each school to facilitate implementation of the study.

The next phase of the study included a full-day professional development session for the treatment teachers. Teachers received initial training in the SEM-R and met the professional development coach from the research team who would be working with them throughout the intervention. They received written information about the SEM-R, a collection of classroom books at various instructional levels, and a comprehensive reading list developed for the intervention. At the end of this staff development session, teachers were asked to begin to plan implementation of the SEM-R in their classrooms. School liaisons worked cooperatively with university research team coaches to help with data collection and assistance for implementation of the SEM-R. Research team members were available daily during the intervention to provide support and to monitor both intervention and control classrooms.

The SEM-R was implemented in the two schools. In Empire School, not all treatment teachers maintained treatment fidelity. One treatment teacher became ill and was absent

for 4 weeks, and the substitute teacher could not adequately maintain the SEM-R intervention or even control the class. In another class at Empire, a control teacher began using enrichment ideas instead of continuing to use remedial work and practice for the mastery test. We also found that, to accommodate persistent parent requests and to try to increase the scores of some of the lowest-achieving students in the school, the principal at Empire had moved seven students into treatment classrooms after random assignment had been completed, without consulting or notifying the research team. Five were in the third-grade treatment classroom.

Numbers of teachers and students from the two schools are presented in Table 1, and demographic information for each school is presented in Table 2. The sample included four grades (third, fourth, fifth, and sixth) in each school. Students were regrouped for the afternoon literacy block and within each grade, randomly assigned either to treatment or control classes. Numbers of students in classes are smaller than might be expected because students identified for special education were not included in the analysis because they were pulled out of the afternoon literacy block and the SEM-R program for special education programming for one to two sessions each week. The student population of

TABLE 1. Number of Participating Students and Teachers

School/Grade	Treatment		Control	
	Students	Teachers	Students	Teachers
Center School:				
Third	18	1	20	1
Fourth	11	1	14	1
Fifth	15	1	17	1
Sixth	20	1	17	1
Total	64	4	68	4
Empire School:				
Third	18	1	16	1
Fourth	16	1	15	1
Fifth	12	1	17	1
Total	46	3	48	3

NOTE.—No special education students were included in the sample.

TABLE 2. School Demographic Information

Variable	Center	Empire
Grades	PK-8	PK-6
Student population	564	511
Student ethnicity:		
American Indian	1	0
Asian	2	0
Black	21	17
Hispanic	67	78
White	10	5
Non-English home language	69	83
English language learners	4	32
Free and reduced-price lunch	67	80

NOTE.—All entries except grades and population are percentages.

these schools matched the mission of the grant supporting this research that seeks to improve educational opportunities for high-achieving and/or high-potential students placed at risk.

#### The Basic Morning Reading Program: Success for All

Students in both treatment and control groups participated in a 90-minute SFA reading program adopted by the district because of concerns about low achievement and perceptions of the need for additional teacher training in reading. The SFA reading program is a direct instruction model that was implemented uniformly in all elementary classrooms in a school. Students were assessed to determine their reading level and placed into multiage groups according to these results using cross-grade groupings. Therefore, classrooms were not kept intact with a classroom teacher at a specified grade level for reading instruction during the SFA block. For example, although a teacher might be teaching a 3.1 level reading class, the students in that group might range in age from second to fifth grade. Every 8 weeks, students were reassessed, and if they scored above 84%, they were assigned to the next level; if not, they remained in the previous level. Teachers also regularly changed the level at which they taught depending on the assessments. The SFA materials matched each

school's adopted basal and included the reading text, an occasional class novel, and a workbook. The instructional schedule for the week, provided by SFA, was uniform throughout a school, beginning with listening comprehension for 20 minutes. During this time, teachers read sections of the selection and asked comprehension questions. Students "think (individually)—pair (discuss with a partner)—share (volunteer to share answers with the group)." This format took place throughout a school in all SFA classes. Following listening comprehension was reading together time, which included vocabulary introduction, story introduction, silent reading, and reading comprehension questions. The faculty at these schools had used SFA for 4 years prior to the intervention as part of a district-wide mandate to increase scores in reading, and modest gains had been achieved in reading scores.

#### Treatment and Control Conditions

Treatment teachers implemented the SEM-R intervention with a group of students randomly assigned to the SEM-R intervention. The SEM-R includes three general categories of reading instruction that are dynamic and enable flexibility of implementation and content in response to both teachers' and students' needs. This approach is based on Renzulli's (1977) Enrichment Triad Model with three levels of enrichment: (1) broad exposure to areas in which students might have interests, such as architecture and history; (2) training in areas such as critical thinking, problem solving, and research methods; and (3) opportunities to pursue self-selected topics of interest. The SEM-R emphasizes enjoyment of learning with a focus on planned, systematic enrichment experiences. Researchers were in the SEM-R treatment classes each day during the intervention to assist and coach teachers with the three phases of activity.

In phase 1 of the SEM-R, teachers selected literature to read aloud to students,

interspersed with higher-order questioning and thinking-skills instruction. These “book hook” sessions were initiated at 10 to 20 minutes in length, using a collection of high-interest, challenging books provided for teachers. All teachers augmented their classroom collections as the intervention continued, using high-quality literature as suggested in the training. Bookmarks with higher-order questions that could be used across many different types of literature were provided to all students and teachers. We also gave teachers suggestions for engaging students’ interests and exposing them to a variety of literary genres including mysteries, poetry, historical and science fiction, biographies, autobiographies, and other nonfiction. We also selected books with cultural diversity in mind, with biographies and other nonfiction books relating to the population of students in each school.

The second phase of the SEM-R emphasized the development of students’ capability to engage in structured, supported reading time of self-selected high-interest books when supported with individualized, differentiated reading conferences. During this Supported Independent Reading (SIR), teachers worked with students to select books that were slightly or moderately above their current reading level, and the appropriate match was regularly assessed through conferences with each student two to three times each week. Initially, teacher and research team observations indicated that the majority of students selected books that were quite easy. Students were told that they could take these easier books home to read but that during class they were required to select books that were more challenging. Most students could initially read appropriately challenging books from 5 to 10 minutes a day without losing concentration and displayed little self-regulation in reading. Teachers added a minute or two each day during the SEM-R intervention, eventually extending that time to 30- or 45-minute daily sessions across all treatment classes. During this in-class reading time,

teachers provided individualized support and differentiated instruction in strategy use including phonics and vocabulary use and other reading strategies to help increase students’ self-regulation in reading. This time focused on the use of appropriate, individualized reading strategies and students’ control of the use of these strategies through monitoring how they planned, tested, and revised their strategy use as they read. With more advanced and self-regulated readers, teachers discussed higher-order themes and asked critical questions about reading, focusing on synthesis, evaluation, and discussion.

In the third phase of SEM-R, students were encouraged to move from teacher-directed opportunities to self-choice activities over the course of the intervention. At least six options were provided each day, and activities included (but were not limited to) opportunities to explore technology, such as e-books and children’s authors web pages, and engagement in discussion groups, writing activities, creativity training in language arts, learning centers, interest-based projects, continuation of self-selected reading, reading with a buddy, and book chats. These experiences were intended to provide time for developing and exploring students’ interests in reading. In addition, students engaged in creative thinking, critical thinking training, and in advanced training in the use of the Internet to find information about literary genres such as biographies and autobiographies. Teachers were given three ready-to-use interest centers with creativity training activities in language arts, critical thinking activities, and activities about safe use of the Internet. We hoped to enable students to learn to read critically and to locate other enjoyable and challenging reading materials, especially high-quality, challenging literature. Options for independent study were also made available for students during this component. Each component of the SEM-R was developed to help students increase their reading skills with practice and

coaching of differentiated reading strategies, in conjunction with efforts to increase automaticity and self-regulation in reading.

Control group teachers followed the guidelines of the district that advocated student work during the afternoon literacy block that included a variety of activities, such as regular practice on samples of the state achievement tests, remedial activities in which students read paragraphs and answered multiple-choice questions, and the use of basal readers formerly adopted by the district for whole-class activities involving reading selections and responding to multiple-choice questions. Practice activities from sample tests provided by the school reading consultant, workbook activities that included spelling and vocabulary tasks, and sample writing rubrics that fit the guidelines for the state assessment were also used during this time. The most frequent pattern of instruction was the use of workbooks from the previous basal program for practice activities. Teachers in almost all control classrooms used these activities consistently during observations in both schools, complying with district guidelines for the content of this additional literacy block.

#### Study Implementation and Treatment Fidelity

Teachers assigned to the SEM-R treatment group participated in a 1-day training session prior to the start of the study. In addition, research team members provided on-site support and coaching for the teachers throughout the study. These supports included coaching to plan and implement the SEM-R, help in finding appropriately challenging reading materials based on student interests, assistance with data collection, and regular monitoring of treatment and control group classroom activities. Intervention at both schools extended from February to May, providing students with 1 hour of instruction each afternoon for 12 weeks.

We regularly monitored treatment fidelity in the schools during the 12-week inter-

vention. We conducted daily observations in treatment classes and observed control classes during the afternoon literacy block at least twice each week. Field notes were summarized after each day, and then we integrated these observational notes in weekly written reports for both treatment and control classes. During observations, researchers took detailed notes on the specific features of the SEM-R in each phase using an observation system based on the components of the SEM summarized in Appendix A.

As indicated in this appendix, phase 1 field notes detailed read-aloud use: the genres of books and the integration of reading strategies or higher-level thinking skills that accompanied the read-alouds. For example, field notes were taken on teacher expressiveness in reading, the scaffolding of higher-order thinking skills into the read-aloud, and the ability to use differentiated questioning and reading skills. In phase 2, field notes documented the amount of independent supported reading time, the environment provided for students' silent reading, and the use of conferences and differentiated reading strategies. In particular, we took field notes on the types of conferences conducted, whether teachers guided students to make appropriate interest-based book choices, whether students chose books at an appropriate challenge level, and the use of self-regulated reading strategies. In phase 3, observations included field notes on time made available for independent and small-group choice activities as well as the types of activities that students chose each day. Field notes concerned the number and types of choices, the teacher's use of different levels and complexity of choices for students, and the way classrooms were organized to facilitate this phase of the reading program. (See Appendix B for sample field note summaries of two SEM-R classes.) Careful, systematic analysis of these field notes indicated that all but one of the treatment teachers implemented the SEM-R with strong fidelity. Treatment fidel-

ity was undoubtedly strong because research team members were in the classes observing daily during the SEM-R intervention. More detailed field notes on treatment fidelity are available in a comprehensive technical report (Reis et al., 2005).

We randomly selected control group classrooms in both schools for observation biweekly, and one researcher took extensive field notes at each observation that we analyzed weekly. An analysis of field notes for control classes confirmed that instruction usually included time spent on different types of workbook material and preparation for the state mastery test, along with remedial activities in reading. In most activities, students read brief passages and answered questions and used thick workbooks with vocabulary, spelling, sentence completion, and reading passages. Control teachers used district-produced worksheets with sample questions from previous statewide achievement tests that students practiced weekly. The vast majority of control teachers followed the guidelines of the district for this remedial time, with regular strategies such as daily practice for state tests, remedial reading strategy workbooks in which students read paragraphs and answered multiple-choice assessments, and use of basal readers that had been adopted before the implementation of SFA. Field notes revealed that teachers consistently used whole-class activities to complete these activities, following district guidelines for the content in this additional literacy block. Teachers did not, however, consistently use strategies in any particular sequence. Some teachers used workbooks more often, others used preparation items from the state mastery tests, and all but one teacher used a combination of the activities suggested by the district guidelines each day they were observed. Only one teacher across both schools did not follow established guidelines for the remedial literacy block. In his class, we observed the use of reader's theater, student selection of books, and enjoyable teacher read-aloud opportu-

nities. At this point, the principal and reading consultant asked the teacher to follow district guidelines, but more regular observations by our research team revealed that the teacher reverted to alternative methods of reading instruction when he was not observed by administrators. This teacher was the union steward in the school and had tried to attend the training session for the SEM-R intervention. He continued to refuse to follow the prescribed remedial activities across subsequent observations. We conducted twice weekly formal observations in both treatment and control classes to ensure that the fidelity of the SEM-R was maintained throughout the intervention and to carefully monitor the instruction being provided in control classrooms.

#### Instrumentation and Data Collection

*Iowa Tests of Basic Skills.* Reading comprehension was measured using the Iowa Tests of Basic Skills (ITBS) (1990) reading comprehension subtest (Form J). The ITBS measures achievement in 15 subjects for students in grades K–8. The reading subtests “measure how students derive meaning from what they read” (Hoover et al., 2003, p. 32). The reading comprehension subtest consists of a variety of passages representing narrative, poetry, and nonfiction material from science and social studies. After students read each passage, comprehension is assessed through the use of four to seven multiple-choice questions that ask students to recall facts, make generalizations, and draw inferences (Hoover et al., 2003).

The ITBS was administered to all students during the last week of the SEM-R study as a postassessment only by their morning SFA reading teachers, who did not know which students were participating in the treatment or control afternoon sessions. We decided to administer the ITBS as a posttest only due to the random assignment of students to reading groups and the time necessary to administer the test during a relatively short intervention. For the lan-

guage arts subscales (grades 3–7, spring 1988 norms), reliability coefficients are greater than 0.95 (see ITBS, form J, 1990).

**Elementary Reading Attitude Survey.** Students' attitudes toward (or feelings about) reading influence their willingness to participate in activities like school that involve reading (Wigfield, 1997). We assessed pre- and postintervention attitudes toward reading using a 20-item Elementary Reading Attitude Survey (ERAS) developed by McKenna and Kear (1990), who explained that the survey "serve[s] as a means of monitoring the attitudinal impact of instructional programs" (p. 627). Ten of the items measure recreational reading (e.g., "How do you feel when you read a book on a rainy Saturday?") and 10 assess academic reading (e.g., "How do you feel when you read out loud in class?"). The ERAS uses a four-point Likert scale with pictorial anchors of a smiling and scowling Garfield cat. Research with the survey has indicated satisfactory internal consistency coefficients and reliability, with a Cronbach's alpha (full scale) of .88 for grade 3 and .89 for grades 4–6.

**Oral reading fluency assessments.** Curriculum-based measures of oral reading fluency were individually administered as a pre- and posttest to assess students' speed and accuracy when reading connected text (Deno, 1989). Because oral reading fluency reflects the complex orchestration of both lower- and higher-level processes, it can be considered an elegant and a reliable indicator of overall reading proficiency for elementary-grade students (Fuchs, Fuchs, Hosp, & Jenkins, 2001). To measure oral reading fluency, each student is asked to read an unpracticed grade-level passage of connected text for 1 minute. The score is the number of words read correctly. Test-retest and alternate-form reliability of oral reading fluency measures are consistently above .90, and criterion-related validity with other standardized measures of reading decoding and comprehension averages .80 or higher (Hasbrouck & Tindal, 1992). In this study,

each student read the same three oral reading fluency passages for both pre- and posttest. Each student was administered three passages, one from each of the following grade levels: third, fourth, and fifth. We selected the passages to reflect the variety of reading materials and programs typically used in schools. Oral reading fluency measures were administered and scored by trained research team members.

## Results

### Data Analysis

The primary research question was whether students who received the SEM-R intervention would score significantly higher than the control group on posttest measures of reading fluency, reading comprehension, and attitudes toward reading. A secondary research question was whether treatment effects would be moderated by students' initial reading proficiency. We hypothesized that students might respond differentially to the SEM-R intervention based on their reading skills and ability to engage in independent reading. Strong theoretical support exists for considering oral reading fluency a valid and reliable indicator of overall reading proficiency (Fuchs et al., 2001). Therefore, we operationally defined initial reading proficiency as students' oral reading fluency scores measured at pretest. Each school had only two reading classrooms per grade level, and each of the two teachers was randomly assigned to the treatment or control condition. Given the small scope of the study and the small number of level 2 units (teachers/classrooms), we did not model grade level in the current analyses. In Table 3, descriptive statistics are included on the pre- and posttest measures for each classroom and school in the study.

We conducted separate multilevel regression analyses for posttest measures of reading fluency, reading comprehension, and attitudes toward reading. Initial oral reading fluency scores were used as a covariate in the analyses of posttest reading fluency and reading comprehension to test

TABLE 3. Means and Standard Deviations for the Three Outcome Measures, by School, Grade, and Treatment

Grade/School/Group	Fluency		Comprehension		Attitudes	
	Mean	SD	Mean	SD	Mean	SD
Grade 3:						
Empire:						
Treatment	87.39	27.94	90.56	11.30	62.33	15.56
Control	97.33	30.41	97.87	9.49	58.64	9.52
Center:						
Treatment	115.59	29.76	108.29	11.66	61.00	10.71
Control	109.89	34.84	103.16	14.00	50.85	17.87
Grade 4:						
Empire:						
Treatment	118.82	33.93	102.36	12.36	48.17	13.42
Control	107.05	30.76	102.75	10.70	54.92	10.72
Center:						
Treatment	129.50	25.03	107.80	10.10	57.90	10.34
Control	130.36	33.03	110.07	13.36	55.86	17.52
Grade 5:						
Empire:						
Treatment	140.22	42.69	120.40	13.75	47.71	8.26
Control	129.46	35.31	115.21	13.95	48.60	12.89
Center:						
Treatment	161.93	39.63	128.54	11.27	62.79	11.21
Control	154.88	26.82	124.47	12.51	53.41	12.36
Grade 6:						
Center:						
Treatment	165.63	35.33	132.40	12.66	46.45	18.71
Control	160.93	37.28	121.13	17.77	46.57	13.15
Totals:						
Empire:						
Treatment	111.48	39.64	102.14	17.18	54.32	15.08
Control	111.37	34.42	105.22	11.75	53.88	13.54
Center:						
Treatment	144.57	39.46	120.63	16.20	56.05	15.33
Control	138.38	38.53	114.47	16.73	51.60	15.50

for treatment effects, after controlling for students' initial reading proficiency. We used scores on the pretest of reading attitude as a covariate for the analysis of post-test reading attitudes. Prior to conducting the analyses, the assumption of homogeneity of regression slopes was checked by testing whether the cross-level interactions between preintervention fluency or preintervention attitudes and treatment, school, and the school  $\times$  treatment interaction were statistically significant. These cross-level interactions were not statistically significant for any of the three models tested. Therefore, we eliminated them from the final multilevel models for the three outcome variables.

To confirm group equivalence, prelimi-

nary analyses were conducted to examine whether any group differences existed on reading fluency and reading attitudes prior to the start of the reading intervention. There were no statistically significant differences between the treatment group and the control group on either fluency ( $t = .004, p = .997$ ) or attitudes toward reading ( $t = -.409, p = .69$ ), suggesting that the randomization process produced groups of students that were equivalent prior to the intervention. In addition, there were no statistically significant differences between the schools on measures of reading fluency ( $t = -1.48, p = .168$ ) or attitudes toward reading ( $t = .006, p = .995$ ). Finally, the school  $\times$  treatment interaction was not statistically significant for either reading flu-

ency ( $t = .052, p = .96$ ) or reading attitudes ( $t = .314, p = .76$ ) prior to the start of the study.

#### Postintervention Measures of Reading Fluency

To investigate whether statistically significant differences existed between treatment and control groups on reading fluency, after controlling for pretreatment fluency, we conducted a multilevel regression analysis. The dependent variable of interest was student posttreatment scores on measures of oral reading fluency; pretreatment reading fluency scores were used as a covariate. Level 1 contained student information; level 2 contained classroom and school information. Because there were only two schools in the study, school was treated as a fixed effect and was entered at level 2 of the model. Preintervention reading fluency, a student covariate, was entered at level 1. The independent variable of greatest interest, instructional group, which included two levels (treatment [coded 1] and control [coded 0]), was entered at level 2. In addition we entered school as a level 2 variable that was coded Center = 0, Empire = 1. Finally, we modeled the interaction between school and treatment group by creating the cross-product of the two level 2 variables—treatment group and school. The model for the posttreatment reading fluency is shown below.

$$\begin{aligned} Y_{ij} &= \beta_{0j} + \beta_{1j}PREFLU_{ij} + r_{ij} \\ \beta_{0j} &= \gamma_{00} + \gamma_{01}TRT_j + \gamma_{02}School_j + \\ &\quad \gamma_{03}TRTbySchool_j + u_{0j} \\ \beta_{1j} &= \gamma_{10} + u_{1j}. \end{aligned}$$

First, a baseline model was estimated, with no predictors at level 1 or level 2 included to estimate the intraclass correlation (ICC). The ICC measures proportion of variance at the school level in relation to the total variance and is the between-class variance,  $\tau$ , divided by the total variance,  $\sigma^2 + \tau$ . The ICC for reading fluency was .3376. In other words, 33.76% of the variance in reading fluency was between classes. The results

of this baseline model are included in Table 4.

Next, a level 1 model was estimated that included pretest reading fluency as a predictor of posttest reading fluency but that did not include any predictors at level 2. The addition of pretreatment reading fluency as a level 1 covariate resulted in a large reduction in variance at both levels 1 and 2. In fact, including pretreatment reading fluency in the model reduced level 1 variance by 86.3% and level 2 variance by over 99%. After controlling for pretest reading fluency, only 2.68% of the variance in postintervention reading fluency was between classes. Also, after accounting for pretreatment fluency, there was no significant residual variability left to be explained in either the pretreatment fluency slope ( $\chi^2 = 14.27$  with 13 *df*,  $p = .355$ ) or in the intercept ( $\chi^2 = 10.39$  with 13 *df*,  $p > .50$ ). These results demonstrate that preintervention reading fluency was a powerful covariate, explaining most of the variability in postintervention fluency scores. Finally, the three level 2 variables—treatment, school, and the treatment  $\times$  school interaction—were entered at level 2. The model containing pretreatment fluency, school, treatment, and the treatment  $\times$  school interaction reduced the variance at level 2 from 4.156 to .2182. The school-level model explained an additional 95% of the level 2 variance. After accounting for preintervention fluency and incorporating the level 2 variables into the model, less than .15% of the reading variability lay between classrooms (conditional ICC =  $.218/(151.7316 + .2182)$ ). Therefore, we eliminated the random error terms from the final level 2 model, resulting in the model below:

$$\begin{aligned} Y_{ij} &= \beta_{0j} + \beta_{1j}PREFLU_{ij} + r_{ij} \\ \beta_{0j} &= \gamma_{00} + \gamma_{01}TRT_j + \gamma_{02}School_j + \\ &\quad \gamma_{03}TRTbySchool_j \\ \beta_{1j} &= \gamma_{10}. \end{aligned}$$

Because this model contains no error terms, it is equivalent to a single-level regression model. Using the model depicted

TABLE 4. Summary of REML Parameter Estimates for Two-Level Model of Reading Fluency

Parameter	Unconditional Model		Level 1 Model		Final Model	
	Parameter Estimate	SE	Parameter Estimate	SE	Parameter Estimate	SE
Fixed effects:						
Intercept ( $\gamma_{00}$ )	129.13*	6.74	128.51*	1.05	127.95*	1.59
School ( $\gamma_{01}$ )	...	...	...	...	-1.16	2.49
TRT ( $\gamma_{02}$ )	...	...	...	...	5.08*	2.25
School $\times$ TRT ( $\gamma_{03}$ )	...	...	...	...	-4.43	3.45
Prefluency ( $\gamma_{10}$ )	...	...	1.03*	.03	1.02*	.02
Variance estimates:						
Level 1 variance ( $\chi^2$ )	1,103.47	...	150.93	...	157.51	...
Intercept variance ( $\tau_{00}$ )	562.60*	...	4.16	...	...	...
Slope variance ( $\tau_{11}$ )	...	...	.004	...	...	...
Error covariance ( $\tau_{10}$ )	...	...	.136	...	...	...

NOTE.—Prefluency is students' average reading fluency pretest score grand mean centered; school is dummy coded 0 for Center and 1 for Empire; TRT is treatment group and is dummy coded 0 for control and 1 for treatment; school  $\times$  TRT is the cross-product of treatment and school; given the coding scheme used, this coefficient represents the differential effect of the TRT at Empire.

\* $p < .05$ .

above, we estimated the level 2 model, which included pretreatment reading fluency at level 1 and school, TRT, and the TRT  $\times$  school interaction at level 2. Given the coding system used, the intercept ( $\gamma_{00} = 127.95$ ) represents the predicted posttreatment fluency score for a student at Center School (school = 0) who was in the control group (TRT = 0) and who scored at the grand mean on preintervention reading fluency (grand mean centered preintervention fluency = 0). The coefficient for school ( $\gamma_{01} = -1.16$ ) represents the differential between control scores at Empire and at Center when pretreatment fluency = 0. Therefore, the average score for a control student of average pretreatment fluency at Empire is 126.79 ( $127.95 + -1.16$ ). The coefficient for the TRT ( $\gamma_{02} = 5.08$ ) represents a differential for a student of average pretreatment fluency who received the treatment at Center (school = 0). The predicted fluency score for a student of average fluency in the TRT group at Center is thus 133.04 ( $127.95 + 5.08$ ). The coefficient for the interaction term ( $\gamma_{03} = -4.43$ ) represents the differential effect of the treatment at Empire (as compared to Center School). Hence, the predicted score for a student of average preintervention fluency who was in the treatment

group at Empire equals  $127.95 + -1.16 + 5.08 + -4.43$ , or 127.45. These results are summarized in Table 4.

After controlling for pretreatment fluency scores, the main effect of treatment was statistically significant, meaning that, after we controlled for pretest fluency, treatment students outperformed control students. After controlling for preintervention fluency, the model-predicted difference between the treatment and control groups was approximately five points, or .125 standard deviation units. Although this is a very small effect, it is important to remember that the treatment lasted only 12 weeks. Moreover, the average weekly reading fluency improvement expected of students in grades 3–6 is approximately one fluency point per week (Hasbrouck & Tindal, 2005), so a five-point difference is of practical significance as well.

#### Postintervention Measures of Attitudes toward Reading

To investigate whether statistically significant differences existed between treatment and control groups on reading attitudes, after controlling for pretest attitudes, we conducted a multilevel regression analysis, predicting ERAS scores at posttest

based on ERAS scores at pretest at the student level and treatment, school, and the school  $\times$  treatment interaction at level 2. The model for the posttreatment reading attitudes is shown below.

$$\begin{aligned}
 Y_{ij} &= \beta_{0j} + \beta_{1j}PREATT_{ij} + r_{ij} \\
 \beta_{0j} &= \gamma_{00} + \gamma_{01}TRT_j + \gamma_{02}School_j + \\
 &\quad \gamma_{03}TRTbySchool_j + u_{0j} \\
 \beta_{1j} &= \gamma_{10} + u_{1j}.
 \end{aligned}$$

First, we estimated a baseline model with no predictors at level 1 or level 2 to estimate the intraclass correlation. The ICC for reading attitudes was .1025. In other words, 10.25% of the variance in reading attitudes was between classes. The results of this baseline model are included in Table 5.

Next, a level 1 model was estimated that included pretreatment reading attitudes as a predictor of posttreatment reading attitudes but that did not include any predictors at level 2. The addition of pretest attitudes as a level 1 covariate resulted in a moderately large reduction in variance at both levels 1 and 2. Pretest attitudes accounted for 46.7% of the residual variance at level 1 and 47.8% at level 2. The results of the final model for attitudes are shown in Table 5. Given the coding system used,

the intercept ( $\gamma_{00} = 51.93$ ) represents the predicted posttreatment attitude score for a student at Center School (school = 0) who is in the control group (TRT = 0) and who scored at the grand mean on pretest attitudes (grand mean centered pretest attitudes = 0). The coefficient for school ( $\gamma_{01} = 2.55$ ) represents the differential between control scores at Empire and Center when preintervention attitudes = 0. Therefore, the average posttest attitude score for a control student of average pretest attitude at Empire is 54.48 (51.93 + 2.55). The coefficient for the TRT ( $\gamma_{02} = 5.25$ ) represents the differential for a student of average pretest attitudes who received the treatment at Center (school = 0). The predicted attitudes score for a student of average pretreatment attitudes in the TRT group at Center therefore is 57.46 (51.93 + 5.25). The coefficient for the interaction term ( $\gamma_{03} = -6.67$ ) represents the differential effect of the treatment at Empire (as compared to Center). Hence, the predicted score for a student of average pretest attitudes who was in the treatment group at Empire equals 51.93 + 2.55 + 5.25 - 6.67, or 53.06. Although the interaction term was not statistically significant, these results indicated that the treatment may have had a greater effect on the

TABLE 5. Summary of REML Parameter Estimates for Two-Level Model of Reading Attitudes

Parameter	Unconditional Model		Level 1 Model		Full Model	
	Parameter Estimate	SE	Parameter Estimate	SE	Parameter Estimate	SE
Fixed effects:						
Intercept ( $\gamma_{00}$ )	53.97*	1.61	54.32*	1.19	51.93	1.69
School ( $\gamma_{01}$ )	...	...	...	...	2.55	2.73
TRT ( $\gamma_{02}$ )	...	...	...	...	5.53*	2.39
School $\times$ TRT ( $\gamma_{03}$ )	...	...	...	...	-6.67	3.87
Prefluency ( $\gamma_{10}$ )	...	...	.67*	.07	.67*	.07
Variance estimates:						
Level 1 variance ( $\chi^2$ )	194.61	...	103.64	...	104.08	...
Intercept variance ( $\tau_{00}$ )	22.23	...	11.61	...	7.07	...
Slope variance ( $\tau_{11}$ )	...	...	.024	...	.02	...
Error covariance ( $\tau_{10}$ )	...	...	-.52	...	-.40	...

NOTE.—Preattitudes is students' pretest ERAS score grand mean centered; school is dummy coded 0 for Center and 1 for Empire; TRT is treatment group and is dummy coded 0 for control and 1 for treatment; school  $\times$  TRT is the cross-product of treatment and school; given the coding scheme used, this coefficient represents the differential effect of the TRT at Empire.

\* $p < .05$ .

posttest attitudes of students in Center School than in Empire School, especially when treatment fidelity issues at Empire are considered. These results are summarized in Table 5.

Postintervention Measures of Reading Comprehension

To investigate whether statistically significant differences existed between treatment and control groups on reading comprehension, after controlling for pretest reading fluency, we conducted a multilevel regression analysis, predicting ITBS scores at posttest from reading fluency scores at pretest at the student level and treatment, school, and the school × treatment interaction at level 2. The model for reading comprehension is shown below.

$$\begin{aligned}
 Y_{ij} &= \beta_{0j} + \beta_{1j}PREFLU_{ij} + r_{ij} \\
 \beta_{0j} &= \gamma_{00} + \gamma_{01}TRT_j + \gamma_{02}School_j + \\
 &\quad \gamma_{03}TRTbySchool_j + u_{0j} \\
 \beta_{1j} &= \gamma_{10} + u_{1j}.
 \end{aligned}$$

First, we developed a baseline model to estimate the intraclass correlation. The ICC for reading attitudes was .5153, indicating that over 50% of the variance in reading comprehension scores was between classes. The results of this baseline model are included in Table 6.

Next, a level 1 model was estimated that included pretreatment reading fluency as a predictor of reading comprehension but that did not include any predictors at level 2. The addition of pretreatment fluency as a level 1 covariate resulted in a moderate reduction in variance at level 1 and a fairly large reduction in variance at level 2. The addition of the pretest fluency scores to the model reduced the level 1 variance by 22.4% and the level 2 variance by 65.3%. The final model for reading comprehension is shown in Table 6. Given the coding system used, the intercept ( $\gamma_{00} = 112.33$ ) represents the predicted reading comprehension score for a student at Center (school = 0) who was in the control group (TRT = 0) and who scored at the grand mean on pretest fluency (grand mean centered pretest fluency = 0). The coefficient for school ( $\gamma_{01} = -3.69$ ) represents the differential between control scores at Empire and Center when pretreatment fluency = 0. Therefore, the average reading comprehension score for a control student of average preintervention fluency at Empire is 108.64 (112.33 - 3.69). The coefficient for the TRT ( $\gamma_{02} = 4.56$ ) represents the differential for a student of average pretest fluency who received the treatment at Center (school = 0). Predicted reading comprehension score for a student of average fluency in the TRT group at

TABLE 6. Summary of REML Parameter Estimates for Two-Level Model of Reading Comprehension

Parameter	Unconditional Model		Level 1 Model		Full Model	
	Parameter Estimate	SE	Parameter Estimate	SE	Parameter Estimate	SE
Fixed effects:						
Intercept ( $\gamma_{00}$ )	111.81*	3.30	111.56*	2.03	112.33*	3.61
School ( $\gamma_{01}$ )	...	...	...	...	-3.69	5.59
TRT ( $\gamma_{02}$ )	...	...	...	...	4.56	5.12
School × TRT ( $\gamma_{03}$ )	...	...	...	...	-7.04	7.90
Prefluency ( $\gamma_{10}$ )	...	...	.23*	.026	.22*	.026
Variance estimates:						
Level 1 variance ( $\chi^2$ )	162.78	...	126.34	...	126.3	...
Intercept variance ( $\tau_{00}$ )	141.16	...	48.92	...	44.20	...

NOTE.—Prefluency is students' average reading fluency pretest score grand mean centered; school is dummy coded 0 for Center and 1 for Empire; TRT is treatment group and is dummy coded 0 for control and 1 for treatment; school × TRT is the cross-product of treatment and school; given the coding scheme used, this coefficient represents the differential effect of the TRT at Empire.

\* $p < .05$ .

Center is thus 116.89 ( $112.33 + 4.56$ ). The coefficient for the interaction term ( $\gamma_{03} = -7.04$ ) represents the differential effect of the treatment at Empire (as compared to Center). Hence, the predicted ITBS score for a student of average pretreatment fluency who was in the treatment group at Empire equals  $112.33 - 3.69 + 4.56 - 7.04$ , or 106.16. However, none of these effects is statistically significant, as summarized in Table 6.

#### Teacher Effects

Although the treatment group generally outperformed the control group on posttest measures of reading fluency, reading comprehension, and attitudes toward reading, there was some variability among teachers. Because this was a small-scale study, there was only one teacher per grade per condition. Posttest scores by grade and condition for reading comprehension, reading fluency, and attitudes toward reading are included in Table 3. Comparing treatment to control scores by grade level within school provides insight into the variability in treatment effects across teachers and classrooms. Although the treatment groups outperformed their control counterparts in five of the seven comparisons on posttest reading fluency, the control groups did have higher posttest fluency scores in two of the seven comparisons. In the third grade at Empire School, the control group outperformed the treatment group in fluency by almost 10 points, but this was the classroom in which the treatment teacher was out of school for almost 4 weeks and the substitute teacher did not implement the treatment and could not maintain discipline in the classroom. In Center School's fourth grade, the control group outperformed the treatment group in fluency by slightly less than one point.

In terms of reading comprehension, the treatment group had higher scores than the control group in four of the seven comparisons. Again, the control group in the third grade at Empire outperformed the comparable treatment group by over seven points

on the ITBS. The control group in the fourth grade at Center outperformed the treatment comparison class by 2.27 points, whereas the control group in Empire's fourth grade scored less than .5 points higher than its treatment comparison class. The treatment groups outperformed their control counterparts in four of the seven comparisons of reading attitudes.

#### Discussion

A national discussion continues about different types of reading instruction and the development of literacy in children of diverse achievement from differing socioeconomic and cultural groups. The ramifications of related research findings and the associated debate constitute a broad and fundamental rationale for policy development relating to reading achievement. Currently, remediation and test preparation are frequently used in many high-poverty schools in an attempt to raise the achievement test scores of urban students. We found no research that compares the use of a direct instructional program such as SFA with an enriched approach to reading to a remedial approach and test preparation. In addition, we found no research that compares the use of unsystematic remedial instruction and test preparation such as the control group in our study received in the afternoon to an enriched reading supplemental approach to instruction. After 12 weeks, the treatment group using the SEM-R scored significantly higher than the control group in reading fluency and attitude toward reading, with small to moderate effect sizes. In the following sections, we discuss fluency, comprehension, and attitude results.

#### Oral Reading Fluency

We found statistically significant mean differences in postintervention oral reading fluency scores favoring the SEM-R intervention group, although the magnitude of the effect was modest. The National Reading Panel (2000) concluded that insufficient

empirical evidence existed to determine whether encouraging students to read more results in increased reading fluency. A major component of the SEM-R intervention was providing students with extended periods of structured silent reading of individually challenging, self-selected, high-interest books, accompanied by individualized, differentiated reading instruction and support. Although effect sizes were small, our findings may provide important empirical evidence regarding the positive effects of independent reading on oral reading fluency, particularly given the enrichment approach as compared to the remedial and test-preparation work that control group students completed.

#### Attitudes toward Reading

We also obtained statistically significant treatment effects in students' attitudes toward reading favoring the SEM-R treatment group. These findings suggest that one outcome of the intervention was to improve the attitudes of readers. One possible explanation for this finding may be related to activities in the afternoon literacy block. The control group was engaged in remedial instruction and state mastery test review and preparation, whereas the treatment group focused on enrichment; student-selected, high-interest books; and self-selection of reading activities based on interest. The modest effect size of the 12-week treatment lends credibility to discussions regarding contextual and instructional effects that increase motivation to read (Guthrie & Alao, 1997). Because some research has shown that, as students get older, their attitudes toward reading decline (McKenna et al., 1995), it is important that additional research measure student attitudes toward reading.

#### Reading Comprehension

The mean comprehension scores of students who participated in the SEM-R were not statistically significantly different from those of the control group. In this study,

comprehension scores were highly associated with reading fluency, a finding consistent with previous research (Fuchs et al., 2001). The correlation between student scores on the ITBS reading comprehension subtest and oral reading fluency assessments was statistically significant,  $r(123) = .581$ ,  $p < .01$ . Perhaps if the SEM-R intervention had been longer, differences between treatment and control groups in reading comprehension may have also emerged. Treatment students also appeared to select books to read in which they had an interest. Hidi (2001), citing numerous studies supporting this position, suggests that children with individual interests persist longer and are more engaged in learning. In the SEM-R, teachers consistently attempted to engage all students in reading books in their interest areas that were slightly or moderately above their current level of reading.

#### Limitations

Several limitations exist in this study. First, although we randomly assigned students and teachers to conditions, we were not able to control adequately for teacher effects with only one treatment and control teacher per grade level. In current research, we are replicating this study with a larger sample of teachers that will enable us to explore teacher effects more fully. Second, although we found statistically significant differences between SEM-R and control students on some measures, effect sizes were small to moderate. However, given the 12-week duration of the intervention, these results are encouraging.

#### Conclusion

The urban schools using the SEM-R in this study were high poverty with a majority of culturally diverse students. No experimental research has addressed using reading enrichment experiences as suggested by the SEM-R in combination with direct instruction programs such as SFA. The SEM-R re-

sulted in small effects on oral reading fluency and student attitudes toward reading after only 12 weeks. The promising results of this study have enabled us to gain support to extend the experimental use of SEM-R to an entire academic year. We also hope to study achievement and fluency differences that might exist if students participate in SEM-R as part of a different, comprehensive basal language arts program, as compared to the use of the basal program alone. We also plan to examine the use of this approach without the benefit of having coaches and researchers on site to monitor the intervention, because this high level of support limits the sustainability and generalizability of the intervention. As more administrators and teachers attempt to increase scores to meet federal legislation goals, using carefully designed research studies may enable informed decisions about the best use of instructional time to increase test scores. Our results suggest that an enriched reading supplement to a direct instructional reading program may produce a greater increase in fluency and more positive attitudes than providing unsystematic remedial reading instruction and test preparation for some culturally diverse urban students in high-poverty schools. Students who participated in the SEM-R scored significantly higher in reading fluency and had more positive attitudes than a control group of students who participated in remedial reading and test-preparation activities. This may also suggest that enriched, interest-based reading opportunities may help to decrease the declining attitudes toward reading found by McKenna et al. (1995).

## Appendix A

### Treatment Fidelity Checklist for the SEM-R

Phase 1:

1. Provided exposure by introducing books with a book discussion
2. Read aloud from books that appeared to be selected in advance

3. Integrated reading strategies and/or higher-level thinking questions (e.g., bookmark questions)

Phase 2:

4. Provided time for students' supported, independent reading
5. Established an environment in which students used self-regulation for supported, independent reading time
6. Listened to students read in individual conferences
7. Provided differentiated reading strategies and/or literary discussions during conferences

Phase 3:

8. Made time available for phase 3 independent or small-group enrichment choices
9. Provided three to four choices for students, such as creativity training, Renzulli Learning, opportunities for individual reading, buddy reading, and other choices

All Three Phases:

10. Had an organized, cohesive implementation of SEM-R with phase 1 read-alouds, phase 2 supported reading, and phase 3 choices

## Appendix B

### Sample Field Notes of SEM-R Observations

*Fourth-Grade Class*

Eight weeks into the intervention. Desks were arranged in a U-shape facing the front board. Fourth-grade students walked into the classroom with current book selections. The students formed a circle on the rug while the young, first-year male teacher sat in a foldable lawn chair near the bookcase. The reading session began, and the teacher asked two students to tell others the title of the books they were reading. One girl was reading a book by Patricia MacLachlan that she described as historical fiction. As she shared the title of the book, more girls explained that they were reading or had already read these books; the girls became inspired to find other books by Patricia MacLachlan. One boy said that he was also reading a historical fiction book. The students began a discussion about whether a story that could happen but did not actually take place is fiction or not. The teacher explained that this genre is called historical fiction. He then read a segment from *Johnny Tremain* as a "book hook" and explained how the segment constituted historical fiction. All students listened to him read aloud and participated as he asked questions about the reading. After 10 minutes, the teacher told the students it was time for them to read independently.

Phase 2 of SEM-R began after 15 minutes. The students quickly scattered about the room to places of their choice for sustained independent reading (SIR). Three boys stayed on the rug and lay down or leaned against the bookshelf. Two girls sat behind a bookshelf, and other students sat on the floor space beneath the coat racks. Four students returned to their desks, while several other students sat on the floor under the tables or desks. These locations did not seem to be the most comfortable, as there were no pillows, but the students appeared eager to read their books and began almost immediately. The teacher turned on his radio, which quietly played soft music. He then began having conferences with several students and using the bookmarks with questioning techniques. All students appeared to be engaged in reading. After 20 minutes, two students began to lose concentration, and the teacher immediately called one of them over for a conference and asked the researcher in the room to meet with the other student who was distracted. The class read quietly for about 35 minutes. Although the students asked for more time, it was almost the end of their 1-hour reading/literacy block. The teacher directed the students to return to the rug for the last few minutes, and he asked students to share some of what they learned during their reading time. He did not do any SEM-R phase 3 time on this observation day, as he explained that he had been dedicating all of his Friday literacy block to SEM-R phase 3. Finally, the students were sent back to their seats to record their books and the amount of time spent reading in their reading logs and then returned to their sending classroom, due to the random assignment of students.

#### *Third-Grade Class*

A young, but experienced female teacher directed the literacy block class of 22 third graders to a small rug area. Many students rushed to sit up front or select large pillows on which to sit. Other students immediately retreated to the back so they could lean against the wall. Some also selected a stuffed animal to hold from the basket provided. The teacher sat in a small living room chair and told the students for several minutes how to sit on the rug. She began the reading session by sharing a picture book with the class. At first, she led the class in a picture walk of the pages. The students described the scenes in the illustrations and made predictions of what was happening in the story. The teacher also shared some unique features of this illustrator's work. Next, she read sections of the book aloud to the class, and most students appeared to enjoy listening to the story. The teacher stopped two times to move students or speak to them about

their behavior on the rug. After about 10 minutes, the read-aloud session was done and students proceeded to SIR.

The students took 5 minutes to transition from phase 1 to phase 2. During SIR, the students all sat at their desks, which were positioned in groups of four or five. Most of the class retrieved books from their desks. Several returned to the rug area to select a book from one of three colored bins or the two bookshelves. The bins, which were recent additions to the classroom, contained books sorted by level. Approximately 17 students immediately began reading silently, while the others had some difficulty focusing on their own independent work.

The teacher and researchers circulated throughout the room, conducting one-on-one conferences with students, while another researcher observed and took field notes. The teacher gravitated toward those students having a difficult time getting started and did use the bookmarks for the conferences. She spent time reminding these students to sit down and read their books and gave specific suggestions for self-regulation strategies. She met with six students for conferences during this time. Some students read from nonfiction informational books, and others read short chapter books. The majority of the students were able to read quietly for 35 minutes, and the teacher explained that she had previously used the last 15 minutes of phase 3 of SEM-R, but she had recently switched that time to 1 day each week as it enabled her students to read longer amounts of time for phase 2, SEM-R each day.

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