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The Schoolwide Enrichment Model Reading Study

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September 2005
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ABSTRACT

In this study, a cluster-randomized design was used to investigate the effects of an enriched reading program on elementary students' reading fluency, comprehension, and attitude toward reading. The Schoolwide Enrichment Reading Model (SEM-R) provides enriched reading experiences by exposing students to exciting, high interest books, encouraging them to increase daily independent reading of appropriately challenging, self-selected books through individualized reading instruction, and providing interest-based choice opportunities in reading. This research was conducted in 3 urban schools with a diverse student population of children from predominantly low socioeconomic income families and one suburban school with a large group of students with special needs. Students and teachers were randomly assigned to either the SEM-R treatment group or a control group in which they continued with the schools' established reading instruction. In Year 1 (2001-2002) of the study, all students in grades 3-6 participated in a district-mandated direct instruction reading program, Success for All, in the morning. Throughout the approximately 12-week intervention, the control group continued with remedial reading and test preparation during an additional afternoon literacy block while the treatment group implemented the SEM-R. During Year 2 (2002-2003), students and teachers were randomly assigned to either a treatment or control group for 1 hour of a regularly scheduled 2-hour language arts block. For 14 weeks, the treatment group implemented the SEM-R while the control group continued with previous instruction using a traditional basal reading series. Results indicate that students in the SEM-R treatment group in urban schools scored significantly higher than those in the control group in reading comprehension, reading fluency, and attitude toward reading. These results suggest that supplementing reading instruction with systematic reading enrichment that challenges and engages students may produce more favorable reading achievement, fluency, and attitude for students at all achievement levels, including talented readers.

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EXECUTIVE SUMMARY

This study investigated the effects of the Schoolwide Enrichment Reading Model (SEM-R) on elementary school students' reading achievement, reading fluency, and their attitudes toward reading. Researchers used a cluster-randomized experimental design that was implemented in one suburban school and 3 urban schools with student populations of varying levels of achievement and of predominantly low socioeconomic status. The SEM-R is an enrichment-based reading program that enables students to select high-interest books that are slightly to moderately above current reading achievement levels to stimulate interest in and enjoyment of reading.

Theoretical Framework

The SEM-R includes three general categories of reading instruction that are dynamic in nature and designed to enable some flexibility of implementation and content in response to both teachers' and students' needs. This approach is based on Renzulli's Enrichment Triad Model (1977) that includes three levels of enrichment: Type I (exposure), Type II (training & self-selected reading), and Type III (investigations of self-selected topics).

Phase 1 of SEM-R includes listening comprehension skills, high quality literature read aloud by teachers, higher-order questioning, and thinking skills instruction. During the initial implementation of the SEM-R study, these "book hook" sessions lasted 10 to 20 minutes and were designed to broaden students' exposure to and interest in a variety of literature. As the intervention continued, teachers chose literature based on students' interests and experiences for this component. A variety of bookmarks with higher-order questions were distributed to all students and teachers, and teachers were provided with suggestions for engaging students' interests and helping them to explore a selection of books representing a variety of genres, including mysteries, poetry, historical fiction, science fiction, biographies, autobiographies, and other non-fiction.

Phase 2 of the SEM-R emphasizes the development of students' capability to engage in a structured silent reading time of self-selected high interest books when supported with individualized, differentiated reading conferences, termed Supported Independent Reading (SIR). Teachers coached students to select books that were slightly above their current reading level and the appropriate match was continually assessed through regular conferences with each student two to three times each week. Most students could initially read appropriately challenging books from 5-10 minutes a day without losing concentration or focus. Teachers added a minute or two each day during the SEM-R intervention, eventually extending that time to 30-45 minute daily sessions across all treatment classes. During this in-class reading time, teachers and research team members circulated, providing individualized coaching in reading strategies. For more advanced readers, higher-order questions and critical concepts were discussed. A comprehensive list of appropriately challenging, high interest non-fiction and fiction materials were provided to treatment teachers for reference.

In Phase 3 of the SEM-R, students are encouraged to move from teacher directed opportunities to self-choice activities over the course of the intervention. Activities include (but were not limited to) opportunities to explore new technology and engage in discussion groups, writing activities, creativity training in language arts, learning centers, interest-based projects, continuation of self-selected reading, and book chats. The intent of these experiences is to provide time for developing and exploring student interest in reading. In addition, students engage in creative and critical thinking training and in advanced training in the use of the Internet to find information about various literary genres, such as biographies and autobiographies. The focus was enabling students to learn to read critically and to locate other enjoyable and challenging reading materials, especially high quality 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 self-regulation in reading. Over the course of the intervention, phases were fluid, and teachers modified the lengths of the phases to accommodate students' interests and increasing ability to engage in SIR.

Methods

The SEM-R was implemented in 2 schools during the first year of research (2001-2002) using a cluster-randomized design. The sample in the first-year implementation of SEM-R intervention included approximately 260 third, fourth, fifth and sixth grade students from two low socioeconomic urban elementary schools. In both schools, teachers and students were randomly assigned to the treatment group or control group. The control group continued with a traditional afternoon remedial reading program that was implemented in addition to the morning reading program, Success for All (Slavin, Dolan, Madden, Karweit, & Wasik, 1992; Slavin & Madden, 1999, 2000). The intervention lasted for approximately 12 weeks in the spring of 2002. The treatment was implemented in Center Public School, according to plan. In North Corner School,

treatment fidelity was not maintained and consequently, the first year results contain only data from Center Public School.

In the second year of this study, the SEM-R was implemented in 2 additional schools, 1 urban and 1 suburban, in the spring of the 2002-2003 school year. The sample for Year 2 included 558 students in grades 3-5 and 31 teachers. Students and teachers were randomly assigned to either a treatment or control group for 1 hour of a regularly scheduled 2-hour language arts block. For 14 weeks, the treatment group implemented the SEM-R intervention, while the control group continued with previous instruction using a traditional basal reading series.

Year 1: Results for Center Public

At the beginning of the SEM-R intervention, the overwhelming majority of students in the treatment group could not sustain independent reading of self-selected books for more than a few minutes. Approximately 10% of the students across the 4 classrooms could read independently for more than 5 minutes. Classroom teachers and research team members considered attention and self-regulation to be major factors in students' inability to read for an extended period of time. Additionally, at the start of the intervention the majority of grade 3 students could not read silently, and they all whispered to themselves as they read. During the course of the SEM-R intervention, strategies were provided for increasing self regulation, reading time, fluency, and comprehension. At the conclusion of the first year of the intervention, the overwhelming majority of students in all the SEM-R intervention classrooms could sustain 30-45 minutes of SIR in one period, a major achievement for the majority of students who previously could not read for more than 5 minutes at one sitting.

Significant differences favoring the treatment group were found in attitudes toward reading, reading comprehension, and reading fluency:

- Significant differences were found on pre- to post-difference scores in reading fluency favoring the treatment group, $F(1,118) = 6.51$, $p = .01$, $\eta^2 = .05$.
- Statistically significant results using the *Elementary Reading Attitude Survey* were found after controlling for pre-intervention attitude, $F(1, 115) = 9.74$, $p = 0.002$, $\eta^2 = 0.08$ favoring the treatment group.
- Significant differences were also found on the *ITBS* test of reading comprehension (post only) favoring the treatment group, $F(1,120) = 7.08$, $p = .009$, $\eta^2 = .06$.
- Talented readers, as well as average and below average readers, benefited from the intervention.

Year 2: Results

Based upon the initial findings, a replication of this study occurred during the 2002-2003 academic year in 2 additional schools to investigate whether the intervention

of SEM-R in different types of schools would produce similar positive results. More specifically, the research team wanted to investigate what would happen when the SEM-R was used as part of a regular reading program instead of an afternoon replacement for remedial instruction and test preparation. A decision was made to continue the implementation in schools within driving distance so that treatment and control classes could be carefully monitored for treatment fidelity. Implementation took place in one high poverty school and one rural/suburban school. Participating students represented all achievement and cultural groups, as well as a large group of students with special needs.

Similar findings to those in Year 1 on self-regulation in reading emerged at the conclusion of the intervention, as the majority of students in all the SEM-R classrooms could sustain 40-45 minutes of independent reading during the 1-hour block. Additionally, significant differences favoring the treatment group were found in reading fluency growth and reading comprehension:

- Significant differences favoring the treatment group were found on pre- to post-difference scores in reading fluency, $F(1, 544) = 4.58$, $p = .033$, $\eta^2 = .01$ across both schools.
- At the urban school, significant differences favoring the treatment group were found on measures of reading fluency, $F(1, 112) = 5.25$, $p = .024$, $\eta^2 = .045$.
- At the urban school, significant differences were also found on the *ITBS* test of reading comprehension (post only) favoring the treatment group, $F(1, 124) = 4.20$, $p = .043$, $\eta^2 = .03$.
- At the suburban school, no significant differences were found on the *ITBS* and reading fluency between the treatment and control groups.
- These results again suggest that talented readers, as well as average and below average readers, benefited from the intervention.

Importance of the Study

Three of the schools studied over the 2 years were in urban areas designated as high poverty schools, with large populations of culturally diverse students as well as students from low socioeconomic income families. Over 90% of students in three out of four of our schools qualified for free and reduced lunch. Little experimental research has addressed systematic reading enrichment experiences as suggested by the SEM-R with these at-risk populations of students. It was hoped that the SEM-R would raise the ceiling and increase reading scores for all students. Specifically, we found the following:

- Increased reading fluency and achievement test scores in reading,
- An increase in number of appropriately challenging books read and total hours spent reading independently in school, and
- Positive enhancement of students' attitude toward, and enjoyment of, reading.

The SEM-R constitutes a coherent line of inquiry to increase reading achievement using enrichment teaching methods, including high interest and self-selected books that are above current reading levels to stimulate interest, enjoyment, and achievement in reading. The SEM-R study described in this monograph addresses a problem that has been neglected for decades—how to challenge talented readers who are systemically denied the opportunity to read at increasingly advanced levels of achievement, while simultaneously addressing the issues of an absence of challenge in reading programs that may contribute to declining achievement in all students.

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CHAPTER 1: Introduction to the Study

This study addressed the benefits of using the Schoolwide Enrichment Reading Model (SEM-R), an enriched and accelerated approach to reading, with economically disadvantaged students from diverse cultural and linguistic backgrounds who have potential for academic success. Although we acknowledge the importance of improved educational initiatives for all students placed at risk, one focus of our efforts was on a specific segment of the school population, talented readers, who have been largely overlooked in reform efforts dominated by remedial models, limiting access for promising students. A greater focus on remedial programs and an extensive focus on testing and increasing test scores have resulted in more drill and review than ever before. Many talented readers use the same basal reading programs as all other students and remain unchallenged in school reading programs. In the two experimental studies described in this monograph, Year 1 and Year 2, the SEM-R has been effective at increasing reading achievement and fluency scores, as well as attitudes about reading for some elementary students.

The implementation of SEM-R focuses on the use of creative teaching methods designed to enhance reading through an analysis of strengths and interests and the use of curriculum differentiation (both acceleration and enrichment), as opposed to basic skills instruction. Our goal is to increase enjoyment of and self-regulation in reading as well as reading achievement and fluency. The SEM-R employs individually selected high interest reading materials that are above students' current reading level within a framework that is relatively easy for teachers to use.

We focused on the problems of reading achievement for all students for three reasons. First, critical research has documented the wide range of skills and degrees of readiness with which children enter kindergarten (West, Denton, & Germino-Hausken, 2000) and progress through elementary and middle school. The failure of many students placed at risk to achieve at high levels as they move through school is also highlighted in *The 2002 Nation's Report Card on Reading*, issued by the National Assessment of

Educational Progress (Grigg, Daane, Jin, & Campbell, 2003). This report indicates that 36% of U.S. fourth graders and 25% of U.S. eighth graders were reading below basic level, meaning that they could not demonstrate an understanding of the literal meaning of text, identify main ideas, make inferences, or relate what they read to personal experiences. This failure may result in the inability to make successful transitions into increasingly challenging educational environments. Even more troubling is the discrepancy between scores of White students as compared to culturally diverse students. For example, in Connecticut, 9% of Black and 10% of Latino eighth graders met the reading proficiency standard on the 2002 state mastery test as compared with 48% of White students (Grigg et al., 2003). These discrepancies are also noted at the national level.

The second reason the study focused on improving reading achievement for all students is that research has consistently indicated that reading is the most important factor in success in school, and a major key to school success continues to be reading achievement in appropriately challenging instructional materials (Anderson, Hiebert, Scott, & Wilkinson, 1985; Chall, Jacobs, & Baldwin, 1990). The third reason for the research focus is that no recent study has examined methods of increasing achievement for talented reading students. With the exception of our previous research on the SEM-R, no other research has been conducted on the use of gifted education pedagogy for all students to increase reading achievement. Previous research at The National Research Center on the Gifted and Talented (NRC/GT) indicates talented students spend a great deal of time in school doing work that they already know (Reis et al., 1993), and many talented urban students who excelled in elementary and middle school become underachievers in high school (Reis, Hébert, Díaz, Maxfield, & Ratley, 1995). These talented underachieving students attribute unchallenging learning environments as the primary reason for their lack of effort and diminished achievement (Reis et al., 1995).

Another recent study found that talented readers were able, but were rarely encouraged, to select more challenging books (Reis et al., 2003). Most classroom teachers had advanced books or resources available in their classrooms, but these materials were not used with talented readers. In fact, talented readers received little differentiation in either reading instruction or curriculum in most of the 12 classrooms observed; rather, students who read well above grade level usually received instruction and curricular materials that were identical to that of students who read significantly below grade level (Reis et al., 2003). Additionally, talented readers in some urban areas were often ignored by their teachers. In one urban classroom during 8 separate observations over a 4-month period, talented readers were never observed having any reading instruction. When questioned about whether this reading group ever received any instruction, the teacher sighed and replied,

> I try to get to them at least once a week, but I am not always able to do that. You see, so many of my other students read below grade level that it is hard to justify not working with them. Many of these lower readers will be retained in this grade if they do not improve. The top group already reads at grade level, so I rarely have any instructional time to give to them.

We believe that the SEM-R study addresses a problem that has been neglected for decades—how to challenge talented readers who are systemically denied the opportunity to read at increasingly advanced levels of achievement, while simultaneously addressing the issues of an absence of challenge in reading programs that may contribute to declining achievement in all students.

According to the Committee on the Prevention of Reading Difficulties in Young Children (Burns, Griffin, & Snow, 1999), the children most likely to experience reading difficulties throughout the course of their academic career are those who attend a chronically low-achieving school, have low English proficiency, are unfamiliar with standard English dialect, or live in communities of poverty. Therefore, this research addressed elementary students from the lowest socioeconomic urban and rural districts, with an emphasis on culturally and linguistically diverse children. In the implementations of the SEM-R, we worked with districts in close proximity to our university, and our research team was available to coach teachers on a daily basis.

Significance of the Study

Relatively little research has focused on using various forms of gifted education pedagogy (Reis, Gentry, & Park, 1995; Renzulli, 1993) to increase reading achievement levels in all students. We believe that the problem addressed in this study is one of the most important issues facing gifted education and education in general. The lack of challenge for talented students, and in particular, the failure of many at-risk students to achieve at high levels as they move through school may also shed some light on lower reading achievement in general. The implementation of the SEM-R in diverse schools that will be described in this research monograph provided an opportunity to develop a broad range of individually structured advanced level enrichment experiences in reading for *all* students (Renzulli & Reis, 1985, 1997). This theme continues the research at the University of Connecticut site of the NRC/GT about the development of "high-end learning" opportunities for all students. Vast numbers of young people from underrepresented groups whose potential talents cannot always be assessed through standard performance measures may be systematically excluded from traditional gifted programs. Too many academically talented and high potential students placed at risk are not represented in programs designed to challenge students to attain the highest levels of learning and creativity. Services that focus on high expectations, rigorous standards, greater engagement with subject matter, and accelerated learning for all students should be made available to students who represent the nation's largest reservoir of untapped talent. These students, because of economic circumstances and other problems that surround poverty in America have not had equal opportunity and encouragement to develop their potentials to the fullest. Accordingly, research related to the SEM-R has applied the strategies of high-end learning to the development of gifts and talents in these young people. *All* students should have opportunities to develop higher-order thinking skills and to pursue more rigorous content than is currently in use in many districts serving at-risk populations, and the initial findings from our research suggest that this occurs when the SEM-R is implemented.

CHAPTER 2: Review of Related Research

Little research has focused on challenging talented readers or using the pedagogy of gifted education (e.g., critical and creative problem solving and thinking, acceleration, curriculum modification, differentiation, independent study, advanced content, self-selected interest-based opportunities) to encourage and develop advanced reading (Jackson & Roller, 1993; Reis & Renzulli, 1989). No recent study has examined reading instruction for talented readers, and the topic is rarely discussed in the professional literature or at conferences. This research study reflected a need expressed by Guthrie, Schafer, Von Secker, and Alban (2000) for research in regular classrooms with classroom teachers who teach reading for all achievement levels of students.

Characteristics and Needs of Talented Readers

As a group, talented readers are characterized as reading earlier than their peers, spending more time reading, and reading a greater variety of literature, even into adulthood (Collins, Aiex, & Kortner, 1995; Halsted, 1990). These students typically read at least 2 grade levels above their chronological grade placement, demonstrate advanced understanding of language, have an expansive vocabulary, perceive relationships between and among characters, and grasp complex ideas (Catron & Wingenbach, 1986; Dooley, 1993; Levande, 1993; Witty, 1971). Talented readers' skills are advanced relative to their peers, and they may not profit from conventional instruction in reading (Levande, 1999). Like all students, they benefit from diagnostically based instruction to ensure their skills continually improve.

The use of instructional grouping has also been successful with talented readers, resulting in increased understanding and enjoyment of literature (Levande, 1999). Additional strategies found to be successful with talented readers include curriculum compacting (Renzulli, 1977), using a selection of high quality literature that is geared toward the students' reading level rather than age, focusing instruction on the students' strengths (Renzulli & Reis, 1985; 1997), and developing higher-level comprehension skills (Collins, Aiex, & Kortner, 1995). The use of higher-level questioning and opportunities to incorporate prior knowledge in reading experiences enable talented readers to build on their strengths. Book discussion groups can also provide talented readers with the opportunity to interact with intellectual peers and to discuss their ideas in greater depth. Reading discussions can be facilitated by a teacher, librarian, or volunteer and should focus on themes and ideas, rather than facts and plot summaries (Halsted, 1990).

Researchers who have examined practices for talented readers agree that regular reading instruction is often too easy for talented readers (Collins, Aiex, & Kortner, 1995; Dole & Adams, 1983; Reis & Renzulli, 1989; Shrenker, 1997) and talented readers need differentiated reading instruction (Archambault et al., 1993; Reis et al., 1993; Westberg, Archambault, Dobyns, & Salvin, 1993). Mangieri and Madigan (1984) found that typically

talented readers use the same basal as their classmates who may have reading difficulties. No recent study has examined the nature of regular reading instruction for talented reading students, yet related research found that many talented students receive little differentiation of curriculum and instruction and spend a great deal of time in school doing work that they have already mastered (Archambault et al., 1993; Reis et al., 1993; Westberg et al., 1993).

The Schoolwide Enrichment Model

The Schoolwide Enrichment Model (SEM) (Renzulli, 1977; Renzulli & Reis, 1985; 1997) was originally created as a programming model for gifted students, but has also been used as a talent development approach to provide enriching learning experiences and higher learning standards for all children. The SEM has three major goals: (1) using student responses to planned enrichment experiences as stepping stones for follow-up advanced learning for children with high potential and demonstrated gifts and talents; (2) providing a broad range of advanced-level enrichment experiences for all students; and (3) developing talents in all children. The SEM has three components to accomplish these goals: (1) The Total Talent Portfolio (individual portfolios for talent development in each child focusing on abilities, interests, and learning styles); (2) curriculum modification including a system entitled curriculum compacting (a method for replacing work students already know with enrichment and acceleration activities) that includes textbook analysis; curriculum mapping; and expanding the depth of learning to enable students to learn something in an advanced manner; and (3) enrichment teaching and learning using the Enrichment Triad Model (Renzulli, 1977) that takes into account the uniqueness of each learner and the enjoyment of learning experiences.

Separate studies on 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 2000 schools across the country (Burns, 1998), and interest in this approach has expanded internationally. The effectiveness of the model has been studied over 20 years of research and field-testing, and this research is subdivided into (a) the effectiveness of the model as perceived by key groups, such as principals (Cooper, 1983; Olenchak, 1988); (b) research related to student creative productivity (Burns, 1987; Delcourt, 1988; Gubbins, 1982; Newman, 1991; Reis, 1981; Starko, 1986); (c) research relating to personal and social development (Olenchak, 1991; Skaught, 1987); (d) the use of SEM with underserved populations (Baum, 1985, 1988; Baum, Renzulli, & Hébert, 1999; Emerick, 1988; Taylor; 1992); (e) research on student self-efficacy (Schack, 1986; Schack, Starko, & Burns, 1991; Starko, 1986; Stednitz, 1985); (f) the use of SEM as a curricular framework (Karafelis, 1986; Reis, Gentry, & Park, 1995); (g) research relating to learning styles and curriculum compacting (Imbeau, 1991; Reis, Burns, & Renzulli, 1992; Smith, 1976; Stewart, 1979); and (h) longitudinal research on the SEM (Delcourt, 1988; Hébert, 1993; Westberg, 2000). This research on the SEM suggests 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 also suggest that the SEM can be applied to various content areas implemented in a wide

variety of settings and used with various populations of students, including high ability students with learning disabilities and high ability students who underachieve.

Using Gifted Education Pedagogy to Enrich Reading Instruction for All Students

Little research has focused on challenging talented readers or using the pedagogy of gifted education (e.g., critical and creative problem solving and thinking, curriculum modification and differentiation, independent study, and self-selected products) to encourage advanced reading (Jackson & Roller, 1993; Reis & Renzulli, 1989). In one study of average and above-average readers, Taylor and Frye (1988) found that 78% to 88% of fifth and sixth grade average and above average readers could pass pretests on basal comprehension skills before they were covered in the basal reader. The average readers performed at approximately 92% accuracy, while the talented readers performed at 93% accuracy on the comprehension skills pretests.

Using Gifted Education Pedagogy as an Enrichment Approach to Learning

The report *National Excellence: A Case for Developing America's Talent* (U.S. Department of Education, 1993) suggested that enrichment programs could have a positive effect on general education, as they have "...served as laboratories for innovative and experimental approaches to teaching and learning in the development of complex thinking strategies and problem solving" as well as sophisticated teaching strategies, alternative teaching strategies, and interesting curriculum approaches (p. 23). An impressive menu of curricular adaptations and pedagogy has been developed in enrichment programs, and the use of strategies such as independent study and thinking skills instruction can be used to improve education and upgrade the challenge level for all students (Renzulli, l993; Renzulli & Reis, l991; U.S. Department of Education, l993). Reis, Gentry, and Park (1995) and Tomlinson and Callahan (1992) suggested that several methods have been used successfully to enrich general education, including innovative instructional techniques (Renzulli, 1977); differentiation of content, process, and product as well as theme-based learning (Kaplan, 1986; Reis, Burns, & Renzulli, 1992; Renzulli, 1977, 1988; Tomlinson, 2000); self-directed learning (Treffinger, 1986); student productivity (Renzulli, 1977); and creative teaching models (Feldhusen & Kolloff, 1986; Kaplan, 1986; Renzulli, 1977; Renzulli & Reis, 1985; Schlichter, 1986; Taylor, 1986). The expanded use of gifted education pedagogy could enable all students to have opportunities to develop higher-order thinking skills and to pursue more rigorous content and first-hand investigative activities (Renzulli, 1993).

The SEM-R also provides opportunities for students who read well above grade level to receive challenging reading opportunities in their classroom reading activities. Research suggests that many academically talented students receive little differentiation

of curriculum and instruction, spending a great deal of time in school doing work they have already mastered (Archambault et al., 1993; Reis et al., 1993; Westberg et al., 1993). For these students, limited opportunities for continuous progress in reading exist, and when they do, an appropriate match must exist between level of instruction and students' reading abilities (Reis et al., 2003). The appropriate match between a learner's abilities and the difficulty of the instructional work occurs when instruction is slightly above the learner's current level of achievement in a particular content area is called the zone of proximal development (Vygotsky, 1978). Chall and Conard (1991) found that when the match is optimal, learning is enhanced. If, however, "the match is not optimal, learning is less efficient and development may be halted" (p. 19). Using content that is well below students' reading level may result in halted development as well as motivational problems for talented readers who learn to regard reading as an effortless process. In the SEM-R, we enabled students to read interest-based reading material that was above their current achievement level in reading, resulting in books that spanned 8-9 different reading levels in most classrooms.

Current Reading Practices

Current reading research (National Center for Education Statistics [NCES], 1999; National Reading Panel [NRP], 2000) suggests that reading programs that promote student achievement use a variety of approaches, a systematic selection of teaching techniques based on student needs, and ongoing professional development in instructional options for reading. A systematic approach to teaching reading requires the use of multiple methods in the context of long-term, coherent planning, rather than a haphazard approach that may not cover essential topics at optimal moments. Teaching reading in the context of small, flexible groups has also proven helpful, allowing teachers to gear the lessons toward the specific needs of learners. Programs that derive the greatest benefits for elementary students are those that include training in phonemic awareness, phonics, fluency, comprehension, and vocabulary (NRP, 2000).

Research About Reading Performance

Current research provides some generalizations about reading performance in the United States. According to the NCES (1999), females tended to have higher average scores than males, and students who read more at home tended to have higher scores than those who read less. It is important to note that studies of this trend are correlational, not causal. Assigning struggling readers more reading is not likely to yield positive results without providing additional classroom instructional support (Stanovich, 1986). Reading performance continues to be closely linked to socioeconomic status (NCES, 1999).

The National Research Center on English, Learning, & Achievement (CELA) has found that literacy gains were greater in classrooms where students were encouraged to ask questions and to develop and expand their ideas through classroom discussion (Langer, Close, Angelis, & Preller, 2000). Students gain more in classrooms that use these activities within the studied content. CELA cautions against a national tendency to ignore reading support for students above fourth grade, many of whom still have

difficulty with reading, writing, and language skills. Scaffolding should be used at all grade levels and in all subject areas (Langer et al., 2000; Smith et al., 2001; Weaver, 1994), with teachers weaving reading, writing, oral language, and listening into content areas (Morrow, 2001). Students need to have reading skills reinforced across discipline areas; they profit academically from seeing how language skills and knowledge can be applied in various subject areas (Langer et al., 2000). Using techniques associated with metacognition can also help students learn not only how to perform successfully in a particular discipline, but also how to think and write about that discipline (Knuth & Jones, 1991; Langer et al., 2000).

Unfortunately, we still know too little about how best to help students with language-based disabilities. According to the NRP (2000), because learning disabled students tend to see the big picture rather than details, successful interventions would typically be Gestalt in nature, with appeal to the visual modality. Areas of strength should be nurtured to provide support; typically this would include spatial processing. Systematic instruction in phonics also has a significant positive effect on reading skills of students with learning disabilities (NRP, 2000).

For students in primary grades, a comprehensive reading program should use not only phonics, but also phonemic awareness, fluency, and comprehension to afford students the greatest opportunity for success (NRP, 2000; Snow, Burns, & Griffin, 1998). Roth and Schneider (2001) confirmed this practice in their study of German kindergarten students. Programs that taught both phonological awareness and letter knowledge to kindergarten students helped to prevent subsequent reading and spelling problems. They reaffirmed that teaching phonological awareness and letter knowledge together were more successful than teaching either exclusively.

Accountability Pressures and Impact on Reading Instruction

Hoffman, Assaf, and Paris (2001) point to a growing trend in today's reading landscape: "Accountability through testing, for students, teachers, and administrators, is the key leverage point for policy makers seeking to promote educational reform" (p. 482). Measurable goals set at the same standard for every student regardless of individual differences (e.g., the ability of all third grade students to demonstrate reading comprehension on a standardized test) are the ultimate aim of the No Child Left Behind Act (International Reading Association, 2001). However, the effectiveness of new reading policy to improve classroom instruction and student achievement is rarely evaluated, leaving many educators to wonder about the most effective methods for reforming reading instruction (Allington, 2000).

The intense accountability pressures on many low-performing schools have led to an increased (and often extensive) use of "skill and drill" test preparation lessons despite the scant empirical research supporting such extreme measures (Hoffman, Assaf, & Paris, 2001; Moon, Brighton, & Callahan, 2003; Sloan, 2000). In an extensive review of literature, only one experimental study comparing the effectiveness of test preparation programs was located. The study, conducted by the Chicago Public Schools (1987),

evaluated the effectiveness of four commercial test preparation programs; no significant differences were found on standardized test performance between those who participated in test preparation and those who did not. However, qualitative research supports the claims of many who are concerned about the impact of repetitive basic skills practice on gifted students (Hoffman, Assaf, & Paris, 2001; Moon, Brighton, & Callahan, 2003; Sloan, 2000). For example, one teacher interviewed by Moon, Brighton, and Callahan (2003) described that her school's focus "in early childhood is the nonreaders, kids working below-grade level, at-risk kids that are at risk of failure. And just once a year do I ever hear about G/T (gifted and talented) nominations . . ." (p. 54).

Another prevalent theme in the literature on the classroom impact of mandatory state tests and high stakes environments is the limitations placed on teachers' professional judgment and their ability to provide a student-centered learning environment (Abrams, Pedulla, & Madaus, 2003; Hade, 2002; Moon, Brighton, & Callahan, 2003; Sloan, 2000). In surveys and interviews with teachers across all class ability levels, Moon, Brighton, and Callahan (2003) found that a majority of respondents acknowledged the impact of accountability pressures on their educational decisions. Many teachers "reported that they teach to the tests more than they would if there were no accountability pressures and that they omit information because of lack of time due to preparing for state tests" (p. 54).

Research has shown that school subjects not included in state tests (e.g., science, social studies, and physical education) are often seen as low priorities by teachers and administrators who are trying to carve out more instructional time in which to prepare students for improved test performance. This narrowing of the scope of content and curriculum curtails teachers' ability to engage in student-centered or enrichment-based teaching and negatively impacts student engagement and interest in classroom activities (Abrams, Pedulla, & Madaus, 2003; Hoffman, Assaf, & Paris, 2001; Moon, Brighton, & Callahan, 2003).

Depth and complexity of content are not the only casualties of a high stakes testing environment. On a national survey of teachers' perception of the impact of state testing programs conducted by Abrams, Pedulla, and Madaus (2003), a surprising majority of teacher responses indicated that "the state test has led them to teach in ways that contradict their own notions of sound educational practice" (p. 27). According to the International Reading Association (1999), high-stakes testing "has become a means of controlling instruction as opposed to a way of gathering information to help students become better readers" (p. 257).

Current Instructional Practices in Reading in the United States

Phonemic Awareness

Teaching phonemic awareness focuses on using phonemes, the smallest unit of language, in speaking and in reading. In addition to letter knowledge, phonemic awareness is the best predictor of how well children will learn to read in their first 2 years

of school (Gillet & Temple, 1990). Teaching children to manipulate phonemes has been proven effective across grade and age levels and among disparate learners. Instruction in phonemic awareness assists normally achieving students in learning spelling, although it has not been found to be effective in teaching spelling to disabled readers. Phonemic awareness in the instruction of reading proves more effective than any instruction that does not employ this method (NRP, 2000). Focusing on one or two types of phonemic manipulation proves more successful than does the use of multiple types. Other methods that increase reading effectiveness include teaching phonemic manipulation both explicitly and systematically and teaching children in small groups based on their levels of knowledge of phonemes (NRP, 2000).

Phonics Instruction

A variety of phonics instructional approaches exist (e.g., analogy, analytic, embedded, phonics through spelling, and synthetic instruction), and all are based on the premise that phonics provides the acquisition of letter-sound combinations and how they work in reading and spelling. Phonics is believed to be the foundation of the system of the language in which students learn how letters and sounds are linked to create meaning. According to the NRP (2000), the selection of a phonics system for teaching relies on choices that are both systematic and explicit. Such methods prove much more successful than those reading programs that do not include a systematic use of phonics. In fact, the systematic use of phonics proved successful for students throughout elementary school and with those who have learning disabilities. However, the earlier that phonics is taught, the more successful the impact can be on students' reading and spelling ability (NRP, 2000).

Phonics should represent only one part of a reading program. It must be used in conjunction with putting letter-sound combinations to use in the act of reading (NRP, 2000). In addition, because the skill levels of students within a class will vary greatly, teachers should also employ the use of small groups based on skill level. Likewise, the importance of teaching sight words should not be underestimated, as 109 high-frequency words make up over 50% of the words students will encounter in their school texts, and 5,000 words account for over 90% of the words in such texts (Adams, 1990).

Fluency

Reading fluency is the ability to read with speed, accuracy, and expression (Snow, Burns, & Griffin, 1998). Fluent reading has long been considered a hallmark of well-developed reading skills. In fact, according to Adams (1990), the "most salient characteristic of skillful readers is the speed and effortlessness with which they seem able to breeze through text" (p. 409). Fluency is also closely related to reading comprehension (Fuchs, Fuchs, Hosp, & Jenkins, 2001; Shinn, Good, Knutson, & Tilly, 1992). This relationship is explained by several prominent theories of the reading process that share the same underlying reasoning (LaBerge & Samuels, 1974; Perfetti, 1985; Stanovich, 1986). These theories assert that the efficient processing of lower-level reading skills (i.e., word recognition) characterized by fluent reading frees up cognitive

resources for higher-level reading skills (i.e., comprehension). Thus, if a reader has to spend too much time and energy determining what the words are, she will be unable to concentrate on what the words mean (Coyne, Kame'enui, & Simmons, 2001). For the non-fluent reader, "reading becomes a slow, labor-intensive process that only fitfully results in understanding" (NRP, 2000, p. 3-8). Because reading fluency reflects both lower-level and higher-level processes, it is considered a reliable indicator of overall reading proficiency (Fuchs et al., 2001).

Although researchers and practitioners recognize reading fluency as an important component of skilled reading, it has often been neglected in classroom reading instruction (Allington, 1983; Coyne, Kame'enui & Simmons, 2001). Fluency was assumed to result from well developed word recognition skills, and as a result, little instructional time was allocated explicitly toward developing fluency; however, fluency represents a level of expertise beyond word recognition accuracy (NRP, 2000). Because fluent reading requires processing text not only accurately, but also quickly and efficiently, instruction in word recognition skills does not inevitably result in increased fluency. However, there are relatively few instructional strategies that directly target fluency development (Chard, Vaughn, & Tyler, 2002).

One technique often mentioned in research about comprehension and fluency is independent reading, and strong theoretical support exists for the relationship between overall reading achievement and time engaged in independent reading (Cunningham & Stanovich, 1998). In a recent evidence-based evaluation of instructional approaches designed to increase reading achievement, however, the NRP (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). These results are theoretically puzzling because there is strong correlational evidence linking time spent reading to overall reading achievement (Cunningham & Stanovich, 1998). The Panel called for research on the effectiveness of encouraging students to engage in wide independent reading and emphasized the need for rigorous experimental studies that measure a range of reading outcomes, including both reading fluency and comprehension. Specifically, the Panel emphasized the need for rigorous experimental studies that monitor the amount of reading by both the treatment and control groups and also measure a wide range of reading outcomes, including both reading fluency and comprehension.

Comprehension

Reading comprehension is the backbone of not only reading, but learning in general. Reading comprehension is not an isolated ability, rather an interrelated collection of complex skills that enable a person to understand and recall the ideas and information found in written material (Stevens, Slavin, & Farnish, 1991). Instruction should involve teaching specific strategies for solving barriers to understanding (Pressley, Johnson, Symons, McGoldrick, & Kurita, 1989; Rosenshine & Meister, 1994; Rosenshine, Meister, & Chapman, 1996). Teacher training in teaching reading comprehension is vital in improving students' achievement (Anderson, 1992; Bramlett,

1994; Pressley et al., 1989), especially since teachers spend little time teaching comprehension strategies (Duffy, 1993; Durkin, 1979). Comprehension increases when students relate texts to their own experiences and background.

Research has indicated the following types of comprehension instruction are helpful to non-impaired readers: cooperative learning, graphic and semantic organizers, question answering, question generation, story structure, and summarizing. Multiple techniques are most effective, particularly in raising scores on standardized tests. Likewise, teaching comprehension within particular disciplines has had positive results (NRP, 2000).

Teachers must be well trained in content and strategies, as well as the selection of strategies for particular students (Anderson, 1992; Bramlett, 1994; Duffy, 1993; Durkin, 1979; Pressley, 1998; Pressley et al., 1989; Reutzel & Cooter, 1988). The complex art of teaching comprehension requires elegance in responding appropriately. Teachers must learn to model effectively, to encourage students to ask questions, and to keep students actively engaged in the process (Bramlett, 1994; Duffy, 1993; Pressley et al., 1989). Inservice development yielded higher student achievement (NRP, 2000).

Vocabulary

Vocabulary development and instruction have an important and reciprocal role in comprehension. As vocabulary grows, comprehension becomes easier, and as comprehension skills improve, vocabulary acquisition is more likely (Hoff, 2001; Stahl & Fairbanks, 1986). The methods used to teach vocabulary must be appropriate for the students' age and ability. The use of computers to enhance vocabulary development has had positive effects (Reinking & Rickman, 1990), as has pre-teaching of vocabulary to be found in subsequent reading passages (Brett, Rothlein, & Hurley, 1996; Carney, Anderson, Blackburn, & Blessings, 1984). Vocabulary should be taught both directly and indirectly, with repetition and multiple exposures playing important roles (Leung, 1992; McKeown, Beck, Omanson, & Pople, 1985; Senechal, 1997). Multiple methods of teaching vocabulary yield the best results (Leung, 1992; Senechal, 1997).

Silent Reading

Sustained, silent reading has been shown to be less effective, particularly with less skilled readers, because such students require additional support. Asking struggling readers to read alone creates frustration (Stanovich, 1986). Guidance can come from teachers, parents, aides, or others; guidance has a significant positive effect on word recognition, comprehension, and fluency across grade levels and with students of widely disparate ability levels (NRP, 2000). A problem with sustained silent reading is that good readers tend to read for longer periods, while poor readers tend to read less, thereby affording the greatest increases in skill to those who are already ahead (Allington, 1977, 1984; Cunningham & Stanovich, 1998; Krashen, 1993; Stanovich, 1986). Round-robin reading has contributed little to gains in reading achievement, and it may contribute to

student anxiety (Stallings, 1980). Likewise, independent reading is certainly not effective as the only component of a reading program. A balanced program is optimal.

Computer Technology and Reading Instruction

While the use of computer technology is relatively new in teaching reading, initial studies have reported positive results. Methods that have proved helpful have included the use of hypertext to afford students the opportunity to look up words with which they are unfamiliar (Davidson, Elcock, & Noyes 1996; Reinking & Rickman 1990), and the use of computers as word processors, which link reading and writing (NRP, 2000).

Language-based Learning Disabilities

Too little is known about students with learning disabilities in reading. Strategies that provide collateral gains in spelling for the majority of students may provide few such benefits for this group. The work of students with learning disabilities is characterized by difficulty with detail; as a result, instruction needs to focus on breaking down large concepts into smaller, manageable units, providing routine, and moving from the big picture to the details. In reading instruction, capitalizing on spatial strengths might mean using story boards or other visuals, pre-reading with the students to provide a scaffold upon which to build, and providing highlights of important points. Students should be trained to make hypotheses about plot, characters, and motivations as they read. If students are provided any special services, those services must be coordinated with the classroom teacher, and year-end reviews should assess the student's progress (Venezky, 1997).

Most research to date has focused on reading instruction for students who achieve at the middle and low ends of the spectrum. Much remains to do, however, regarding both talented readers and readers with disabilities, especially in learning which methodologies work best. Of particular concern are the verbally talented students who also have reading disabilities (Hettinger & Knapp, 2001), as they are likely to be overlooked for either special help or for gifted services.

CHAPTER 3: Research Methodology

This mixed methods research study combined quantitative and qualitative methodology; this chapter discusses the methodology employed. The first section provides an introduction to the schools in which SEM-R was implemented in Year 1, North Corner and Center Public. The second section provides an introduction to the schools in which SEM-R was implemented in Year 2, Robert Hill and Roosevelt Public. The third section provides a detailed description of methods and procedures including instrumentation and implementation of the study. Section four includes both the preliminary data analysis procedures including data screening and cleaning, as well as the primary data analysis procedures used to address the research questions listed below:

1. Do students who participate in the SEM-R score significantly higher on measures of reading fluency, achievement, and attitude as compared to students who participate in remedial activities and preparation for the state achievement test?
2. Is the SEM-R differentially effective for students at different reading fluency levels?
3. What are the treatment teachers' perceptions about using the SEM-R in their classrooms?

Purpose of the Study

The purpose of the research design was to measure and document the impact of the SEM-R intervention in districts that fit the priorities of the Javits Act, (urban or rural schools with students placed at risk due to poverty or other factors). A cluster-randomized design and advanced statistical procedures were used to investigate the effects of the SEM-R on students' reading achievement, reading fluency and enjoyment of and attitudes toward reading. Participation in the study required principals and superintendents to agree to the following criteria:

A. The study includes teachers in grades 3-6 who will be randomly assigned to implement the SEM-R, so teachers must be willing to be assigned to work either as a treatment or a control group teacher.
B. The principal and superintendent must support the implementation of the SEM-R and be willing to let the NRC/GT staff randomly assign students in the targeted grades to either treatment or control group across classrooms for reading instruction. This will involve regrouping students for the entire length of the intervention.
C. The SEM-R can be implemented during a regular block of time on a daily basis.
D. A 200-minute time block must be made available each week for this program. The allotted time can be divided evenly into three segments of approximately 1 hour each day, or it can be divided with less time on

some days and more on others. The minimum time each day cannot be fewer than 45 minutes.

E. Teachers who are assigned to implement the SEM-R must be able to attend a 1-day training session that will be held on site. The principal, reading consultant and the school librarian must attend as well.

F. Classroom teachers and control teachers must be able to distribute parent permission letters and collect the data required in the study, both before the implementation begins and after it concludes. Data collection will include pre-assessment in reading fluency, and three questionnaires concerning interests, attitudes, and enjoyment of reading. A questionnaire about self-regulation in reading will also be distributed, as will a reading log that students will complete daily. Treatment teachers will be asked to complete a weekly log of classroom activities and a brief questionnaire about their classroom reading practices. At the end of the intervention, the students will be given the reading comprehension portion of the *Iowa Tests of Basic Skills*. Teachers may need access to other books to support the intervention and reading specialists and librarian/media specialists should be available to help with providing support materials for teachers and students.

Description of the Intervention

The SEM-R has three distinct goals: to increase enjoyment in reading, to encourage students to pursue independent reading at appropriately challenging levels, and to improve reading fluency and comprehension. It is based on the Schoolwide Enrichment Model (Renzulli, 1977). Students who were randomly selected to be placed into treatment classrooms were instructed during a multi-week intervention.

Triad Roots of the SEM-R

The theoretical base of the SEM-R is Renzulli's Enrichment Triad Model based on over 20 years of field testing and research (Renzulli & Reis, 1997). The Enrichment Triad Model encourages enjoyment in learning and the opportunity to pursue creative work by exposing students to various topics, areas of interest, and fields of study and to train them to apply advanced content, process-training skills, and methodology training to self-selected areas of interest (Renzulli, 1977). Three types of enrichment are included in the Enrichment Triad Model.

Type I enrichment is designed to expose students to a wide variety of topics, issues, and activities not ordinarily covered in the regular curriculum. In the SEM-R, Type I enrichment is addressed through the use of exciting, read-aloud books, stories, and chapters that the teachers purposefully select to develop and stimulate student interests. Selections from literature representing various genres (non-fiction and fiction) are read aloud to promote enjoyment in reading and listening.

Type II enrichment involves teaching methods designed to promote the development of thinking processes, such as creative thinking, problem solving, and communication skills. In addition to these skills, Type II training involves critical thinking, affective processes, skills in the appropriate use of advanced-level reference materials, and skills in written, oral, and visual communication.

Type III enrichment enables students who become interested in particular topics to pursue self-selected areas of study for more intensive individual or small group involvement. Type III studies provide opportunities for applying interests, knowledge, creative ideas, and task commitment to a self-selected problem or area of study, as well as opportunities to acquire advanced-level understanding of the knowledge (content) and methodology (process) that are used within particular disciplines. The SEM-R includes aspects of Types I, II, and III investigations, but the three phases of SEM-R are not directly analogous to the Triad Model.

Phase 1: Exposure

During the first part of the reading period, teachers introduced high quality fiction to their students through the use of book talks and read alouds to increase student interest and listening skills. The goal of Phase 1 was to create an atmosphere in which students learned to enjoy books and to select books that they enjoyed reading. During the read alouds, teachers read briefly from books that were likely to appeal to their students; the passage might have been located at the beginning, middle, or end of the book, but it was intended to heighten student interest and provide students with a sense of the book. Teachers followed read alouds with higher-order questions that raised student thinking levels. Book talks served the same ends, but teachers were able to introduce more books in the same timeframe. Phase 1 also included instruction for students in how to determine an appropriately challenging reading level, and creative thinking strategies. Bookmarks provided teachers with higher-order questions geared toward increasing student thinking.

Phase 2: Supported Independent Reading

Phase 2 provided students the opportunity to read self-selected books in their interest areas while receiving support from their teacher or other adults. Teachers encouraged students to find books in their area of interest and ensured that the books were 1 to 1.5 years above students' current reading level. Teachers conferenced with individual students to determine that the chosen book was challenging enough to offer students the ability to increase their reading fluency. These conferences provided students with motivation and support for reading skills, and teachers also made suggestions for future readings. Bookmarks were used during Phase 2 to ensure that students comprehended the text of their books and that the books provided adequate challenge.

Phase 3: Choice Components

The goal for Phase 3 was for students to take advantage of choice components in reading and to work in increasingly more independent areas. Phase 3 provided students with the opportunity to engage in self-selected activities based in reading. Students were able to choose to continue reading their books, read with a partner, write creatively, create a project based on a book, use the Internet to augment their knowledge of an author, or participate in interest centers. Additional opportunities existed, depending upon a student's interests.

Year 1

The SEM-R was implemented in two schools during the first year (2001-2002 academic year) of research. The sample for this SEM-R intervention included approximately 240 third, fourth, fifth, and sixth grade students from two low-socioeconomic urban elementary schools. All students participated in the Success for All (SFA) (Slavin et al., 1992; Slavin & Madden, 1999, 2000) reading program in the morning. During the afternoon reading block, students and teachers were randomly assigned either to treatment or control groups in both schools. Treatment teachers implemented the SEM-R program, while control teachers continued with the traditional afternoon remedial reading and test preparation program designed to supplement SFA. Teachers who were also randomly assigned to teach the SEM-R program received one day of intensive training. The length of the intervention varied from 10-14 weeks, beginning in one school at the end of February 2002, and in the second school at the end of March 2002. The actual total time of the intervention was similar in the 2 schools but because of the different reading time blocks available at Center Public School (50 minutes) and North Corner School (70 minutes), the length of the intervention was extended in Center Public. In North Corner the intervention lasted 10 weeks, while in Center Public School with the shorter time block, the intervention was 14 weeks.

Recruitment of schools for Year 1 of the reading study was completed in spring 2000 and fall 2001. Collaborative School Districts and districts that had given NRC/GT researchers permission to do a previous reading study or had volunteered to be potential research sites were contacted about participation. Efforts were made to recruit schools with student populations that included economically disadvantaged, limited English proficient, and handicapped students. Researchers made appointments, visited the schools, and met with interested district principals to discuss the following aspects of the research: abstract of research project, timeline for procedures, description of information to be collected, Superintendent's agreement, cover letter from the NRC/GT for districts, sample letter for districts to send to parents, and parental consent form.

After this initial visit in fall 2001, follow-up telephone calls and visits were made to interested principals to describe the study in more detail and provide a more thorough explanation of random assignment to treatment and control groups, a requirement for district participation. Two sites were selected to participate in the study in the spring of

2002. The principals and schools were visited again, schedules were arranged, random assignment was completed, and a liaison was appointed in each school.

Professional development was provided to treatment teachers in an inservice session in January 2002; teachers were trained to use the SEM-R and met the professional development coach from the NRC/GT research team who would be working with them throughout the intervention. At the end of this full-day staff development session, classroom teachers were asked to begin to plan the implementation of the SEM-R in their classrooms. School liaisons worked cooperatively with NRC/GT research team coaches to help with data collection and coaching for implementation of the SEM-R. Testing of control and treatment group students proceeded in exactly the same manner. The sample from each school including the numbers of teachers and students that participated in the study is summarized in Tables 3.1, 3.2, and 3.3, and descriptions of each school follow this demographic information.

Table 3.1

Number of Students and Teachers Participating at Center Public and North Corner Schools

	Treatment			Control		
Grade	Students (with special education population)	Students (without special education population)	Teachers	Students (with special education population)	Students (without special education population)	Teachers
Third	45	36	2	40	36	2
Fourth	33	27	2	36	29	2
Fifth	33	27	2	37	34	2
Sixth	23	20	1	19	17	1
Total	134	110	7	132	116	7

Table 3.2

Number of Students and Teachers Participating at Center Public School

	Treatment			Control		
Grade	Students (with special education population)	Students (without special education population)	Teachers	Students (with special education population)	Students (without special education population)	Teachers
Third	22	18	1	22	20	1
Fourth	15	11	1	18	14	1
Fifth	15	15	1	18	17	1
Sixth	23	20	1	19	17	1
Total	75	64	4	77	68	4

Table 3.3

Number of Students and Teachers Participating at North Corner School

	Treatment			Control		
Grade	Students (with special education population)	Students (without special education population)	Teachers	Students (with special education population)	Students (without special education population)	Teachers
Third	23	18	1	18	16	1
Fourth	18	16	1	18	15	1
Fifth	18	12	1	19	17	1
Total	59	46	3	55	48	3

The SEM-R study was implemented in two high priority elementary schools in the same school district in a large urban city in the Northeast. In the 3 years prior to the study, the school faculty and staff used a strict, district-mandated direct instruction program in reading, SFA, to improve student academic performance. Concerns about low student achievement led the state to take over the school district and appoint a board of education to monitor progress. A new superintendent was hired, and he instituted additional central office policies throughout the district including scrutiny of instructional practices, rigid curricular requirements, and firm timelines.

The SEM-R intervention was implemented in third, fourth, and fifth grades in both schools and in sixth grade at Center Public School. Students were randomly assigned to treatment and control, yielding a blending of students from various homerooms. The students did not appear to experience any disruption from this change, as they were already regularly re-grouped for daily instruction in SFA. Every teacher,

regardless of whether he/she was assigned to treatment or control group, expressed enthusiasm for the study and indicated an interest in the results. The treatment teachers who were randomly selected appeared to be receptive to having researchers/observers in their classrooms on a regular basis. Demographic information about North Corner School and Center Public School are presented in Table 3.4 and 3.5.

Table 3.4

North Corner School's Demographic Information

Grades	PK-6
Student Population	511
Student Ethnicity:	
Black	17%
Hispanic	78%
White	5%
Non-English Home Language	83%
English Language Learners	32%
Free and Reduced Lunch	80%

North Corner School: Measures of Success or Failure in Language Arts/Reading Program

Very modest increases in reading scores have been documented on the statewide assessment over the last few years, but this increase continues to be below acceptable levels for the district and state. The school is currently working to maintain its accreditation, because it has been identified as a low performance school. The majority of the present staff was hired in the past 6 years, and they face the possibility that the district may transfer them all to other schools if scores do not continue to improve. Teachers continuously receive training in the initiatives prescribed by the district for test score improvement. Almost every week a group of teachers attends additional training while paraprofessionals cover their classes. The school's statewide assessment scores remain low, and 90 minutes of test practice in math and reading are mandated in the daily schedule.

Table 3.5

Center Public School's Demographic Information

Grades	PK-8
Student Population	564
Student Ethnicity:	
American Indian	1%
Asian	2%
Black	21%
Hispanic	67%
White	10%
Non-English Home Language	69%
English Language Learners	4%
Free and Reduced Lunch	67%

Center Public School: Measures of Success or Failure in Language Arts/Reading Program

Center Public School's statewide assessment scores have shown consistent, but very modest increases since 1993, remaining on par with district performance, but well below state proficiency levels.

North Corner School

North Corner School is located near the business district of an urban area. Congestion, turn only lanes, highway entrance signs, and tall buildings surround the school that serves 511 students in grades K-6. The immediate vicinity also has older apartments, warehouses, and fenced parking lots. This area of the city was originally a Dutch settlement, with a fort built where two rivers merge and often flood. Dykes were built in the 1930s and 1940s to rectify this problem. A large factory building is located across the street from the school, although the manufacturing plant of the factory has relocated, leaving the large structure empty. This factory was an important business in the early settlement of the area and precipitated the first housing to be built for factory workers. Nearby houses were the homes of the earliest Dutch immigrants who settled in the neighborhood.

North Corner School was built in 1974, and the building resembles a 2-story brown factory with only a few windows visible from the street. One could drive by this building and not realize that it was a school except for a glimpse of the park immediately behind the school. The parking lot is ample, with a chain link fence surrounding it, and the entrance to the school faces the lot. A pair of steel doors in the front of the building remains locked except for the first and last 30 minutes of the day, so visitors are required to ring a bell to be admitted at any other time. Providing a safe environment for the students can often present a challenge for faculty and staff. There is a homeless shelter in

the area, and shelter men are taken daily to nearby rural areas to cut wood to support the shelter, one reason that the school has a fence surrounding the school and parking lot. Another rationale for the fence was the increased gang activity in the area in the last decade. Recently, a shooting occurred outside this elementary school, causing a lock down until 5:00 pm. The front doors remain locked during the day, because in the past, gang members have entered elementary schools to attack rival gang members.

Entering the school, a large gym and the auditorium flank the entrance hall. Two glass display cases adjacent to the front door showcase puppets and wooden sculptures created by the art classes. Lining the entrance walls are photographs of the recent Junior Achievement representatives teaching selected classes about the world of business. One entire bulletin board is devoted to a winter scene highlighting the components of the SFA program in English and Spanish. A brick hallway leads to the open front office. The majority of this space houses two secretaries working behind a high counter covered with plants; a parent information board and teachers' mailboxes line the two remaining walls. The front office has one of the few full-sized windows in the building, as most classrooms have only small windows providing indirect light or no windows at all.

This building was constructed during the open classroom era and was originally established as classrooms without walls. It was renovated to create individual classrooms; however, two kindergarten classrooms on the first floor are still divided by bookshelves. In addition to the secretary's office space, the first floor includes the administrators' and nurse's offices, a teachers' lunchroom, a dentist's office, the cafeteria space in the center of the building, and classrooms tucked in around the edges. There are four stairwells, one in each corner and one elevator painted with a seascape in the center of the cafeteria. The building is completely accessible for persons with disabilities, as ramps are also available throughout the school. The Special Education Program provides services for 15.5% of the students in the school. This includes students with learning disabilities, autism, behavior management, and multiple handicaps. Twenty percent of the staff serves as paraprofessionals, and many assist the teachers full time to meet the special needs of these students.

The main first floor hall leading to classrooms is decorated with bulletin boards, one with information for teachers and three additional boards displaying SFA histograms for January 2001 (documented for the English and Spanish speakers), statewide assessment scores showing results of assessments, and pictures of students and teachers dressed as characters for Reading for Success Day.

The second floor center space is completely open. The library is an open space defined by bookshelves instead of walls. Down a wide ramp on the opposite side of the library is the art room, also completely open. Tucked behind the art room is a tiny office space for the SFA coordinator, filled with reading program materials and assessment tools.

All upstairs classrooms branch off these two open spaces, and the different sections of the building surrounding this open space are divided into MIAs (multi-

instructional areas), which are classrooms identified by letters and numbers. The classrooms are large; some have two entrances and levels. The furnishings are older but in relatively good repair, with some classrooms carpeted. The computer lab has been locked and was not used during visits to the school, but each classroom has at least one computer.

The classroom environment varies from teacher to teacher, but it appears that hidden storage space, in all classrooms, is minimal, and the majority of supplies are in full view. Information posters, writing steps, and reading comprehension graphic organizers cover most of the interior classroom walls. Chalkboards contain many SFA materials, leaving limited board space in many classrooms.

Student desks are in pairs or small groupings in all classrooms, giving the appearance of students working together. This is a requirement for the SFA programs, as students are asked to think, pair, and share repeatedly during a lesson. Student work is displayed outside the classrooms, but because of the construction of the building, few people other than the students from that class ever see this work. The building has a third floor, which houses a few special service classrooms, social worker's office, teachers' work area with a copy machine, and the family resource center.

This school is one of four schools in the district that has been designated as a pilot enrichment academy. The schools were selected to begin a plan to provide diversified academic focus in schools across the district. This school was previously designated a Higher Order Thinking Skills School (HOTS), with a magnet art theme. The prospect of teaching toward enrichment has many teachers encouraged yet cautious; they understand that programs change continuously when immediate results are not achieved. While the prospect of an enrichment academy may sound encouraging, the district administration has not supported the school's effort during this exploratory year, financially or instructionally.

The principal was enthusiastic about the SEM-R program but wanted to select the treatment teachers for the program implementation and was disappointed in the random selection. She disliked some of the teachers randomly selected to implement the SEM-R and wanted to make changes that were not allowed. She also wanted to include all the grade level readers in the SEM-R, and tried to convince the researchers to add certain higher achieving students to the list of students who had randomly been assigned to participate in the SEM-R.

The principal remained supportive throughout the intervention, although we later learned she had moved some students into the SEM-R intervention group after the random assignment had been completed, violating our random selection process. The SEM-R intervention was perceived to be very successful, and she asked the superintendent for a waiver to use the program instead of SFA, which had produced only very small gains at the primary grades in this school. The superintendent refused to give the waiver, but promised to reconsider if the SEM-R intervention was successful. After the success of the program, she again contacted the superintendent, who refused to

reconsider; the principal resigned in protest. During the next academic year, an interim principal was hired, and over 70% of the staff and faculty were reassigned. The interim principal was not rehired in the 2003-2004. At present, the school has had four principals over a 3-year period.

During the SEM-R implementation, despite assurances from the superintendent and the principal that this approach would be supported, it became clear that the assistant principal did not support any enrichment opportunities, stating that students in this school needed more remedial drill in the areas of reading, math, and writing. She refused to attend any staff meetings when information on enrichment was on the agenda. A small group of teachers were close to her, but the majority of the teachers seemed unhappy with her attitude and leadership.

Implementation of the SEM-R Treatment in North Corner School

The treatment was initially implemented in Center Public and North Corner Schools according to plan. However, treatment fidelity in North Corner was not adequately maintained, as regular observations of control group teachers' classrooms revealed that some began using the enrichment ideas instead of continuing to implement remedial work and practice for the mastery test. Also, one of the treatment teachers was out of the classroom for more than 3 weeks, and the SEM-R intervention was not adequately maintained by her substitute.

Five challenges affected the implementation of the SEM-R study in North Corner School, including changes in control classrooms, schedules, teachers' readiness, interpersonal factors, and school climate.

Changes in Control Classrooms

The purpose of the SEM-R study was to investigate whether the intervention affected reading achievement, enjoyment, and fluency. The SEM-R provided a structure for teachers to alter their instructional design to include students' interests in the books they read and the topics they explored in more depth. Two outside influences presented challenges at North Corner School, in addition to the problems experienced by treatment teachers: student random assignment and instructional changes within the control classrooms.

Students were randomly assigned to the intervention and control classrooms; these lists were distributed to the teachers, principal, and the entire SEM-R research team. The research team also implemented two additional verifications during the study. First, the school research liaison compared the final lists of randomly assigned students with the teacher lists to insure that all students were in the correct classroom. Then, as part of the exit interviews, all six treatment and control teachers were asked to review their intervention class roles to double check student placement. In spite of these three check points, discrepancies emerged regarding student class assignments at the end of the intervention. One example is a fourth grade student who had been randomly assigned to the control class; she was observed in the intervention class, and we later learned that the

SFA coordinator and principal had honored a request from a parent to let her participate in the SEM-R after the intervention had begun. A careful comparison of exit information from the classroom teachers revealed that three other switches had been made in the week or two after the intervention started, and these may have affected the final analysis and outcomes.

The second change occurred in the control classrooms. Two of the three control classes did not appear to follow the school's instructional design during the literacy block, in direct violation of district guidelines, and the control teachers offered much more enriching opportunities than had been the norm before our intervention began. Two reasons may have accounted for this variation.

In the fourth grade control classroom, the teacher taught as a facilitator, providing scaffolding for the students and equipping them to be independent learners. This was not something he did because of the study but appeared to be the way he taught his students. Instead of practicing for the state mastery test and using the basal that was supposed to be used during the literacy block, (and in violation of district regulations for the use of this time block) his students were interpreting poems using drama, writing and performing plays about interest topics, as well as using the Internet as a class resource. This class received diverse learning opportunities due to the teacher's different instructional style and his ability to challenge the system. He was the union representative in the North Corner School and had an interest in participating in the treatment. In fact, he had tried to attend the scheduled training intervention on SEM-R and was disappointed when he was told that he could participate in the training only after the SEM-R had been implemented for a semester in the treatment classes.

The fifth grade control classroom teacher was also observed regularly, and he later acknowledged in interviews to having made changes to the regularly assigned plan in response to his students. He explained that many of the students assigned to the class were disappointed that they had not been selected for the study. To build enthusiasm for literacy, the teacher explained that they were going to participate in some special activities in his class. Although he continued to follow the school test preparation schedule, using one week test prep and one week regular literacy instruction, he used different techniques. He changed his instructional methods to include independent reading time, teacher read-alouds, book discussions, and literacy centers, obviously borrowed from the ideas used in the SEM-R. None of these elements of quality reading instruction had been previously used in this classroom and since he was not following the required afternoon literary block schedule required of control teachers, the results of the study may have been affected.

Schedules

Three challenges that affected the school schedules included the consistency of the time for the implementation of SEM-R, district requirements, and the SEM-R design. The first challenge was the time slot for the Literacy Block, which was supposed to be 70 minutes daily in the afternoon after the conclusion of the morning SFA block. Unfortunately, the school schedule was often modified, and classroom daily schedules

were frequently changed during the 10-week period, requiring schedule changes for the classrooms not participating in the study. During the intervention, the schedule issues that affected the SEM-R included teacher absences, whole school programs, snow days and delays, and class field trips. These interruptions reduced the consistency of the daily implementation of the SEM-R. The fourth grade literary block time was frequently interrupted during the 10-week intervention period due to teacher absences and test preparation; in this grade, when either teacher was absent, he cancelled SEM-R for that day, and students worked on language arts with their homeroom teacher.

The second challenge was the district requirement for a rigid time schedule. Each day was divided into the following sections: reading, math, literacy block, specials (art, music, physical education, and library), and lunch. Content lessons were previously determined and broken into a specified number of minutes. The adjustment to the more flexible instructional design of the SEM-R intervention was initially difficult for the teachers who were not used to the flexibility provided them to divide the Literacy Block into 3 components. During the eighth week, time assigned to each of these components changed, as students increased their ability to sustain independent reading. This mid-intervention time change was particularly difficult for two of the intervention teachers.

Finally, the SEM-R intervention design of 10 weeks played an important role. During the eighth week both teachers and students appeared to develop a comfortable level with the study: working within the 3 phases, extending student reading time, and exploring interest areas. An increase in student attentiveness during the read-aloud section of the SEM-R was observed in all 3 intervention classrooms during the eighth week. Students' focus in Supported Independent Reading (SIR) also increased dramatically during the eighth week in 2 of the intervention classrooms. One of the intervention classes began to use the center activities regularly to promote exploration of student interests at eighth week. A longer intervention period appeared to be necessary for the teachers' comfort and student growth.

Teacher Readiness

Each of the 3 intervention teachers handled time issues differently. All three had different experiences over the 10 weeks, based on personal teaching styles and comfort with change. The 3 intervention teachers received a full day of training on the SEM-R including explanation of the underlying theory for the intervention, demonstration of how to engage students with texts, clarification of guidelines for SIR, and instruction and materials to facilitate the different interest centers. Treatment teachers also received a collection of fiction and non-fiction books to augment their class libraries and to use for read-alouds with students. Differences in the 3 teachers' readiness levels with the SEM-R intervention design varied dramatically during the initial training and also appeared regularly throughout the 10 weeks.

The intervention teachers appeared to be most comfortable with the read-aloud section, which required reading part of a book orally and asking thought provoking questions. The teachers expressed concerns about the SIR and independent activities, which were less structured and were designed to foster student choice and independence.

Supporting the teachers during their adjustment from instructor to facilitator was challenging, as their readiness levels varied. The degree of successful implementation of the SEM-R seemed to vary based on teachers' prior knowledge of enrichment pedagogy, their teaching style, and their willingness to give students some control of their learning. Each of 3 intervention teachers' instructional and class management styles differed dramatically during the 10-week intervention.

Interpersonal Factors

Teacher-student interactions and individual student needs may also have affected the implementation of SEM-R at North Corner School. One treatment teacher and all 3 control teachers demonstrated respect and caring for students in their classrooms. While Teacher 1 developed caring and positive interactions, her substitute during her 3-week absence had little rapport with or respect from the students. The substitute could not maintain the intervention phases and pace. She was volatile and frequently reacted angrily to minor occurrences, changing the tone of the classroom and stopping instruction.

General School Climate

North Corner School served a highly diverse population, both culturally and in terms of the instructional range and needs of children. A large number of special education classes were provided for many special needs students who resided outside the school geographic attendance area, but were bussed to the school due to the provided services. In addition, many students in the traditional reading program achieved at very low levels and required remedial help and significant scaffolding. Numerous students also required affective support to deal with poverty and difficult home situations; meeting these needs on a daily basis required that teachers provided consistent reinforcement. Teachers were exhausted at the end of each day, and the annual teacher attrition rate has been consistently high at this school. In the year before the intervention began, over half the school staff was new to the building.

Persistent pressure from the state-appointed Board of Education and the district central administrators for academic improvement affected the general climate of this school. Teachers were afraid of the regular student evaluations and were especially nervous about consequences tied to a failure to "get the scores up." One example of this fear occurred when the SFA coordinator stopped an NRC/GT researcher during lunch to discuss a treatment teacher's complaint about how the control class for his grade had not followed the regular literacy program dictated by the district. The SFA coordinator was concerned about what was happening, and the NRC/GT researcher explained what she had observed during control classroom visits. These included literacy instruction elements such as reading aloud, doing test preparation exercises every other week as the district required, student silent reading, and the use of centers, literature circles, skit development with character from each person's book, and art projects based on the literature. The control teacher understood the components of a quality literacy program and was implementing these components within the afternoon literacy period. After she had heard what the NRC/GT researcher had observed, the SFA coordinator said that the control teacher was implementing acceptable district literacy elements. The fact that

teachers felt the need to report the creative work occurring in the control class in lieu of practicing for the state achievement test was an example of the fear that existed in the building.

Even though North Corner School had a high stress climate and sustained pressure from the district administration to improve test scores, the building administrator demonstrated consistent support for the SEM-R intervention study. She released the intervention teachers from the traditional literacy block instructional schedule, changed 3 grade levels' daily schedules for the 10-week period, and met periodically with the NRC/GT research team to remain informed and supportive of teachers. Teachers who were not participating in the study expressed curiosity about what was happening in the study. This faculty faced multiple challenges, but many teachers were willing to try new ideas and expressed a desire to teach students in a more enriching and interesting manner.

Based on these findings, a decision was made to eliminate North Corner School from the data analysis, as our team had suspicions about random assignment changes, fidelity of the treatment, and continuation of planned instruction in the control classrooms. We did, however, learn a great deal about future project implementations from our experiences. In particular, we learned about how to help teachers better implement the SEM-R.

Center Public School

Center Public School is located approximately 2 miles from the center of a major city and has one of the more racially, ethnically, and socioeconomically diverse student bodies in the district. With a student population of 564, students and staff are exposed to a wide range of ethnic and cultural traditions, and every effort is made to recognize and celebrate this diversity. The teaching staff is predominantly White (80%), but the percentage of minority teachers has declined over the past 5 years. The community immediately surrounding the school is residential and primarily Hispanic. Housing consists of well-kept starter homes, and a relatively new single-family home development has replaced a gang-controlled, low-income housing development. Center Public is located near a busy four-lane road. To the northeast is a lower middle class residential area interspersed with service industry and professional offices that surround and support the city's cultural center, primary healthcare facilities, and hospital. To the southwest is an area of light manufacturing and shopping centers. The vast majority of the student population lives in this proximal community, resulting in minimal bussing requirements; if transportation is required, it is provided by family members.

Center Public School is a medium sized, 2-story brick structure of monolithic, modular construction style built in 1958 and renovated in 1997. Large classroom-length windows ring each floor and provide abundant natural light to the interior of the school, located on a slight rise at the base of a steep tree-covered hill. To the rear of the property is a large asphalt playground with a basketball court and a jungle gym. A large tree at the center of the play area provides shade on hot days and serves as a common gathering place both before and after school. On the opposite side of the school property is a large

new enclosed activity area for the lower grade students. Staff and visitor parking is located in the front of the building along with a bus drop area under a covered portico; access for students and teachers with disabilities is provided throughout the building. The grounds are nicely landscaped and well maintained, and the building is devoid of graffiti or defacement.

Within 1 mile of the school, on a 16-acre campus adjacent to a local college, is an innovative development project called "Learning Center." The campus is home to an elementary school, a middle school, and two regional high school programs; a community revitalization effort is also underway as part of this initiative. Center Public School, as a member of this community, is making every effort to be associated with these projects. Counterbalancing these stabilizing developments are two neighborhood gangs whose territories converge on the school property. Although there are some indications of gang-related events offsite, there is no explicit evidence in or around the school.

The interior of the school is clean, spacious, and well lit with bulletin boards along the hallways that display recently completed student projects. Center Public School is a PK-8 school, and the grades are grouped together, with the lower grades situated on the ground floor, more or less separated from the older students. The lower grades are self-contained; seventh and eighth grades are combined into one large group, but subdivided according to subject/grade specific classes, and homerooms. Specials (art, music, industrial arts, etc.) are located in one wing of the building; the library is centrally located near the main entrance. A new computer laboratory on the second floor is available for use by all students on a scheduled basis. The main office is found immediately inside the front entrance; across the hall is a well-equipped healthcare office suite. Also found in the main hallway is a large bulletin board with information and inspirational messages for members of the school and the community. A large gymnasium with a regulation size basketball court and foldaway bleachers, an auditorium with raised stage and proscenium arch, and a full-service dining hall are located on the ground floor. On the second floor, located with the seventh and eighth grade classrooms, is a guidance office that also serves as a second, though informal, administrative office and meeting room. The remainder of the second floor is home to intermediate and upper elementary classrooms.

Center Public School's mission statement and declaration of expectations, developed in partnership with the school, the family, and the community, are found on the bulletin board in the main entrance hallway. They state the following:

> *The Center Public School will provide the foundation necessary for students to acquire the knowledge, skills and attitude to become professional contributing members of society and lifelong learners.*

Center Public School's faculty and staff professional and personal conduct is guided by five belief statements that are posted alongside the mission statement:

- *We believe that each individual in our school community is valuable and deserves respect.*
- *We believe in the need for shared involvement of home, school, and community in developing, nurturing, and reinforcing the success of all who are part of the educational process.*
- *We believe that students learn best when they are active participants in the learning process.*
- *We believe that individuals should learn in a safe and positive environment.*
- *We believe all children are capable of learning.*

Nearby, motivational slogans for students are displayed under title "Busy Bees:"

> *Busy Bee says . . . Every student should be reading for at least 20 minutes each evening.*

Parent announcements offer three points of information along with an introductory remark:

> *The most accurate predictor of a student's achievement in school is not income or social status but the extent to which that student's family is able to:*
>
> - *Create a home environment that encourages learning;*
> - *Communicate high yet reasonable expectations for their children's achievement in future careers;*
> - *Become involved in the children's education in school and in the community.*

The school's focus on reading skills is evidenced by many prominently displayed announcements and posters offering encouragement for students and parents to read, to write, and to listen. The very first thing one sees on entering the main entrance is a large "Wanted" poster . . .

> *Wanted: Volunteer listeners. The only requirement is to listen with enthusiasm and encourage a child to keep reading. If you're interested, please see Ms. Crow, room 226.*

Strung across an arched portal leading to the library, a richly illustrated banner exclaims, "Rah! Rah! Rah! with the Alligator!!!" Beneath it a large, colorful poster extols students to "Read at home every night for 20 minutes, don't forget to return your read and response forms!" with another banner, "Welcome Celebrity Readers," nearby. On another wall is yet another large poster, "Read at home!" and just below it a sign for the lower grades, "S.F.A. all the way!!" A walk through the halls of the Center Public School produces the clear impression that reading, writing, and listening are the primary foci of the school, yet these sentiments exist within a school district that must address multiple issues.

Center Public School seems uniquely poised to implement a series of directives issued by the superintendent concerning a proposed 11-year plan to revitalize the school system. The most sweeping of these initiatives is to return all elementary schools to a K-8 model, thereby reverting to a more community-based school environment. The school has for some time been a model of this plan and will obviously have the opportunity to set the standard of performance for those schools that will be making the transition back to K-8.

During the school year prior to the SEM-R implementation in Center Public School, the eighth grade statewide assessment scores in Reading, Writing, and Degrees of Reading Power (DRP) were disappointing, declining to 15% (Reading), 8% (Writing) , and 15% (DRP) of the student population scoring at state goal for mastery; these declines follow several years of modestly increasing scores. As a result, Center Public School's staff enacted initiatives aimed at improving both instruction and student learning. Strategies included statewide assessment reading/writing workbooks, monthly writing plans for narrative, expository and persuasive writing, 90-minute reading blocks, and the SRA/McGraw-Hill Direct Instruction Corrective Reading Program. These programs were used in both seventh and eighth grades, concurrent with the SFA reading program in the lower grades.

An intensive statewide assessment preparation program was initiated in 1998 offering after-school and Saturday instruction, and a Summer school program; the following year, eighth grade students showed gains in fall 1999 reading (1998 - 15%, 1999 - 30%) and writing scores (1998 - 8%, 1999 - 38%). However, as these scores are from two discrete student groups, and there are no seventh grade data, no inference of causality can be made. Interestingly, the sixth grade's fall 1999 statewide assessment reading, writing, and reading DRP scores are the highest ever posted at the school (35%, 52%, and 50%, respectively), and although the cohort may change owing to population dynamics, fall 2001 scores of the same group, then eighth graders, may reflect a continuation of the trend, suggesting some positive results resulting from curriculum and instructional changes made in the interim.

Despite gains made, and the fact that in Center Public School eighth graders are performing at or above district reading, writing, and DRP levels, they remain well below state levels. Approximately 70% of readers and 62% of writers in the eighth grade were functioning below mastery level in the 1999-2000 school year. However, it should be noted that the highly transient population might need to be considered in any interpretation of the data.

Implementation of the SEM-R in Center Public School

The SEM-R intervention study was implemented in third through sixth grades in Center Public school. Each grade consisted of 2 classes from which the study team randomly selected 1 control teacher and 1 treatment group teacher. Students were randomly assigned to treatment or control classrooms. In addition, a key feature of this study, at this school, as pertains to the validity and reliability of the data analysis, is that there was no observed or reported cross contamination between groups at the teacher or

the student level. Students may well have spoken with one another and exchanged information, but the groups remained segregated throughout the intervention. Moreover, there is no evidence, either observed or anecdotal, that the teachers involved in the study communed with their counterparts in the other group.

Teachers whose classes had been selected to be part of the treatment group participated in a 1-day intensive training session approximately 5 days prior to the start of the study. Also attending this session were the school's principal and an individual whom he had appointed to act as both his liaison and as SEM-R coordinator. Training included a comprehensive explanation of the theory behind the intervention, as well as a series of demonstrations regarding specific instructional methodology pertaining to the SEM-R program. In addition, guidelines were reviewed for program specific elements such as read-alouds with critical questioning, SIR, and interest centers. Upon completion of the training, each teacher received collections of 25-30 fiction and non-fiction books to support their in-class libraries, as well as an extensive packet of materials.

Teacher enthusiasm, both during and after the initial training session, was high. However, there was a degree of apprehension as to whether or not they would be able to implement such an ambitious program after only 1 day's preparation. In turn, a degree of reassurance was provided by reiterating that researchers would be providing on-site, in-class assistance and support on a regular basis, as the intent of the study was to have researchers in the classrooms for at least 3 days per week during the initial stages of implementation. Moreover, a full-time school staff member, well versed in the underlying SEM-R model, would be available as required. These provisions were reassuring and beneficial, but as both the teachers and the students at this particular school readily adopted the method and the intent of the program, formal retraining proved unnecessary. Discussions with the teachers concerning details about administering the intervention continued throughout the intervention, resulting in higher comfort levels on the parts of teachers.

One notable observation regarding the study at this particular school was the consistency with which the intervention was administered. Aside from differences in instructional styles among the teachers, the daily classroom activities were remarkably similar. This is not to suggest that methods and techniques did not evolve over the course of the study. It is more probable that given their level of enthusiasm for the method, relatively equal classroom teaching experience (except for one teacher who was in her second year of full-time classroom work), and their students' willingness to engage in this type of activity, these treatment group teachers developed their expertise in the program material with comparative ease, and at remarkably comparable rates.

The school's principal was supportive of the initiative from the very beginning and made all possible accommodations. However, due to a saturated schedule, it was necessary to schedule the SEM-R intervention for the final period of the day—the time set aside for a district-mandated literacy block. During this time, the treatment group pursued the SEM-R program while the control group followed a standardized basal reader curriculum. While this limited the program's time allotment to approximately 45

minutes, rather than the 70 to 90 minutes discussed in the original design, it was thought that it would be sufficient to implement the core elements of the SEM-R. These were the read-aloud with critical questioning, and an extended period of SIR. The population of experimental and control classrooms were fairly stable. During the course of the intervention, transfers accounted for fewer than 10 students in the entire treatment group (n = 284), and were, accordingly, insignificant to the analysis.

In addition to providing moral support, the principal allowed treatment teachers full independence regarding the manner in which they implemented the program within the guidelines and their other classroom and curriculum responsibilities. As mentioned, he also provided a SEM-R coordinator whose mandate was to provide logistical and administrative support, but not direction of activities unless requested to by the teacher.

Implementation Issues at Center Public School

The intervention began on a Monday with the researchers arriving in the morning to administer a series of pre-assessments. During the initial month of the intervention, observers were on site daily to observe student, and initiate numerous discussions with teachers to clarify specific aspects of the program. Many questions concerned how much they could do, rather than what they were not supposed to do; by the sixth week, questions emerged about the possibility of extending the SEM-R into other curricular areas.

Enthusiasm for the project continued to be high in the treatment groups, though some problems did emerge. One problem that proved challenging during the entire intervention related to the use of reading logs. Control groups logged reading time as the entire time spent during the afternoon's reading block rather than actual time spent reading, and student reports for both groups of at-home reading time and pages read were decidedly inflated. In addition, teachers in control and treatment groups alike had difficulty following up on the completion and accuracy checks of the logs.

Another problematic aspect of the intervention concerned scheduling. As all 4 classes were to meet simultaneously, it was not possible to observe all classes all of the time. Additional staff from the research center was required to meet this challenge, and classes were observed in their entirety, on a rotating basis, until data saturation and redundancy became apparent.

Control group classrooms were observed weekly or bi-weekly in both schools. In Center Public School, control group teachers followed the guidelines of the district including doing practice state achievement tests on a regular basis, using remedial reading programs in which students read paragraphs and answered multiple choice assessments and using basal readers formerly adapted by the district for whole group activities involving reading and responding to questions at the end of the selection. This format was used in almost every classroom to comply with district guidelines of the content of this additional literacy block.

Daily Implementation at Center Public School

In general, teacher-student interactions were mutually respectful, with teachers acting as facilitators and collaborators. A typical session began with students being called to a common reading area in the corner of the room. Each room had a place such as this with a large rug on which the students could sit. Initially, it took the students between 3 and 4 minutes to settle down, but as time went on, transition times decreased. The teacher read aloud for approximately 10 minutes and would occasionally pause to elaborate on a point or ask for students' reactions or thoughts about what was occurring. Often the teachers would make an attempt to connect the story to real-life situations. Although student responses to inquiries were initially hesitant, they engaged more often in this type of discussion as they became more accustomed to the process.

Following the read-aloud was the second phase, SIR. From the inception of the study, the time it would take for students to settle into the SIR segment was an issue of primary concern, as there was no history of students' reading for an extended period of time. Consequently, it was thought that developing students' ability to sustain 30 or 40 minutes of SIR would require a month or more of teaching. The method proposed to accomplish this transition was an incremental procedure extending the reading time approximately 2 minutes per day. Settle-down time was initially 7 to 10 minutes during the first week of observations, but dramatically decreased to 2 minutes or less by the end of the third week.

For the majority of the students in all four treatment classes, the time spent actually engaged in SIR was initially approximately 10 minutes per day, but it increased to nearly 40 minutes within several weeks. Characteristically, in each class some students (usually 3-5) were capable of prolonged periods of reading early in the program, but as the entire class was not, reading sessions were sometimes curtailed. However, by the end of the third week, nearly all students were engaged for nearly 30 minutes, with the upper-bound limit being set by the ending of the school day. It was often the case that when the teacher called an end to the SIR session, the students reacted unfavorably.

Special education students were also members of both treatment and control groups; they were intermittently absent from class, leading to a degree of discontinuity in delivery for this group of students. Additionally, students identified as ADD-ADHD became readily apparent in these classes after only a couple of weeks, as many had difficulty maintaining their reading concentration for more than a short period of time at the end of the day. More often than not, when these students were participating in this class, it became the teacher's primary concern and responsibility during SIR to help them maintain their focus so as to allow the other students to maintain theirs.

Year 2

In Year 2, the SEM-R was implemented in 2 schools, 1 urban and 1 suburban, for 1 hour per day during the regular reading block times. Testing of control and treatment

group students proceeded in exactly the same manner. The sample from each school including the numbers of teachers and students that participated in the study is summarized in Tables 3.6, 3.7, and 3.8. In addition, descriptions of each school follow this demographic information.

Table 3.6

Number of Students and Teachers Participating at Robert Hill and Roosevelt Public Schools

	Treatment		Control	
Grade	Students	Teachers	Students	Teachers
Third	119	7	76	5
Fourth	113	6	106	6
Fifth	81	4	63	3
Total	313	17	245	14

Table 3.7

Number of Students and Teachers Participating at Roosevelt Public School

	Treatment		Control	
Grade	Students	Teachers	Students	Teachers
Third	29	2	21	2
Fourth	31	2	49	3
Total	60	4	70	5

Table 3.8

Number of Students and Teachers Participating at Robert Hill School

	Treatment		Control	
Grade	Students	Teachers	Students	Teachers
Third	90	5	55	3
Fourth	82	4	57	3
Fifth	81	4	63	3
Total	253	13	175	9

After Year 1 of the study, it was discovered that a need existed for continued coaching and training to occur throughout the intervention. While the one-day training session exposed the teachers to the phases and the different activities, additional needs and questions emerged in the beginning of the implementation about the various phases. To address this problem, a regularly scheduled time to discuss classroom experiences was required as part of the intervention, teachers and their coach specified times to discuss questions and concerns about the implementation process, resulting in a smoother transition to the SEM-R framework. Addressing teachers' needs in this proactive manner helped to make the intervention easier to implement and to provide support for the teacher's transition from more didactic instructor to more inductive facilitator. While a discussion session between the NRC/GT coach and the teachers did occur on an individual basis throughout the pilot study, and periodically at after-school meetings, a regularly scheduled time for reinforcing and clarifying the components of the phases during the intervention process during Year 2 improved both teacher comfort levels and student outcomes.

Robert Hill Elementary School

The town of Meadowbrook stretches along a small northeastern river whose system of canals once provided transportation and work for a bustling rural community. While many of the local families once worked as agricultural laborers, now the largest source of employment and revenue is a nearby major airport and a small industrial complex. For the last 30 years, the population of Meadowbrook has been stable, with very little growth in population, especially among school-aged children.

Robert Hill Elementary School is situated off the town's main thoroughfare in the center of an attractive suburban neighborhood graced with stately old trees. Although it is a quiet area, neighbors are often seen working in their yard or walking on the sidewalks past the school. It is difficult to imagine that the small town of Meadowbrook is located within 20 miles of a major urban area.

Although Robert Hill Elementary was originally constructed in 1964 for students in kindergarten through fifth grade, the most recent renovations in the 1990-1991 school year split the population so that all students in grades 3-5 in the district attend this school. From the carefully tended lawns and flowerbeds in front of the school to the polished floors and artwork framed in the hallways, it is clear that the school building is lovingly cared for inside and out.

Visitors to Robert Hill encounter the tempting smells of breakfast and lunch drifting from the cafeteria into the adjoining main lobby and the sounds of bouncing balls and cheering students emanating from the gym. The lobby is cheerful and inviting, with bulletin boards displaying photos and short biographies of the student of the month from each class in the school, as well as student projects and artwork from all three grades. There are also decorated boxes encouraging students to donate an assortment of items for a variety of charities: soup labels, used cell phones and ink cartridges, and pennies for petrol. Like many elementary schools, the main office is a hub of activity where two

administrative assistants and the principal answer the phones, respond to inquiries from teachers and students, distribute mail to faculty and staff, organize schedules and meetings, handle school discipline, and maintain a positive, friendly atmosphere.

Robert Hill has a rich complement of faculty and staff. The teaching staff includes general education teachers and specialists in special education, music, art, physical education, Spanish, technology, reading, speech, and gifted education. The support staff includes a full-time nurse, media specialist, and social worker, a part-time school psychologist, occupational therapist, and physical therapist, 15 paraprofessionals, and a large housekeeping and kitchen staff.

There were 468 students in grades 3-5 in Robert Hill Elementary School during the course of the intervention. In the 2002-2003 school year, there were eight classrooms of third grade and seven classrooms each for fourth and fifth grades, with class sizes ranging from 20-24 students. The student demographics for Robert Hill are presented in Table 3.9.

Table 3.9

Robert Hill School's Demographic Information

Grades	3-5
Student Population	475
Student Ethnicity:	
Asian American	5%
Black	5%
Hispanic	2%
White	88%
Non-English Home Language	2%
English Language Learners	2%
Free and Reduced Lunch	22%

Robert Hill: Measures of Success or Failure in Language Arts/Reading Program

According to Robert Hill's strategic school profile (2001-2002) registered with the state department of education, student reading comprehension skills were of particular concern to the school's administration and faculty. In response, the school improvement team implemented several strategies in an attempt to improve reading achievement. These included staff development focused on reading, adoption of a new spelling program, the addition of a full-time certified reading teacher, and purchase of leveled books for classroom use. The desire of the administration and faculty to improve reading instruction and achievement for their students resulted in a very receptive attitude toward implementing the SEM-R at Robert Hill.

In the initial planning meetings for implementation of the SEM-R, both the principal and reading specialist described their perceptions of a pervasive negative attitude toward reading and language arts that had been expressed by many students, parents, and community members. Subsequent informal conversations with teachers and staff during training and the first weeks of the study confirmed that this belief was widely held by faculty and staff in the school. However, in the 2001-2002 school year, fourth grade students at Robert Hill demonstrated similar performance to the state average on all statewide mastery assessments.

As the instructional leader, the principal was ultimately responsible for encouraging teachers to participate in the SEM-R study. He believed that involvement in the experiment had the potential to reinvigorate his teachers' and students' attitudes toward reading. Because he had completed a doctoral degree in measurement and assessment, the principal was always willing to make schedule changes and accommodations for the random assignment required by experimental research. The faculty and staff of Robert Hill approached this project with care and professionalism. It was clear from the comments and questions shared at the two faculty informational sessions held before permission was given that teachers were concerned about the impact of the intervention on their students and the learning environment. The final decision to participate in the study was met with cautious enthusiasm by the majority of the staff, who represented a wide range of experience. Among the 22 classroom teachers who were directly involved in this study, 6 teachers had fewer than 5 years of teaching experience, 7 teachers had between 6 and 11 years of experience, and 9 veteran teachers had more than 20 years of experience, with 6 of those teachers having taught for more than 30 years. Of the participating teachers, 77% had either a Master's degree or more post-graduate education.

A full-time library/media specialist and a part-time library aide work in the library at Robert Hill. The library houses close to 13,000 books and magazines with an average of 27 volumes per student, 15.7% of which were purchased within the last 3 years. Displayed on the top of the five rows of free-standing bookshelves are displays of books designed to pique the students' interest. Of particular interest to many students are the glossy new soft cover novels that are always displayed on a stand close to the classroom portion of the library. This display often features award-winning titles and is changed approximately every 3 weeks, depending on the demand for the titles. There are four computers on which the students can access the electronic library catalog as well as free on-line access to periodicals, newspapers, and other reference materials.

The librarian is responsible for organizing one of the most popular reading activities for students in fourth and fifth grades: school participation in the Greenleaf Book Contest. Each year, a selection committee chooses 15 outstanding young adult novels to be designated as Greenleaf books. Students then have several months to read as many of these books as they can. In the spring, students participate in a statewide election to determine which book will receive the prestigious award. Aside from the increased enthusiasm generated toward reading by this activity, the librarian has been

able to add multiple copies of award-winning novels to the library's collection at a reasonable cost.

Some limitations exist in the Robert Hill library that particularly seemed to affect the school's talented readers. In the last renovation, when the district's K-5 elementary school population was separated into two separate buildings, the library collection was also divided. The librarian explained that she has spent the last few years trying to increase the library's selection of novels and other works of fiction; however, the non-fiction selections are still quite limited. During the course of the intervention, researchers also found a limited selection of picture books and an absence of challenging reading material available for those with a reading level above fifth grade. At the outset of the intervention, the number of items that any student could have checked out of the library was limited to two books; fortunately, that policy has since changed.

Implementation of SEM-R at Robert Hill

A half-day of staff development was used to train teachers, classroom aides, and administrators on the use of the SEM-R in the classroom. The training occurred in January 2003 in the school library and lasted from 1:00 p.m. until 5:00 p.m. Six researchers from the University of Connecticut presented the background and purpose of the study, a brief introduction to the SEM, and a thorough explanation of each of the three phases of the SEM-R. Training for the control group teachers focused on alternative assessment and was conducted by a faculty member at the Neag School of Education located at the University of Connecticut with expertise in this area. Two researchers continued to work in Robert Hill as instructional coaches and observers during the implementation. The researchers made a point to remain in constant contact with all the Robert Hill treatment teachers to provide expertise and assistance, alleviate anxiety, and ensure treatment fidelity.

Before the training day, all intervention teachers and administrators received an informational pre-reading packet including a brief overview of the SEM, an introduction to the SEM-R, and a journal article about the NRP's recommendations for reading instruction. When teachers (including special education teachers) arrived at the training, they were also provided with a 3-inch notebook containing information and implementation suggestions for all aspects of the SEM-R developed as part of the NRC/GT study. To build enthusiasm and supplement classroom libraries, each classroom teacher was also given 25 high-interest books selected for their particular grade level. Throughout the course of the intervention, approximately 200 additional books were donated to the school libraries and classrooms to augment selection of non-fiction materials and reading selections for talented readers.

The classroom implementation of the SEM-R began in February 2003 and continued until May 2003. All reading classes were conducted in the morning and lasted for 1 hour. Over the course of the intervention, the length and activities of the three phases evolved to meet the changing needs of both teacher and student.

The approximate time of Phase 1 varied, but averaged between 10-25 minutes daily; however, as the students' ability to maintain focus on SIR increased, teachers shortened Phase 1 to accommodate a desire for more independent reading time. The approximate time of Phase 2 also varied. All the treatment classrooms began with 10-20 minutes of SIR time per class. By the end of the intervention, all classrooms could sustain independent reading for at least 35 minutes. As the amount of SIR time increased, teachers were able to conference more frequently with students, especially struggling readers who needed more coaching in reading skills. Seven of the 13 intervention classrooms were provided with a special education teacher or a classroom aide to provide support services for learning disabled students included in the regular reading class. Special education teachers and classroom aides were provided in approximately 50% of the control classrooms as well, due to the even distribution of the identified special education population between treatment and control groups. All professionals and paraprofessionals working in the treatment classrooms were provided with materials and trained in the use of SEM-R techniques, with a special emphasis on conferencing strategies.

During the first week of implementation, Phase 3 activities included the introduction of creativity training activities, literary thinking skills, the study of genres, and web-based training (Type II Activities). As students became more comfortable with independent work, Phase 3 activities expanded to involve more independent opportunities. These included a center on creative language arts activities, book discussion groups, books on tape, opportunities for reading to a partner, reading on the web, explorations of brief biographies, opportunities for further SIR, and independent or small group interest-based studies. By the ninth week of the intervention, almost all the intervention teachers at Robert Hill adopted a schedule that included 4 days of Phase 1 and 2 activities with lengthy SIR and 1 day per week devoted solely to Phase 3 activities, allowing students to work in-depth on their projects.

The Existing Reading Program and Control Classrooms

Observations at Robert Hill before the implementation of the SEM-R and continued observations of the control classrooms revealed that a thoughtfully organized literacy program was already in place with the goal of improving student achievement scores in reading. In the year before the intervention, the school district had finished purchasing the latest Houghton Mifflin reading program for all students at Robert Hill. The purchase included supplementary trade books and all the teaching materials to accompany the basal reading program. Additionally, all teachers participated in intensive training in how to use the program. The third grade teacher who received extra training to serve as a coach and resource for other teachers at Robert Hill was randomly assigned to the control group. As an additional supplement to the basal reading program, a large selection of high-interest leveled books were purchased for classroom use and stored in the reading specialist's office; however, it was noted that prior to the SEM-R study, these books were rarely utilized in the regular education classrooms.

All the Robert Hill classrooms presented a rich learning environment filled with a variety of resources. In every classroom, researchers saw at least one bookcase filled with popular paperbacks and at least one computer with Internet access. Inspirational posters, educational bulletin boards, art and drawing supplies, and Spanish vocabulary words could also be found in every room. Before the intervention, students remained in their regular heterogeneously-grouped classroom for reading instruction, but the experimental nature of the study required students to change classes for the 1-hour reading block each day.

During the course of the intervention, students and teachers assigned to the control group continued with the reading curriculum already in place. Along with the workbook activities from the basal reading series, students participated in a wide variety of learning activities including vocabulary games and lessons drawn from class reading assignments, literature circles, class novel studies, journal writing, author studies, small research projects, PowerPoint presentations, and teacher read-alouds of entire books.

Roosevelt Public School

The Roosevelt Public school district consists of a collection of small towns with an agriculturally based economy and the remnants of 19th century flourishing industrial communities. The surrounding quiet countryside has many farms and small industries that produce goods such as tools and paper.

The major town in which Roosevelt Public School is located was established in 1689. According to the 2000 census data, 22,857 residents live within 28 square miles. Employment ranges from the service industries to manufacturing and construction. Although the area was once famous for its thriving textile manufacturing, the town and its inhabitants now struggle for economic viability with a median household income well below the state average. Old factories line the river and railroad tracks that are no longer in use. Sections of town have been built up with commercial enterprises such as fast food restaurants, gas stations or auto repair shops, and supermarkets.

Roosevelt Public Elementary School was built in 1959 and has 22 classrooms, including one portable classroom, housing students in grades K-4. The school is located in a rural area 3 miles outside town. Many well maintained medium-sized single family homes are in the adjacent neighborhood and on the heavily traveled route back to town. The student demographics for Roosevelt Public are presented in Table 3.10.

When approaching the large brick building, a visitor can immediately see how much students and teachers are appreciated and honored in this school. Above the side entrance nearest the parking lot a large red banner that reads "At our school . . . Teachers are very special!" At the main entrance, a blue wooden plaque reads, "Through These Doors Pass the Greatest Children in the World." A lively garden displays beautiful flowers and vegetables planted by students. The main entrance leads to the main hallway, which also displays student work and information for families and visitors. One bulletin board bilingually displays a current science unit on The Solar System/El Sistema

Solar. Another board showcases recent art work of students in all the grades. A third board introduces new staff and frequent visitors, such as students working in classrooms from the nearby state universities. Glass cases display art projects. A visitor can immediately feel the inviting and caring atmosphere the school has created.

Table 3.10

Roosevelt Public's Demographic Information

Grades	K-4
Student Population	414
Student Ethnicity:	
Black	4%
Hispanic	54%
White	40%
Other	2%
Non-English Home Language	28%
English Language Learners	13%
Free and Reduced Lunch	66%

Roosevelt Public: Measures of Success or Failure in Language Arts/Reading Program

Grade four state achievement scores in mathematics, writing, and reading showed a marked improvement over the previous year's scores. In writing, 45% of students were at goal, while 69% of students were proficient or above. In reading, 31% of students were at goal, while 44% of students were proficient or above. Curriculum assessment occurs regularly, and a review of current data across all curricular areas confirms the marked progress of all students.

Exploring the rest of the classrooms and the school yard out back gives a visitor a good look at the learning and celebration of diversity at Roosevelt Public Elementary. Student work and encouraging posters hang in all the classrooms. The playground is a beautiful new structure built with funds from a McDonald's grant. The staff frequently works together with team members of the same grade level to plan unit lessons, field trips, and other educational strategies. They discuss difficulties teaching a certain topic or skill, how to deal with challenging student behavior, or state achievement testing. The principal also attends these meetings to be sure that the teachers have administrative support for their decisions.

The setup of the school clearly reflects the Roosevelt Public Elementary mission statement, showing the school's dedication to providing "a safe, caring, nurturing, and creative environment where [all] students and staff are respected and appreciated." The school's focus on academics and acceptance of diversity are also visible in the many

bilingual displays available throughout the school. It is evident that at Roosevelt Public Elementary "each person, working in harmony, will continue to develop academically and socially, therefore becoming a respectful and contributing member of society."

The Roosevelt Public School offers a great variety of educational and personalized support programs designed to build "a working partnership between home, school, and community." There is an interdisciplinary approach to teaching computer education, English language arts, health, mathematics, science, and social studies. The school librarian not only oversees the organization and upkeep of the library media center and book fairs but also works with classes to build library media skills. A large computer lab is available with a school ratio of 7 students per computer. All classrooms are wired for video, voice, Internet, and network capabilities and 60% of computers in the school have high speed Internet access. A before-and-after-school program has been newly established to provide childcare, tutoring, and recreational services. In addition, the school has a Family Resource Center that provides weekly playgroups. The staff also helps provide many evening activities for students and families such as Family Read-A-Thon, Family Math and Science Nights, Science Fair, and No T.V. Night. The school has an anti-bullying and character education program for grades 1-4. A full-day kindergarten program is available and there is an enrichment program for grades K-4. Finally, a local businessman has granted the school a generous donation that provides for performances and presentations in the performing arts. Such performances have included the Hartford Symphony's Stringed Quartet, world famous cellist David Darling, and modern or ballet dance groups.

Finally, Roosevelt Public Elementary School hosts the Compañeros Program, the district's dual language education program for students in grades 1-4. At each of these grade levels, there are two classes in the Compañeros Program and several other classes that are not. Students in the program "become bilingual, bicultural, and biliterate" while reaching "their highest possible academic performance." As of 2002, 130 students participated in this program in grades 1-4. In addition, the school has a New Arrivals Program to help ease the transition of students in third and fourth grades whose first language is Spanish. All these classes are fully integrated, and the school has a strong focus on academics while building a multicultural community of learners where, as stated in the Mission Statement, "individuals are acknowledged, accepted, and respected for their uniqueness." With all these educational and diverse opportunities for students, many parents encourage their children to experience the Bilingual Education program, regardless of their home language. In doing so, not only do the students learn to appreciate and celebrate the diversity that exists in their school but these students are also able to "have an active role in the learning process where risk taking is encouraged and failure is respected as a necessary ingredient of growth."

Implementation of the SEM-R at Roosevelt Public

A half-day of staff development was provided to train teachers, classroom aides, and administrators on the use of the SEM-R in the classroom. The training occurred in January 2003 in the school library and lasted from 12:00 p.m. until 4:00 p.m. Members

of the research team from the University of Connecticut presented the background and purpose of the study, a brief introduction to the SEM, and a thorough explanation of each of the three phases of the SEM-R. One researcher from the research team continued to work in Roosevelt Public as an instructional coach during the implementation of the SEM-R. The researchers made a point to remain in contact with all treatment teachers to provide expertise and assistance, alleviate anxiety, and ensure treatment fidelity.

All intervention teachers and administrators received an informational pre-reading packet including a brief overview of the SEM, an introduction to the SEM-R, and a journal article about the NRP's recommendations for reading instruction. All teachers were also provided with a thick notebook containing information and implementation suggestions for all aspects of the SEM-R developed as part of the NRC/GT study. To build enthusiasm and supplement classroom libraries, each classroom teacher was also given 30 high-interest books selected for their particular grade level. Throughout the course of the intervention, approximately 200 additional books were donated to treatment classroom to augment selection of non-fiction materials and reading selections for talented readers.

The classroom implementation of the SEM-R began in February 2003 and continued until May 2003. All SEM-R classes were conducted in the morning and lasted for 1 hour. Over the course of the intervention, the length and activities of the three phases evolved to meet the changing needs of both teacher and student.

The approximate time of Phase 1 varied, but averaged between 10-15 minutes daily to begin; however, as the students' ability to maintain focus on SIR increased, teachers shortened Phase 1 to accommodate for more independent reading time. The approximate time of Phase 2 also varied. All the treatment classrooms began with 10-20 minutes of SIR time per class. By the end of the intervention, all classrooms could sustain independent reading for at least 35 minutes. As the amount of SIR time increased, teachers were able to conference more frequently with students, especially struggling readers who needed more coaching in reading skills. During the implementation of SEM-R, a variety of different activities used included the introduction of creativity training activities, literary thinking skills, the study of genres, and web-based training (Type II Activities). As students became more comfortable with independent work, Phase 3 activities expanded to involve more independent opportunities, such as creative language arts activities, book discussion groups, books on tape, opportunities for reading to a partner, reading on the web, explorations of brief biographies, and some projects.

Instrumentation: Year 1 and Year 2

Four instruments were used in this study to measure changes in student reading achievement and attitude toward reading. The following assessments were administered to all students participating in the study: oral reading fluency assessments, *Elementary Reading Attitude Survey, Iowa Tests of Basic Skills* reading comprehension subtest, and the *Reading Interest-A-Lyzer*. A daily reading log was developed to track the amount of

time students spent reading as well as their reading selections. In the first year of the study, all students in both the treatment and control classes recorded book titles, the number of pages read, and the amount of time spent reading during class and at home each night. In responses to concerns over inaccurate data recording, the log was modified. Each instrument is described briefly below.

Oral Reading Fluency Assessments

Measures of reading fluency assess the speed, accuracy, and efficiency with which a student reads a particular text. Current research indicates that "fluency is a critical component of skilled reading" (NRP, 2000, p. 3-1). Pre- and post-reading fluency was assessed using similar procedures to those described by Hasbrouck and Tindal (1992). Researchers at the University of Connecticut selected reading passages to represent all three grade levels (3-5) participating in the study from a database of reading passages (Hintze, Christ, & Keller, 2002) designed to assess students' oral reading fluency. To facilitate comparisons across grade levels, all students read from the three increasingly difficult, 250-word passages for three separate 1 minute reading trials. The number of words read correctly for each passage was recorded, and a mean oral reading fluency (ORF) score was calculated and recorded for each student.

A team of researchers from the University of Connecticut including professors, graduate students, and administrative assistants in the school of education administered the pre- and post-assessments. To ensure reliability of scores, each test administrator participated in a half-hour training session conducted by one of the primary investigators of this study. On the day of the assessments, procedures were reviewed and each test administrator was observed to ensure that the assessments were standardized. Test administrators were given a stopwatch, a set of written administration directions including a scripted passage to be read aloud to each student, a copy of each of the three reading passages to be reused for each student, and a second copy of the same passages stapled together with a blank student data sheet. To facilitate calculation of words read correctly, the second set of passages on which the administrators charted student performance displayed a word count running down the right side of the paper. The test administrators began each assessment by introducing themselves and then recording the student's name, grade, and current reading teacher on the blank student data sheet. Administrators then read a brief set of standardized instructions to the students before inviting them to read.

Elementary Reading Attitude Survey

A student's attitude toward (or feelings about) reading influences his or her willingness to participate in activities—like school—that involve reading (Wigfield, 1997). Pre- and post-attitudes toward reading were assessed through the use of a 20-item *Elementary Reading Attitude Survey* (*ERAS*) developed by McKenna and Kear (1990) who suggested that their survey can "serve as a means of monitoring the attitudinal impact of instructional programs" (p. 627). Because *ERAS* was designed for students in grades 1-6, the instrument features a four-point pictorial scale showing the popular comic

strip character Garfield™ , drawn by Jim Davis (McKenna & Kear, 1990). Ten of the *ERAS* items measure academic reading attitudes or students' beliefs and feelings about reading in school, while the remaining 10 items measure recreational reading attitudes, or reading outside an instructional setting. The two subscales are moderately correlated (r = .64), suggesting that student reading ability is likely to affect both recreational and academic reading abilities (McKenna & Kear, 1990). All items were constructed using the uniform stem: "How do you feel . . ." (McKenna & Kear, 1990, p. 628).

The *ERAS* was administered by reading class teachers during the first and last week of the SEM-R study. All participating teachers were provided with a class set of assessments and detailed directions to standardize administrative procedures. Researchers from the University of Connecticut were also available to answer questions and assist with test administration. Teachers distributed the surveys, explained the purpose of the survey, and then familiarized the students with the form of the instrument. The teachers then read each question aloud while students circled the picture of Garfield™ that best reflected their feelings. Total test administration time ranged from 15 to 20 minutes in all participating classrooms. The surveys were collected and returned to the University of Connecticut, where researchers tallied student responses on a 1-4 scale, with a "4" indicating the happiest Garfield™ and a "1" indicating the very upset Garfield™ . Student scores on both subscales as well as total survey scores were then entered into an SPSS database. According to McKenna and Kear (1990), evidence of validity and reliability estimates were derived from a national sample of over 18,000 students. Internal consistency estimates using Cronbach's alpha for the full-scale (total) *ERAS* in all three participating grades are presented in Table 3.11 (McKenna & Kear, 1990).

Table 3.11

Reliability Estimates for *ERAS* and *ITBS*

	ERAS (full scale) (Cronbach's alpha)	*ITBS* (reading subscales) (KR-20)
Grade 3	.88	.91
Grade 4	.89	.90
Grade 5	.89	.90

Iowa Tests of Basic Skills

The *Iowa Tests of Basic Skills* (*ITBS*) measures achievement in 15 subject areas for students in grades K-8. The *ITBS* has been a well-respected measure of student achievement in the United States since the first forms were published in 1956. The Reading subtests of the ITBS "measure how students derive meaning from what they read" (Hoover et al., 2003a, p. 32). The reading comprehension subtest consists of a variety of reading passages representing narrative, poetry, and non-fiction material from

science and social studies. Comprehension is assessed through the use of a passage followed by four to seven multiple choice questions that ask students to recall facts, make generalizations, and draw inferences (Hoover et al., 2003a).

In Year 1 of the study, the 1988 version of the reading comprehension subtest was used. For the language arts subscales (grades 3-7, Spring 1988 Norms), reliability coefficients are greater than 0.95 (see *ITBS*, form J, 1990). In Year 2, a more recent version (2003) version was used. Over 170,000 students in grades K-8 participated in the spring 2000 national standardization of the *ITBS*, Form A (Hoover et al., 2003b). Kuder-Richardson (KR-20) reliability co-efficients for the *ITBS* Reading Comprehension Subtests in grades 3-5 (Form A, 2001, spring norms) are presented in Table 3.11 (Hoover et al., 2003b).

The *ITBS* was administered to all students participating in the study by reading class teachers during the last week of the SEM-R study as a post-assessment only. Researchers decided that only a post-test administration was necessary, due to the random assignment of students to reading groups and the intensive nature of the test. All participating teachers were provided with a class set of assessments and detailed administration directions to standardize procedures. Researchers from the University of Connecticut were also available to answer questions and assist with test administration. Teachers distributed the test booklets (Form A), explained the purpose of the assessment, and then familiarized the students with the form of the instrument. Students worked independently on the test and recorded their answers in the test booklet rather than employing a separate answer sheet. The two parts of the reading comprehension subtests were administered on 2 consecutive days. The assessment was timed with students receiving 25 minutes to complete the test on the first day and 30 minutes on the second. When both portions of the subtests were completed, the *ITBS* tests were collected and returned to the University of Connecticut where researchers scored them. Total raw scores, standard scores, and percentile ranks were computed for each student and were then entered into an SPSS database.

Reading Interest-A-Lyzer

Students' interests in reading were assessed through the adaptation of a popular interest inventory entitled the *Interest-A-Lyzer (*see Appendix A*)*. Developed by Renzulli in 1977, the *Interest-A-Lyzer* has been used in enrichment programs and classrooms for the last 25 years. During the recent study with SEM-R, researchers adapted this instrument into a new interest assessment instrument in reading. The *Reading Interest-A-Lyzer* has 20 items related to interests in reading in both school and home and includes open-ended as well as forced choice responses.

Daily Reading Logs

Researchers developed a daily reading log to track reading trends and progress toward the goal of increased independent reading (see Appendix A). During Year 1, all students recorded book titles, number of pages read, and time spent reading in school and

at home. During the second year of implementation, only those students in the treatment groups recorded book titles and the number of minutes read during SIR time in a daily reading log. One day each week, the teacher provided a writing prompt for students to answer in their logs based upon this independent reading.

Weekly Observations in Control and Treatment Classrooms

Researchers maintained journals about occurrences they observed regularly in both treatment and control classes. This journal was developed to record weekly events, lessons, and important incidents, as well as the researcher's reactions to the observations and possible implications for the NRC/GT staff. It was through these observations that treatment fidelity was maintained.

CHAPTER 4: Year 1 Results—Center Public School

The SEM-R was implemented in 2 separate years in a study funded by The National Research Center on the Gifted and Talented, the University of Connecticut Site. In the first year, (2002), it was implemented in two high poverty urban schools with populations of over 90% culturally diverse students and all students on free or reduced lunch. In the second year, the SEM-R was implemented in two additional schools in the spring of the 2002-2003 school year. A cluster-randomized experimental design was used in both years of this research.

The sample for the first-year implementation of SEM-R intervention included 252 third, fourth, fifth and sixth grade students; teachers and students were randomly assigned either to the treatment or to the control group. The control group continued with the traditional afternoon remedial reading program that was implemented in addition to the morning reading SFA program (Slavin et al., 1992; Slavin & Madden, 1999, 2000). Teachers were randomly assigned to teach the SEM-R program after having been trained in the SEM-R. They implemented the intervention during an additional remedial literacy block in the afternoon for 14 weeks for 50 minutes each day. This study examined the effects of the SEM-R on students' reading fluency, achievement, and attitude toward reading as well as their ability to read for extended periods of time.

Quantitative Findings—Year 1 Center Public

During Year 1 of the intervention, some special education students were occasionally pulled out of class for special education classes in Center Public School. We have accordingly, reported the results both with and without special education students for Center Public. North Corner School was eliminated from data analysis due to suspicions about random assignment changes and the fidelity of the treatment. Detailed information concerning the data collected at North Corner can be found in Appendix B.

The following research questions guided the data analysis for both years of the study:

1. Do students who participate in the SEM-R score significantly higher on measures of reading fluency, achievement, and attitude as compared to students who participate in remedial activities and preparation for the state achievement test?
2. Is the SEM-R differentially effective for students at different reading fluency levels?
3. What are the treatment teachers' perceptions about using the SEM-R in their classrooms?

Reading Fluency Group Assignment for Center Public School Without Special Education Population

Intervention effects were considered a function of reading levels measured by oral reading fluency. This methodology enabled us to consider these effects across different levels of reading achievement, and for this purpose, three levels of readers were identified in the study. These groups were designated as "Above Average" (AA), "Average," (A), and "Below Average" (BA) and were grade independent. The Hasbrouck and Tindal (1992) oral reading fluency norms were used as a guide in the determination of the groups. Sample cut points were calculated for Above Average (66th percentile and above, > 136 wpm), Average (33rd – 66th percentile, 102 – 136 wpm), and Below Average (33rd percentile and below, < 102 wpm). Pre-intervention reading fluency tests were conducted and treatment/control group fluency rates across reading fluency s were examined for homogeneity of variances (HOV) and pairwise differences among the group means using SPSS one-way ANOVA. Sample sizes for each level across treatment conditions were unequal but nearly equivalent (see Table 4.1). The assumption of HOV was determined to be tenable for the Average and Above Average groups, but was violated for the Below Average group on the dependent variable pre-reading fluency. Consequently, a Brown-Forsythe statistic was calculated as an alternative to the usual F test in this particular case. ANOVAs were not significant in any of the three reading fluency groups [AA, $F(1, 57) = 0.706$, $p = 0.404$; A, $F(1, 35) = 0.442$, $p = 0.510$; BA, $F(1, 27) = 3.009$, $p = 0.094$].

Descriptive Statistics of Student Growth in Reading

Prior to conducting any analyses, gain scores on measures of reading fluency and *Elementary Reading Attitude Survey* were calculated to examine any underlying trends in the data across reading fluencies and treatment conditions. For a detailed description of the mean gain scores, see Appendix C.

Reading Fluency: On average, students in both the treatment and control groups demonstrated positive growth on measures of reading fluency, with slightly more growth in the treatment group (Figure 4.1). In addition, positive mean gain scores were posted across conditions at each of the three reading fluencies. Mean gain scores tended to be higher as reading fluency increased; however, average readers in both the treatment and control groups outperformed students in the below-average and above-average performance groups.

Elementary Reading Attitude Survey (*ERAS*): Total mean gain scores on the *ERAS* increased for the treatment group and declined for the control. Results at the three reading fluencies indicated that students in the control group showed a similar decline in attitude toward reading across all 3 performance levels. In the treatment group, the greatest mean gains in attitude were posted by students at the below-average performance level. Average readers in the treatment group also demonstrated a slight increase in attitude; however, above average readers in the treatment group showed a slight decline in attitude toward reading over the course of the intervention (Figure 4.2).

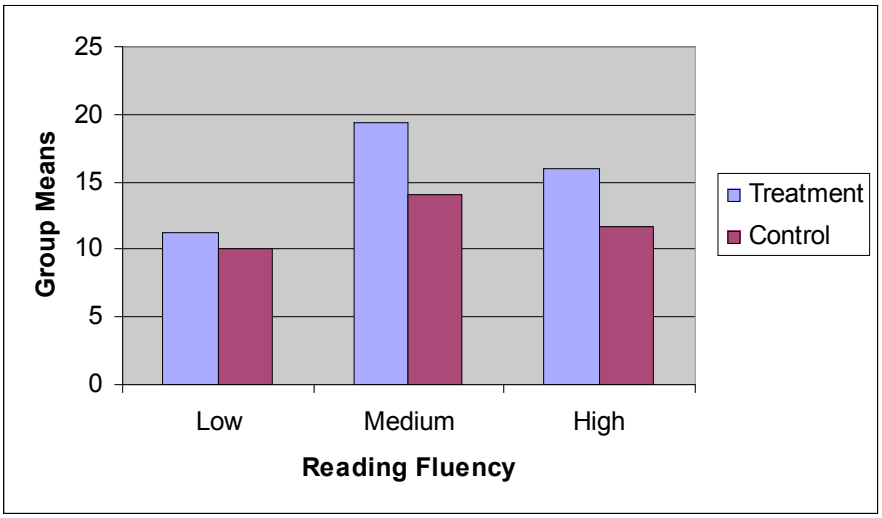

Figure 4.1. Gains scores on measures of reading fluency for Center Public without special education population.

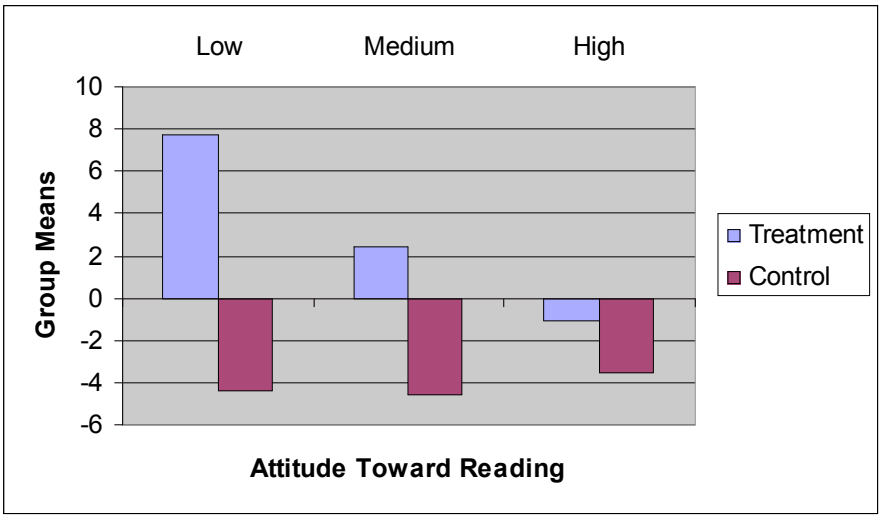

Figure 4.2. Gains scores on measures of attitude toward reading for Center Public without special education.

Findings Pertaining to Post-intervention Measures of Reading Fluency Without Special Education Population

A 2 x 3 ANOVA was conducted to investigate whether statistically significant differences existed across treatment groups by reading fluencies (AA, A, BA) on post-intervention measures of oral reading fluency. The independent variable, grouping, included two levels: treatment and control. The second independent variable, reading

fluency, included three levels: below average, average, and above average. The outcome variable was student performance on post-intervention measures of oral reading fluency. A statistically significant difference of small effect size was found between the treatment and control groups on reading fluency scores, $F(1, 118) = 6.51$, $p = 0.01$, $\eta^2 = 0.05$. On average students in the treatment group ($M = 144.57$, $SD = 39.46$) demonstrated significantly higher reading fluency than students in the control group ($M = 138.28$, $SD = 37.53$). The main effect of reading fluency was also significant and presented a large effect size, $F(1, 118) = 171.55$, $p < 0.001$, $\eta^2 = 0.74$. No significant interaction effects were found. The results of these tests are summarized in Tables 4.1 and 4.2.

Table 4.1.

Descriptive Statistics for Post-intervention Means and Standard Deviations Across Reading Performance Levels for Center Public Without Special Education Population

	Treatment Group				**Control Group**			
	Below Average	Average	Above Average	Total	Below Average	Average	Above Average	Total
ORF								
M	99.29	137.89	181.92	144.57	90.76	130.53	169.60	138.28
(SD)	(10.09)	(17.15)	(26.21)	(39.46)	(20.30)	(14.25)	(22.65)	(37.53)
	$n = 17$	$n = 19$	$n = 24$	$n = 60$	$n = 17$	$n = 17$	$n = 30$	$n = 64$
ERAS								
M	58.79	51.61	56.52	55.53	50.06	51.12	53.13	51.49
(SD)	(13.03)	(16.29)	(15.93)	(15.39)	(15.74)	(15.06)	(16.17)	(15.60)
	$n = 14$	$n = 18$	$n = 25$	$n = 57$	$n = 18$	$n = 17$	$n = 30$	$n = 65$
ITBS								
M	106.06	117.53	132.32	120.63	103.22	109.47	123.74	114.47
(SD)	(12.65)	(10.77)	(12.90)	(16.20)	(13.79)	(10.88)	(16.03)	(16.73)
	$n = 16$	$n = 19$	$n = 25$	$n = 60$	$n = 18$	$n = 17$	$n = 31$	$n = 66$

Table 4.2

Summary of Two-way ANOVA for Post-intervention Measures of Reading Fluency by Treatment Group and Reading Performance Level (RPL) for Center Public School Without Special Education Students

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	2617.16	2617.16	6.51	.012	.05
RPL	2	137921.82	68960.91	171.55	.000	.74
Treatment x RPL	2	151.33	75.66	.19	.829	.00
Within Cells	118	47433.65	41.98			
Total	124					

Findings Pertaining to Post-intervention Measures of Attitude Toward Reading Without Special Education Population

To investigate whether statistically significant differences existed in student responses to the *ERAS* across treatment group by reading fluency (AA, A, BA), a 2 x 3 ANCOVA was conducted. The independent variable included two levels: treatment and control. The second independent variable, reading fluency, included three levels: below average, average, and above average. The outcome variable was student responses on the post-intervention attitude survey. Pre-intervention responses to the survey were used as a covariate in this analysis. After controlling for pre-intervention attitude toward reading scores, statistically significant results were found on the main effect of treatment level with a medium effect size, $F(1, 115) = 9.74$, $p = 0.002$, $\eta^2 = 0.08$, indicating that students who participated in the SEM-R had a significantly more positive attitude toward reading than students in the control group. No statistically significant differences were found on the main effect of reading fluency, $F(2, 115) = .80$, $p = .451$, $\eta^2 = .014$. There were no significant interaction effects; these results are summarized in Table 4.3.

Findings Pertaining to Post-intervention Measures of Reading Comprehension Without Special Education Population

To investigate whether statistically significant differences existed across treatment group by reading fluency (AA, A, BA) on measures of reading comprehension, a 2 x 3 ANOVA was conducted. As previously stated, the first independent variable included two levels: treatment and control, and the second independent variable, reading fluency, included three levels: below average, average, and above average. The outcome variable was student scores on the reading comprehension subtest of the *ITBS*. A significant main effect of small to moderate effect size for treatment was found, $F(1, 120) = 7.08$, $p = .009$, $\eta^2 = 0.06$, indicating that students who participated in the SEM-R ($M = 120.63$ $SD = 16.2$) performed better on post-assessments of reading comprehension than students

in the control group (M = 114.47, SD = 16.73). The main effect of reading fluency was also significant and presented a strong effect size, $F(2, 120) = 34.67$, $p < 0.001$, $\eta^2 = 0.37$. There were no significant interaction effects, and the results of these tests are summarized in Table 4.4.

Table 4.3

Summary of Two-way ANCOVA for Post-intervention Measures of Attitude Toward Reading by Treatment Group and Reading Performance Level (RPL) With Pre-intervention Measures of Attitude Toward Reading (Pre-attitude) Without Special Education Students

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Pre-Attitude	1	13827.67	13827.67	110.42	.000	.490
Treatment	1	1219.48	1219.48	9.74	.002	.078
RPL	2	200.98	100.49	.80	.451	.014
Treatment x RPL	2	368.02	184.01	1.47	.234	.025
Within Cells	115	14401.88	125.23			
Total	122	376914.50				

Table 4.4

Summary of Two-way ANOVA for Post-intervention Measures of Reading Comprehension by Treatment Group and Reading Performance Level (RPL) Without Special Education Students

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	1256.72	1256.72	7.08	.009	.056
RPL	2	12315.13	6157.56	34.67	.000	.366
Treatment x RPL	2	190.54	95.27	.54	.586	.009
Within Cells	120	21312.40	177.60			
Total	126	1771637.00				

Reading Fluency Group Assignment for Center Public School With the Special Education Population

Pre-intervention reading fluency tests were conducted and treatment/control group fluency rates across reading fluencies were examined for homogeneity of variances (HOV) and pairwise differences among the group means using SPSS one-way ANOVA. Sample sizes for each level across treatment conditions were unequal but nearly equivalent (see Table 4.1). The assumption of HOV was determined to be tenable for the Average and Above Average groups but was violated for the Below Average group on the dependent variable pre-reading fluency. Consequently, a Brown-Forsythe statistic was calculated as an alternative to the usual F test in this particular case. ANOVAs were not significant in any of the three reading fluency groups [AA, $F(1, 58) = 0.44$, $p = 0.510$; A, $F(1, 41) = 1.37$, $p = 0.249$; BA, $F(1, 38) = 1.76$, $p = 0.193$].

Descriptive Statistics of Student Growth in Reading

Prior to conducting any analyses, gain scores on measures of reading fluency and *Elementary Reading Attitude Survey* were calculated to examine any underlying trends in the data across reading fluencies and treatment conditions. For a detailed description of the mean gain scores see Appendix C.

Reading Fluency: On average, students in both the treatment and control groups demonstrated positive growth on measures of reading fluency, with slightly more growth in the treatment group (Figure 4.3). In addition, positive mean gain scores were posted across conditions at each of the three reading fluencies with the treatment group outperforming the control. Mean gain scores tended to be higher, as reading fluency increased; however, average readers in both the treatment and control groups outperformed students in the below-average and above-average performance groups.

Elementary Reading Attitude Survey (*ERAS*): Total mean gain scores on the *ERAS* increased for students in the treatment group, but declined for students in the control group (Figure 4.4). Results at the three reading fluencies indicated that mean attitude gain scores decreased across all 3 levels in the control group. Below average and average readers in the treatment group demonstrated a growth in positive attitude toward reading, with greatest gains shown by below-average readers in the treatment group. However, on average, measures of attitude decreased slightly for above average readers in the treatment groups.

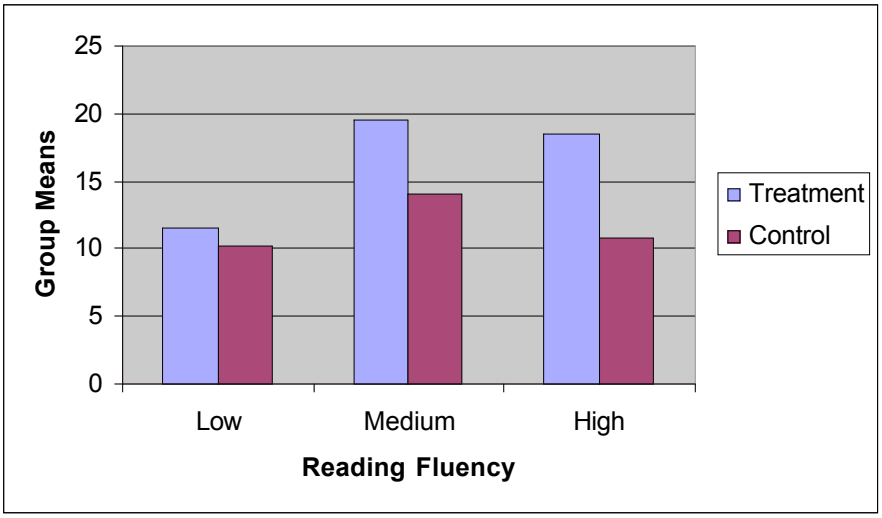

Figure 4.3. Gains scores on measures of reading fluency for Center Public with special education population.

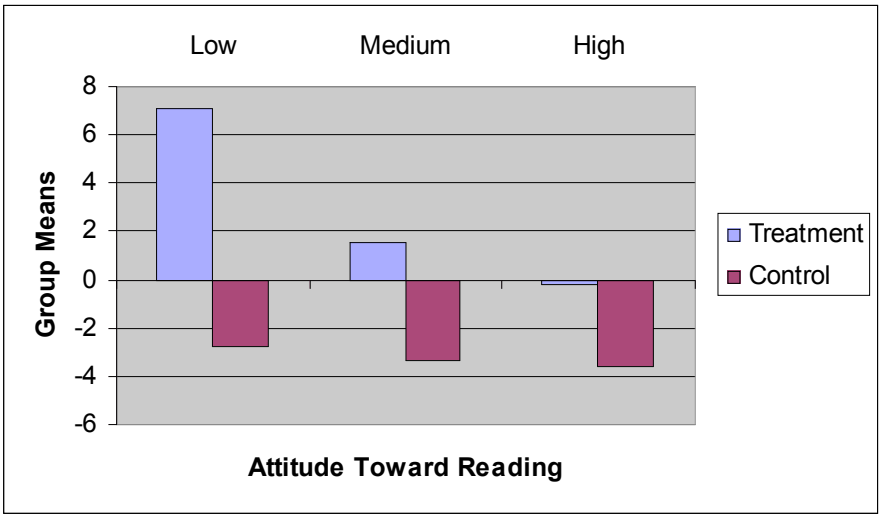

Figure 4.4. Gain scores on measures of attitude toward reading for Center Public with special education population.

Findings Pertaining to Post-intervention Measures of Reading Fluency With Special Education Population

A 2 x 3 ANOVA was conducted to investigate whether statistically significant differences existed across treatment group by reading fluency (AA, A, BA) on measures of oral reading fluency. The independent variable, treatment, included two levels: treatment and control. The second independent variable, reading fluency, included three

levels: below average, average, and above average. The outcome variable was student performance on post-intervention measures of oral reading fluency. A statistically significant main effect of small effect size was found in favor of the treatment group on post-intervention reading fluency scores, $F(1, 134) = 6.94$, $p = 0.01$, $\eta^2 = 0.05$. On average, students in the SEM-R classes ($M = 139.40$, $SD = 41.23$) demonstrated significantly higher reading fluency than students in the control group ($M = 134.39$, $SD = 39.30$). Additionally, the main effect of reading fluency was also significant and presented a large effect size, $F(2, 134) = 197.80$, $p < 0.009$, $\eta^2 = 0.75$. No significant interaction effects were found. The results of these tests are summarized in Tables 4.5 and 4.6.

Table 4.5

Descriptive Statistics for Post-intervention Means and Standard Deviations Across Reading Performance Levels for Center Public With Special Education Population

	Treatment Group				**Control Group**			
	Below Average	Average	Above Average	Total	Below Average	Average	Above Average	Total
ORF								
M	96.09	137.40	180.84	139.40	88.76	129.05	168.74	134.39
(SD)	(16.34)	(16.84)	(26.21)	(41.23)	(21.62)	(14.27)	(22.77)	(39.30)
	$n = 23$	$n = 20$	$n = 25$	$n = 68$	$n = 21$	$n = 20$	$n = 31$	$n = 72$
ERAS								
M	59.05	50.84	56.46	55.62	50.23	49.30	53.13	51.18
(SD)	(14.85)	(16.18)	(15.61)	(15.65)	(14.45)	(14.36)	(16.17)	(15.05)
	$n = 20$	$n = 19$	$n = 26$	$n = 65$	$n = 22$	$n = 20$	$n = 30$	$n = 72$
ITBS								
M	102.00	116.90	132.19	117.70	102.04	109.05	123.25	112.96
(SD)	(13.09)	(10.85)	(12.66)	(17.64)	(12.46)	(11.89)	(16.01)	(16.64)
	$n = 23$	$n = 20$	$n = 26$	$n = 69$	$n = 23$	$n = 20$	$n = 32$	$n = 75$

Table 4.6

Summary of Two-way ANOVA for Post-intervention Measures of Reading Fluency by Treatment Group and Reading Performance Level (RPL) for Center Public School With Special Education Students

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	2928.92	2928.92	6.94	.009	.05
RPL	2	166873.37	83436.69	197.80	.000	.75
Treatment x RPL	2	158.56	79.28	.19	.829	.00
Within Cells	134	56524.68	421.83			
Total	140	2845249.00				

Findings Pertaining to Post-intervention Measures of Attitude Toward Reading With Special Education Population

To investigate whether statistically significant differences existed in student responses on the *ERAS* across treatment group by reading fluency (AA, A, BA), a 2 x 3 ANCOVA was conducted. The independent variable included two levels: treatment and control. The second independent variable, reading fluency, included three levels: below average, average, and above average. The outcome variable was student responses on the post-intervention attitude survey. Pre-intervention responses to the survey were used as a covariate in this analysis. After controlling for pre-intervention attitude toward reading scores, statistically significant results were found with a medium effect size among treatment levels on post-intervention attitude toward reading scores, $F(1, 130) = 7.82$, $p = 0.006$, $\eta^2 = 0.06$, indicating that students who participated in the SEM-R had a significantly more positive attitude toward reading than students in the control group. No statistically significant differences were found on the main effect of reading fluency, $F(2, 130) = 1.08$, $p = .343$, $\eta^2 = 0.02$. There were no significant interaction effects; these results are summarized in Tables 4.5 and 4.7.

Findings Pertaining to Post-intervention Measures of Reading Comprehension

A 2 x 3 ANOVA was conducted to investigate whether statistically significant differences existed across treatment group by reading fluency (AA, A, BA) on post-intervention measures of reading comprehension. As previously stated, the first independent variable included two levels: treatment and control, and the second independent variable, reading fluency, included three levels: below average, average, and above average. The outcome variable was student scores on the reading comprehension subtest of the *ITBS*. A significant main effect of small to moderate effect size for treatment was found, $F(1, 138) = 6.27$, $p = 0.013$, $\eta^2 = 0.04$, indicating that students who participated in the SEM-R ($M = 117.70$, $SD = 17.64$) performed better on

the post-assessments of reading comprehension than students in the control group (M = 112.96, SD = 16.64). The main effect of reading fluency was also significant and presented a strong effect size, $F(2, 138) = 49.27$, $p < 0.001$, $\eta^2 = 0.42$. There were no significant interaction effects, and the results of these tests are summarized in Tables 4.5 and 4.8.

Table 4.7

Summary of Two-way ANCOVA for Post-intervention Measures of Attitude Toward Reading by Treatment Group and Reading Performance Level (RPL) With Pre-intervention Measures of Attitude Toward Reading (Pre-attitude) With Special Education Students

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Pre-Attitude	1	13699.93	13699.93	103.67	.000	.44
Treatment	1	1033.59	1033.59	7.82	.006	.06
RPL	2	285.15	142.58	1.08	.343	.02
Treatment x RPL	2	258.76	129.38	.98	.378	.02
Within Cells	130	17180.04	132.15			
Total	137	421422.50				

Table 4.8

Summary of Two-way ANOVA for Post-intervention Measures of Reading Comprehension by Treatment Group and Reading Performance Level (RPL) With Special Education Students

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	1092.94	1092.94	6.27	.013	.04
RPL	2	17178.80	8589.40	49.27	.000	.42
Treatment x RPL	2	576.28	288.14	1.65	.195	.02
Within Cells	138	24059.75	174.35			
Total	144	1954441.00				

Qualitative Findings—Year 1 Center Public

Findings Related to Self-regulation

At the beginning of the intervention, the overwhelming majority of students in the school treatment group could not sustain independent reading of high interest, self-selected books for more than a few minutes. Approximately 10% of the students across all classrooms (grades 3-6) could read independently for more than 5 minutes. During the course of the SEM-R intervention, self-regulation strategies were provided in addition to strategies for sustaining reading time, as were reading strategies to increase reading fluency and comprehension. At the conclusion of the Year 1 and Year 2 interventions, the vast majority of students in all of the SEM-R intervention classrooms achieved 30-45 minutes of SIR in one period, a significant achievement for the majority of students who previously had not been able to read for more than 5 minutes at one sitting.

SEM-R was initially designed as a 90-minute, three-phase intervention. But as Center Public School's schedule was saturated and the only available time was the last 45-minute period of the day, some thought that the third phase of the program might not be able to be accommodated. However, the SEM-R can be very flexible in its implementation. Alterations can be made to the program by individual classroom teachers, as long as teachers adhere to the general guidelines and focus on accommodating students' individual needs. Consequently, it was not surprising that one proactive treatment teacher did facilitate Phase 3 activities through the use of a rotating schedule, while others conducted Phase 3 on an ad hoc basis at other times during the day. In the rotational scheme, the teacher decreased the amount of time allocated to a particular phase on a rolling day basis. This decreased time for Phases 1 and 2 enabled students to work on the free choice components associated with Phase 3, including interest center activities; Internet investigations as extensions of SIR topics, genres, or authors; or small group reading and discussion groups. Two other treatment group teachers at Center Public modified Phase 2, the SIR activity, by encouraging small group discussions of the SIR books students were reading. In addition, students were allowed to engage in Internet reading and researching a topic area that extended of their previous SIR readings. The school district had made a concerted effort to equip all classrooms with a minimum of three Internet accessible computers for students, in addition to a computer for each teacher. Printers were also provided for students' use. This arrangement was enthusiastically endorsed by students and teachers alike.

Interest Centers

As mentioned previously, one particular component associated with Phase 3 activities included the interest centers. During the first implementation year, teachers at both schools received two large, self-standing cardboard displays introducing students to the Internet and creativity exercises. Although the centers were provided by the study team, observations made by the research team indicated they were not generally used during the SEM-R block, due to time constraints. However, teachers did report using the centers at other times during the school day.

Read-alouds and Their Extensions

One expectation on the part of the research team was that the read-alouds, showcasing different authors, styles, and genres, would eventually lead students with particular areas of interest to explore in more depth related literature as part of their SIR activities.

The Phase 1 read-alouds merged easily with student interests as a part of SIR, and these activities led directly to students' choosing specific reading tasks. For example, over a period of a week, a teacher's Phase 1 read-aloud choices were focused on the works of William Shakespeare and aspects of the Elizabethan theater. The teacher read from contemporary translations of the original plays, and the theater topics illuminated facets of the acting, actors, and the theater. As a result of these sessions, a number of students read other Shakespearean works in their original form.

In another classroom, one of the treatment teachers read from three different books, all of which concerned *The Three Little Pigs*. Each book presented the story from a different perspective (i.e., Steven Kellogg's tale from the pigs' perspective, Jon Scieszka's view from the wolf's perspective, and a post-modern treatment by David Wiesner). This focus led a number of students to follow a similar path, reading several books on a particular topic from different perspectives and by different authors. In one instance, a student pursued the topic of chocolate from botanical, historical, culinary, and romantic perspectives, including works by Robert Cormier, Roald Dahl, and Patrick Skene Catling, among others. In general, these read-aloud activities were the primary source for subsequent student reading experiences.

An activity that was not well developed in the treatment group classrooms was the use of higher order questioning with the intent of developing in students the ability to engage in critical thinking and discussions. The goal was to introduce students to the practice with the expectation that these skills would be developed and refined over the course of their education. To assist teachers in this process, bookmarks with higher order questions were provided by the research team.

Reading Above-level Books

The intervention necessitated that the books students read would be at least 1.0 - 1.5 grade level above students' current instructional reading level. The books that were added to their in-class libraries as part of the intervention were, on average, above grade level for the students. During the initial portion of the study, when students were selecting from this collection, the books in classroom libraries were appropriately challenging. However, this collection was limited in number and scope. Therefore, students desiring to follow a genre, author, or topic moved to selections available in the school library. In these instances, the teachers' monitoring of book levels was less thorough, and students tended to select easier books. The teachers did generally circulate throughout the classroom during SIR, and if a particularly undemanding text was discovered, teachers recommended that the student read the easy book at home and read a

more challenging work, with a similar theme in class. In this fashion, teachers encouraged interest and enthusiasm for reading and maintained a balanced degree of difficulty.

Administrative Support

Administrative support was strong and unwavering in this school. In fact, the principal ultimately attended SIR sessions himself, setting aside 30 minutes, several times per week, to sit and read his own book in one of the classes. The impact of personal engagement in an otherwise student-oriented classroom activity was profound, and the effect on teachers was equally significant. Initial suspicion on the part of both teachers and students did exist; their first reaction was that the principal was there to check up on them; however, after a few visits during which he simply entered the room, sat down, and quietly read, any lingering apprehension dissipated. The principal facilitated the decreased tension by being candid when students asked why he was there, which was just to have some quiet reading time.

Program Extension Within and Outside of School

It became obvious by the middle of the study that treatment teachers were beginning to consider the possibility of extending the SEM-R instructional methodology into other subject areas. While this change appeared to be both theoretically and practically viable, an alteration of established routines at such a late date in the school year made it impractical. However, teachers expressed their belief that a shift to an instructional orientation more in line with the SEM-R program would be a serious consideration for the upcoming year. One particular outcome of the program, the students' generally positive and enthusiastic engagement during reading, was mentioned as the primary incentive for extending into other subject areas. Teachers believed that it would take less effort to engage students in a content area if they used this technique and they believed engagement to be highly correlated with student learning.

Changes in attitudes and perceptions regarding reading were not solely confined to classroom activities. During observations at Center Public, the research team found that students initially did not use the library for either pleasure reading or for academic research. However, over the course of the intervention, students who read many books in their classroom library began to make greater use of the school library as a new source of material, much to the delight of their teachers. In response to this newfound interest, one teacher scheduled a field trip to the local public library so that all her students could get library cards and access books not available in the school library or when they were not in school. Treatment group students routinely made special requests to take classroom library books home and told the observers that they were reading a particular book at home as well as in school.

Control Group Activities

Control group activities during the afternoon were consistent throughout the intervention. Instruction focused on the use of basal readers and associated workbooks, audio tapes, and teacher read-alouds, followed by worksheets relating to the material presented. Typically, there was a noticeable lack of continuity of topics from one lesson to the next, and students lacked choice of reading material. While there were open discussions, subject content and focus of the discourse was specified by, aligned with, and intended to reinforce the reading program material found in the textbook. Additionally, great emphasis was placed on preparation for state-mandated, standardized tests. This focus required students to engage in extended periods of practice and rehearsal in the form of reading specific passages and answering questions. Test preparation material consisted of reprints of previous years' tests, compiled and distributed on a regularly scheduled basis by the school district's central office of curriculum and instruction. The intent, for the sake of convenience, consistency, and continuity, was to have all students engaged in the same activity at the same time.

Conclusion

In general, the SEM-R intervention study at Center Public School was quite successful. Center Public office administration gave permission for the study to be conducted despite trepidation on the part of other district officials; the school's principal and support staff wholeheartedly endorsed the endeavor to such an extent that the principal eventually participated in the program, attending multiple reading sessions to spend quiet time reading with students. Treatment group teachers sustained their initial level of enthusiasm, making every effort to adopt the intervention's methodology and philosophical orientation and eventually making an imposed program their own. The control group teachers harbored no ill will that they were not given the opportunity to engage in what became an obviously enjoyable and productive exercise. At the end of the intervention, they expressed an interest in what was occurring in the treatment group, asking if they, too, might be able to participate in a similar program the following year. Treatment group students ultimately demonstrated an ability to read for an extended period of time, increasing from under 10 minutes to nearly 40 minutes over the course of the intervention. But this study, and this intervention, is not just about the amount of time students spent reading. There is an intended outcome of the SEM-R program that is far more difficult to quantify, but is nonetheless readily evidenced in a student's rapt attention while reading, or in the smile that rolled across a student's face as she read a particular passage, or in the willingness with which students shared something they had discovered in a book when their teacher sat down with them to conference. But perhaps it was best exemplified in the ADD-ADHD student's satisfaction at being able to read for an extended period of time, because his teacher could take the time to sit quietly with him and help him refocus while the rest of the class was otherwise quietly engaged in their own reading. All these situations exemplified instilling in some students an abiding joy of reading.

CHAPTER 5: Results—Year 2

During Year 2 (2002-2003 academic year), different types of schools were chosen to determine if similar positive results would be produced. Specifically, the use of the SEM-R as part of a regular reading program instead of an afternoon replacement for remedial instruction and test preparation was investigated. Were the results from the first year implementation due to the pleasure that some students and teachers experienced at the substitution of an enrichment reading program during the daily literacy time block designed to help students practice for the state mastery test? The SEM-R was implemented as a substitution for part of a comprehensive language arts program to investigate what would happen under different conditions and in different schools. The SEM-R was implemented under the most rigorous experimental research conditions. Despite receiving over 300 requests for information about replication of the study, the SEM-R was implemented in two schools at nearby locations so that implementation and research could be closely monitored. One school was a high poverty school and one was a rural/suburban with students from all achievement and cultural groups, as well as a large group of students with special needs.

Quantitative Findings—Year 2

Reading Performance Level Group Assignment for Roosevelt Public and Robert Hill

To further investigate the effects of the SEM-R with students at various reading fluencies, the students in the two treatment groups were designated as Above Average, Average, and Below Average readers for the purposes of the data analysis. During the second year of implementation (2002-2003), reading fluencies were determined for each grade participating in the study because reading instruction was not grade independent as it had been in Year 1. Based upon current practices in reading research (NRP, 2000; Powell-Smith & Bradley-Klug, 2001; Stage & Jacobsen, 2001), researchers decided to use pre-assessments of student oral reading fluency to determine the three levels of pre-intervention reading performance within the student population to study differential effects on readers with above average fluency. Using SPSS software, means and standard deviations were calculated for the oral reading fluency pre-assessment for each grade; descriptive statistics are shown in Table 5.1. In each grade, student scores were normally distributed with little evidence of skewness or kurtosis. To calculate the reading performance ranges shown in Table 5.1, ±0.5 standard deviations were added to the mean for each grade to obtain the range of scores for a middle fluency performance group. Students with scores above the middle range were designated as demonstrating high reading fluency performance and those with scores below this range were designated as demonstrating low reading fluency performance. Table 5.2 provides the sample size for each cell.

Table 5.1

Means, Standard Deviations, and Reading Performance Levels Across Grades 3-5

	Mean	Standard Deviation	Below Average	Average	Above Average
Grade 3	93.72	34.60	X<77	77-111	X>111
Grade 4	108.31	32.69	X<93	93-125	X>126
Grade 5	133.19	29.32	X<119	119-147	X>147

Table 5.2

Number of Students Per Instruction Type and Reading Fluency Performance Level

	Below Average	Average	Above Average
SEM-R	102	130	103
Traditional	68	93	62

Additionally, pre-intervention reading fluency tests were conducted and treatment/control group fluency rates across reading performance levels were examined for homogeneity of variances (HOV) and pairwise differences among the group means using SPSS 11.0 one-way ANOVA. The HOV assumption was determined to be tenable across levels on pre-intervention measures of reading fluency.

Descriptive Statistics of Student Growth in Reading

Prior to conducting any analyses, gain scores on measures of reading fluency and attitude toward reading were calculated to examine any underlying trends in the data across reading performance levels and treatment conditions. For a detailed description of the mean gain scores see Appendix C.

Reading Fluency: Total mean gain scores for both the treatment and control groups demonstrated growth in reading fluency with students in the treatment group posting higher overall gains than the control group (Figure 5.1). In addition, positive mean gain scores were posted across conditions at each of the three reading performance levels. In the treatment group, mean gain scores tended to be higher as reading performance level increased.

Additionally, a one-way ANOVA was conducted to further investigate the differences on reading fluency gain scores between the treatment and control groups. Results were statistically significant and presented a small effect size in favor of the treatment group, $F(1, 544) = 4.58$, $p = 0.033$, $\eta^2 = 0.01$, indicating that students in the SEM-R group demonstrated more growth in reading fluency over the course of the intervention than students who received traditional reading instruction.

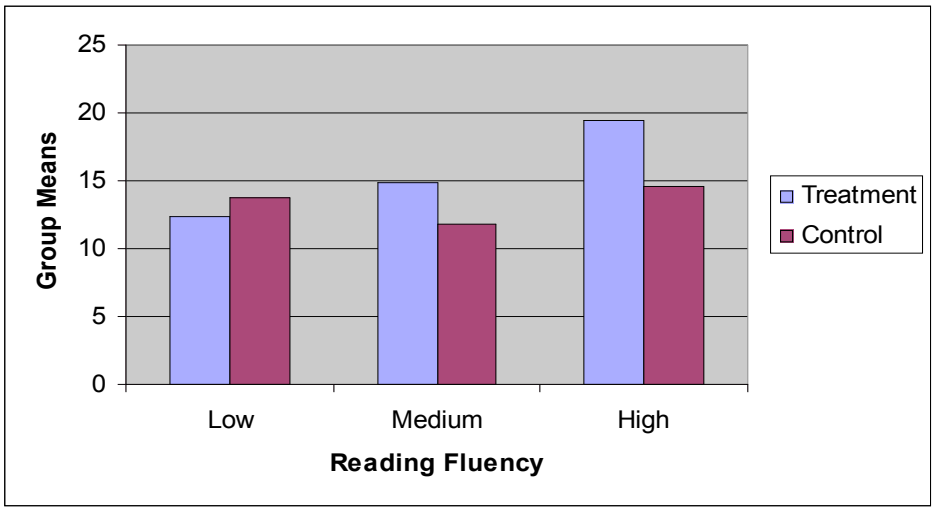

Figure 5.1. Gain scores on measures of reading fluency for Robert Hill and Roosevelt Public.

Attitude Toward Reading (*ERAS*): Total mean gain scores indicated a similar decline in attitude toward reading for students in both treatment conditions (Figure 5.2). At the reading performance group level, mean attitude gain scores decreased across treatment and control groups except for the small gain in attitude ($M = .76$, $SD = 9.85$) posted by below-average readers in the treatment group.

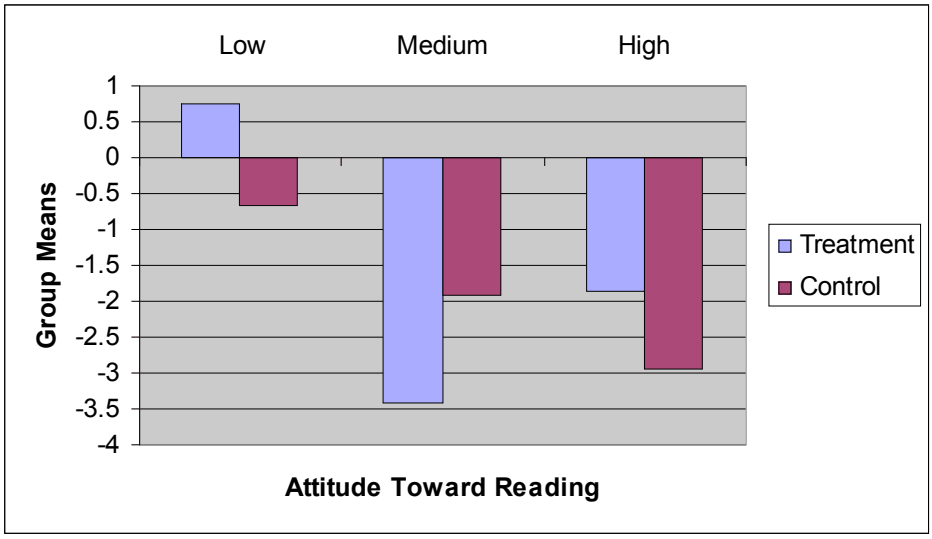

Figure 5.2. Gain scores on measures of attitude toward reading for Robert Hill and Roosevelt Public.

Findings Pertaining to Post-intervention Measures of Reading Fluency

A 2 x 3 ANOVA was conducted to investigate whether statistically significant differences were achieved across treatment group by reading performance level (AA, A, BA) with regard to post-intervention measures of reading fluency. The first independent variable, treatment, included two levels: treatment and control. The second independent variable, reading performance level, included three levels: below average, average, and above average. The outcome variable was student performance on post-assessments of reading fluency. A significant main effect for reading performance level was found and presented a large effect size, $F(2, 538) = 401.41$, $p < 0.001$, $\eta^2 = 0.599$. No statistically significant differences existed between the treatment and control groups for the main effect of treatment level, $F(1, 538) = 1.70$, $p = 0.193$, $\eta^2 = 0.003$. No significant interaction effects were found. The results of these tests are summarized in Tables 5.3 and 5.4.

Additionally, a one-way ANOVA was conducted to further investigate the differences on reading fluency gain scores between the treatment and control groups. Results were statistically significant and presented a small effect size in favor of the treatment group, $F(1, 544) = 4.58$, $p = 0.033$, $\eta^2 = 0.01$, indicating that students in the SEM-R group demonstrated more growth in reading fluency over the course of the intervention than students who received traditional reading instruction. Further investigation is warranted to investigate this difference.

Table 5.3

Descriptive Statistics for Post-intervention Means and Standard Deviations Across Reading Performance Levels for Robert Hill and Roosevelt Public

	Treatment Group				**Control Group**			
	Below Average	Average	Above Average	Total	Below Average	Average	Above Average	Total
ORF								
M	84.13	124.46	169.17	126.20	87.07	121.74	160.43	122.16
(SD)	(26.61)	(22.43)	(27.13)	(41.59)	(27.12)	(23.33)	(23.97)	(37.50)
	$n = 91$	$n = 121$	$n = 94$	$n = 306$	$n = 73$	$n = 97$	$n = 68$	$n = 238$
ERAS								
M	57.47	57.13	61.00	58.41	59.01	59.53	60.23	59.58
(SD)	(12.67)	(11.71)	(9.60)	(11.51)	(11.68)	(11.01)	(10.49)	(11.03)
	$n = 91$	$n = 119$	$n = 92$	$n = 302$	$n = 72$	$n = 94$	$n = 69$	$n = 235$
ITBS								
M	188.78	208.42	224.94	207.77	193.22	201.94	222.76	205.00
(SD)	(20.63)	(23.22)	(22.84)	(26.36)	(25.31)	(24.81)	(28.57)	(28.47)
	$n = 90$	$n = 122$	$n = 95$	$n = 307$	$n = 77$	$n = 98$	$n = 68$	$n = 243$

Table 5.4

Summary of Two-way ANOVA for Post-intervention Measures of Reading Fluency by Treatment Group and Reading Performance Level (RPL)

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	1059.99	1059.99	1.70	.193	.003
RPL	2	501788.86	250894.43	401.41	.000	.599
Treatment x RPL	2	2727.25	1363.62	2.18	.114	.008
Within Cells	538	336269.62	625.036			
Total	544	9286092.00				

Findings Pertaining to Post-intervention Measures of Attitude Toward Reading

To investigate whether statistically significant differences were achieved across treatment group by reading performance level (AA, A, BA) with regard to post-intervention measures of attitude toward reading, a 2 x 3 ANCOVA was conducted. The first independent variable included two levels: treatment and control. The second independent variable, reading performance level, included three levels: below average, average, and above average. The outcome variable was student responses on the post-intervention attitude survey. Pre-intervention responses to the survey were used as a covariate in this analysis. After controlling for pre-intervention attitude toward reading scores, no statistically significant results were found. The results are summarized in Tables 5.3 and 5.5.

Findings Pertaining to Post-intervention Measures of Reading Comprehension

A 2 x 3 ANOVA was conducted to investigate whether statistically significant differences existed across treatment groups by reading performance levels (AA, A, BA) on post-intervention measures of reading comprehension. As previously stated, the first independent variable included two levels: treatment and control, and the second, reading performance level, included three levels: below average, average, and above average. The outcome variable was student performance on the reading comprehension subtest of the *ITBS*. The main effect of reading performance level was statistically significant with a small effect size, $F(2, 544) = 75.95$, $p < 0.001$, $\eta^2 = 0.218$, indicating that above average readers demonstrated significantly better performance on measures of reading comprehension than average and below average readers. No significant differences were found between the treatment and control groups on measures of reading comprehension, $F(1, 544) = 0.449$, $p = 0.503$, $\eta^2 = 0.001$, $d = 0.08$. However, as reported later and in the abstract, significant differences were found on the *ITBS* test of reading comprehension favoring the treatment group at Roosevelt Public, the urban school. There were no

significant interaction effects. The results of these tests are summarized in Tables 5.3 and 5.6.

Table 5.5

Summary of Two-way ANCOVA for Post-intervention Measures of Attitude Toward Reading by Treatment Group and Reading Performance Level (RPL) with Pre-intervention Measures of Attitude Toward Reading (Pre-attitude)

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Pre-Attitude	1	24854.48	24854.48	309.32	.000	.369
Treatment	1	4.21	4.21	.05	.819	.000
RPL	2	260.20	130.10	1.62	.199	.006
Treatment x RPL	2	202.50	101.25	1.26	.284	.005
Within Cells	530	42586.73	80.35			
Total	537	1933026.00				

Table 5.6

Summary of Two-way ANOVA for Post-intervention Measures of Reading Comprehension by Treatment Group and Reading Performance Level (RPL)

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	260.10	260.10	.449	.503	.001
RPL	2	87992.68	43996.34	75.95	.000	.218
Treatment x RPL	2	2817.85	1408.92	2.43	.089	.009
Within Cells	544	315150.52	579.32			
Total	550	23873775.00				

Robert Hill School

Descriptive Statistics of Student Growth in Reading

Prior to conducting any analyses, gain scores on measures of reading fluency and attitude toward reading were calculated to examine any underlying trends in the data across reading performance levels and treatment conditions. (For a detailed description of the mean gain scores, see Appendix C.)

Reading Fluency: On average, students in both the treatment and control groups demonstrated similar positive growth on measures of reading fluency (Figure 5.3). In addition, positive mean gain scores were posted across conditions at each of the three reading performance levels. Mean gain scores tended to be higher as reading performance level increased with the largest gain posted by above average students in the treatment group (M = 19.85, SD = 12.88).

Attitude Toward Reading (*ERAS*): Total mean gain scores declined equally for both treatment and control groups on measures of attitude toward reading (Figure 5.4). At the reading performance group level, mean attitude gain scores were negative across all levels in both treatment and control groups.

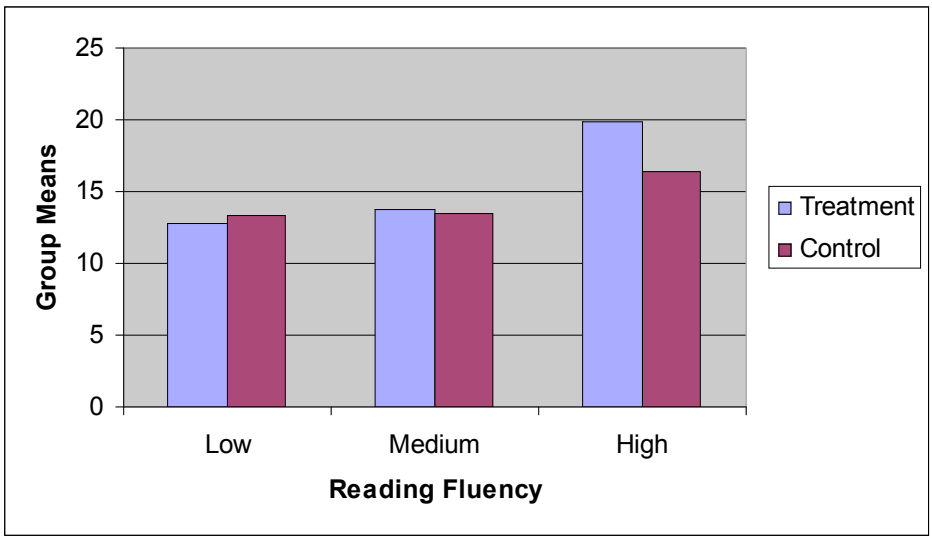

Figure 5.3. Gain scores on measures of reading fluency for Robert Hill.

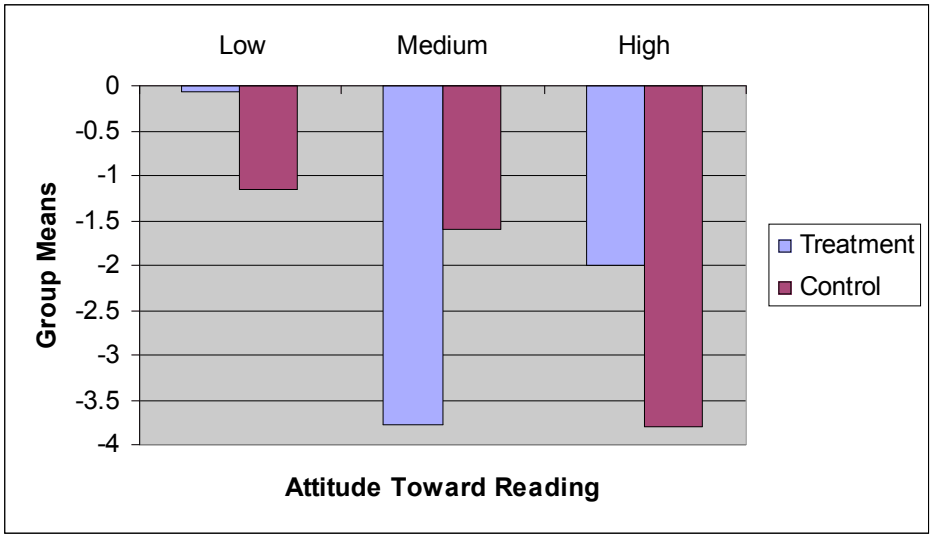

Figure 5.4. Gain scores on measures of attitude toward reading for Robert Hill.

Findings Pertaining to Post-intervention Measures of Reading Fluency

A 2 x 3 ANOVA was conducted to investigate whether statistically significant differences existed across treatment groups by reading performance levels (AA, A, BA) on post-intervention measures of reading performance level. The first independent variable, treatment, included two levels: treatment and control. The second independent variable, reading performance level, included three levels: below average, average, and above average. A statistically significant interaction of small effect size between reading performance levels and treatment groups was found, $F(2, 420) = 3.07$, $p = 0.047$, $\eta^2 = 0.014$ (see Table 5.7). Further investigation of group means indicated that students in the above average performance group who participated in the SEM-R had significantly higher mean reading fluency scores than similar students in the control group. Conversely, students in the below average performance group who participated in the SEM-R had significantly lower mean reading fluency scores than similar students in the control group (see Figure 5.5). Students in the average groups performed similarly on the fluency assessments. A significant main effect for reading performance level of moderate effect size was found, $F(2, 420) = 291.13$, $p < 0.001$, $\eta^2 = 0.581$. No significant differences were found between the treatment and control groups on measures of reading fluency, $F(1, 420) = .065$, $p = 0.799$, $\eta^2 = 0.000$.

Table 5.7

Summary of Two-way ANOVA for Post-intervention Measures of Reading Fluency by Treatment Group and Reading Performance Level (RPL)

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	42.15	42.15	.07	.799	.000
RPL	2	376130.49	188065.25	291.13	.000	.581
Treatment x RPL	2	3970.06	1985.03	3.073	.047	.014
Within Cells	420	271318.07	646.00			
Total	426	7836889.00				

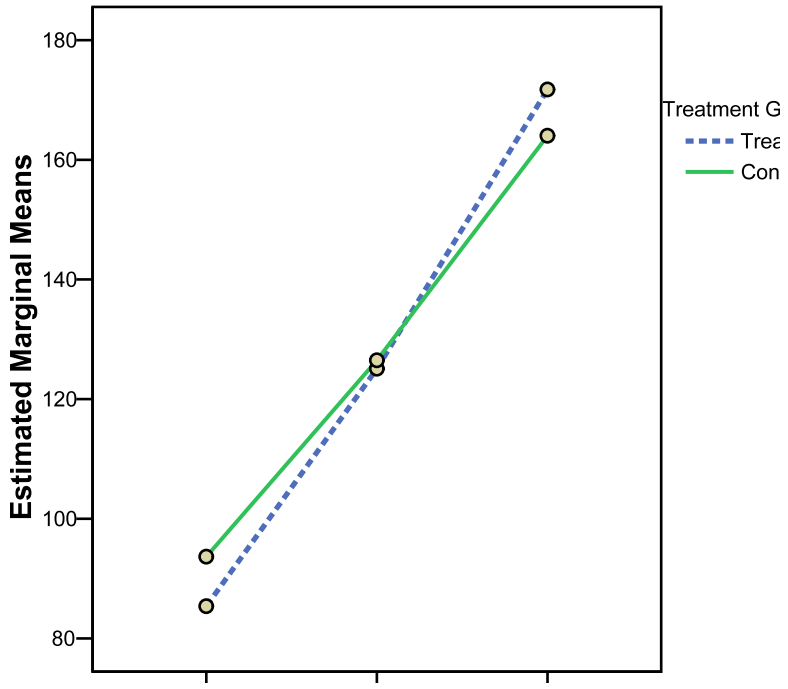

Figure 5.5. Estimated marginal means of post reading fluency levels at Robert Hill.

Findings Pertaining to Post-intervention Measures of Attitude Toward Reading

To investigate whether statistically significant differences existed on student responses to the *ERAS* across treatment groups by reading performance levels (AA, A, BA), a 2 x 3 ANCOVA was conducted. The first independent variable included two levels: treatment and control. The second independent variable, reading performance level, included three levels: below average, average, and above average. The outcome variable was student responses on the post-intervention attitude survey. Pre-intervention responses on the survey were used as a covariate in this analysis. After controlling for pre-intervention attitude toward reading scores there were no significant main effects or interactions. The results are summarized in Tables 5.8 and 5.9.

Findings Pertaining to Post-intervention Measures of Reading Comprehension

A 2 x 3 ANOVA was conducted to investigate whether statistically significant differences existed across treatment groups by reading performance levels (AA, A, BA) on post-intervention measures of reading comprehension. As previously stated, the first independent variable included two levels: treatment and control. The second independent variable, reading performance level, included three levels: below average, average, and above average. The outcome variable was student performance on the reading comprehension subtest of the *ITBS*. Results were statistically significant for Reading Performance Level, and presented a small effect size, $F(2, 418) = 50.74$, $p < 0.001$, $\eta^2 = 0.195$, indicating a positive relationship between reading performance level and reading achievement on this assessment. No significant differences were found between the treatment and control groups on measures of reading comprehension, $F(1, 418) = .50$, $p = 0.481$, $\eta^2 = 0.001$. There were no significant interaction effects. The results of these tests are summarized in Tables 5.8 and 5.10.

Table 5.8

Descriptive Statistics for Post-intervention Means and Standard Deviations Across Reading Performance Levels for Robert Hill

	Treatment Group				**Control Group**			
	Below Average	Average	Above Average	Total	Below Average	Average	Above Average	Total
ORF								
M	85.38	125.08	171.76	129.57	93.66	126.49	164.02	129.68
(SD)	(28.68)	(22.93)	(27.02)	(42.31)	(27.81)	(23.19)	(23.63)	(36.53)
	$n = 68$	$n = 101$	$n = 82$	$n = 251$	$n = 47$	$n = 72$	$n = 56$	$n = 175$
ERAS								
M	55.33	56.23	61.14	57.60	57.46	59.24	58.80	58.62
(SD)	(12.42)	(12.07)	(9.86)	(11.72)	(10.51)	(10.18)	(10.43)	(10.31)
	$n = 67$	$n = 96$	$n = 80$	$n = 243$	$n = 46$	$n = 70$	$n = 56$	$n = 172$
ITBS								
M	188.34	207.90	225.67	208.63	198.68	204.44	224.00	209.09
(SD)	(21.04)	(23.88)	(22.83)	(26.90)	(27.57)	(24.63)	(29.05)	(28.72)
	$n = 67$	$n = 100$	$n = 84$	$n = 251$	$n = 47$	$n = 71$	$n = 55$	$n = 173$

Table 5.9

Summary of Two-way ANCOVA for Post-intervention Measures of Attitude Toward Reading by Treatment Group and Reading Performance Level (RPL) With Pre-intervention Measures of Attitude Toward Reading (Pre-attitude)

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Pre-Attitude	1	16385.74	16385.74	200.11	.000	.329
Treatment	1	6.23	6.23	.08	.783	.000
RPL	2	54.97	27.49	.34	.715	.002
Treatment x RPL	2	376.94	188.47	2.30	.101	.011
Within Cells	408	33408.61	81.88			
Total	415	1448623.00				

Table 5.10

Summary of Two-way ANOVA for Post-intervention Measures of Reading Comprehension by Treatment Group and Reading Performance Level (RPL)

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	300.07	300.07	.50	.481	.001
RPL	2	61151.36	30575.68	50.74	.000	.195
Treatment x RPL	2	3469.45	1734.72	2.88	.057	.014
Within Cells	418	251894.45	602.62			
Total	424	18810936.00				

Roosevelt Public School

Descriptive Statistics of Student Growth in Reading

Prior to conducting any analyses, gain scores on measures of reading fluency and attitude toward reading were calculated to examine any underlying trends in the data across reading performance levels and treatment conditions. For a detailed description of the mean gain scores see Appendix C.

Reading Fluency: Total mean gain scores for reading fluency were positive across both groups with the treatment condition posting higher overall gains than the control group (Figure 5.5). In addition, positive mean gain scores were posted across

conditions at each of the three reading performance levels. In the treatment group, mean gain scores were highest at the average reading performance level. The control group's largest mean gain score was posted at the below average reading performance level. Average and above average reading performance level gain scores in the control group were noticeably lower than the gains made by similar students in the treatment group.

Elementary Reading Attitude Survey (ERAS): Total mean gain scores for the control group indicated a slight decline in attitude toward reading while the total mean gain scores for the treatment group demonstrated a small increase. At the reading performance level, mean attitude gain scores were mixed with the treatment group posting positive gains at the below average reading performance level, while the control group posted small positive gains at the below and above average reading performance levels (see Figure 5.6).

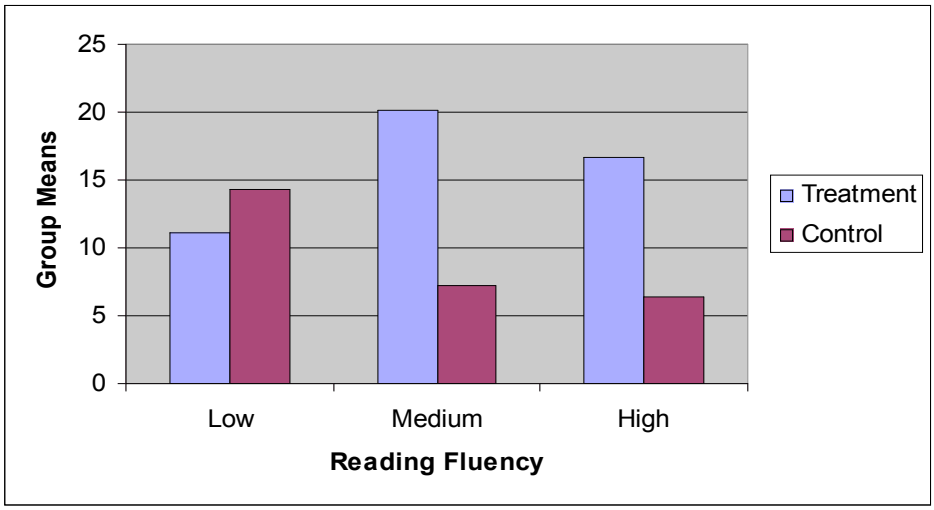

Figure 5.6. Gain mean scores on measures of reading fluency for Roosevelt Public.

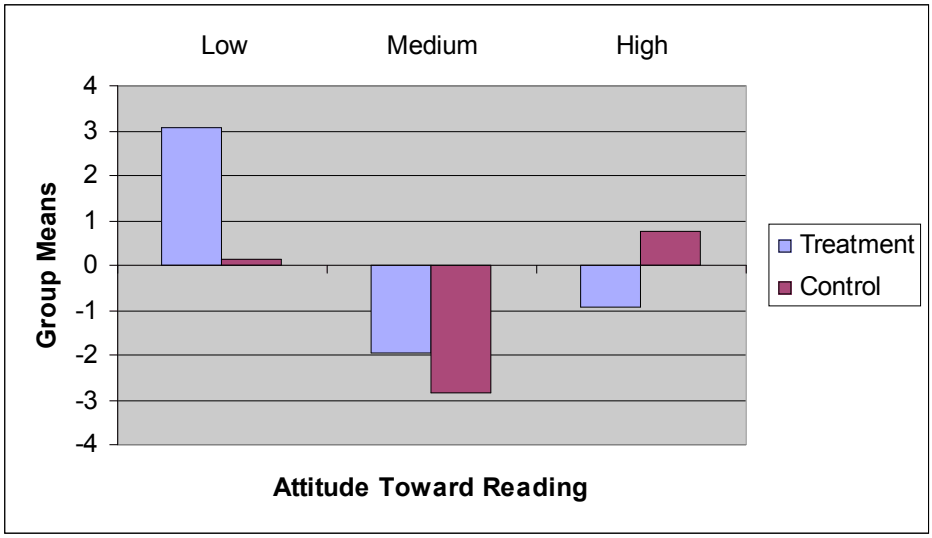

Figure 5.7. Gain mean scores on measures of attitude toward reading for Roosevelt Public.

Findings Pertaining to Post-intervention Measures of Reading Fluency

To investigate whether statistically significant differences were achieved across treatment group by reading performance level (AA, A, BA) with regard to post-intervention measures of reading fluency, a 2 x 3 ANOVA was conducted. The first independent variable, treatment, included two levels: treatment and control. The second independent variable, reading performance level, included three levels: below average, average, and above average. The outcome variable was student performance on post-assessments of reading fluency. Statistically significant differences existed between the treatment and control groups favoring the treatment group on measures of reading fluency, $F(1, 112) = 5.25$, $p = 0.024$, $\eta^2 = 0.045$, $d = 0.29$. A significant main effect for reading performance level was also found and presented a large effect size, $F(2, 112) = 106.81$, $p < 0.001$, $\eta^2 = 0.656$. No significant interaction effects were found. The results of these tests are summarized in Tables 5.11 and 5.12.

Table 5.11

Descriptive Statistics for Post-intervention Means and Standard Deviations Across Reading Performance Levels for Roosevelt Public

	Treatment Group				**Control Group**			
	Below Average	Average	Above Average	Total	Below Average	Average	Above Average	Total
ORF								
M	80.43	121.35	151.50	110.82	75.15	108.08	143.67	101.27
(SD)	(19.29)	(19.96)	(21.36)	(34.45)	(21.58)	(18.01)	(18.31)	(32.03)
	$n = 23$	$n = 20$	$n = 12$	$n = 55$	$n = 26$	$n = 25$	$n = 12$	$n = 63$
ERAS								
M	63.46	60.91	60.08	61.78	61.77	60.38	66.38	62.19
(SD)	(11.61)	(9.37)	(7.94)	(10.04)	(13.26)	(13.36)	(8.63)	(12.52)
	$n = 24$	$n = 23$	$n = 12$	$n = 59$	$n = 26$	$n = 24$	$n = 13$	$n = 63$
ITBS								
M	190.00	210.77	219.36	203.93	184.67	195.37	217.54	194.90
(SD)	(19.78)	(20.26)	(23.21)	(23.64)	(18.67)	(24.53)	(26.88)	(25.32)
	$n = 23$	$n = 22$	$n = 11$	$n = 56$	$n = 30$	$n = 27$	$n = 13$	$n = 70$

Table 5.12

Summary of Two-way ANOVA for Post-intervention Measures of Reading Fluency by Treatment Group and Reading Performance Level (RPL)

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	2055.87	2055.87	5.25	.024	.045
RPL	2	83711.52	41855.76	106.81	.000	.656
Treatment x RPL	2	378.72	189.36	.483	.618	.009
Within Cells	112	43891.09	391.89			
Total	118	1449203.00				

Findings Pertaining to Post-intervention Measures of Attitude Toward Reading

To investigate whether statistically significant differences were achieved across treatment group by reading performance level (AA, A, BA) with regard to post-intervention measures of attitude toward reading, a 2 x 3 ANCOVA was conducted. The first independent variable included two levels: treatment and control. The second independent variable, reading performance level, included three levels: below average, average, and above average. After controlling for pre-intervention attitude toward reading scores, no statistically significant main effects were found. The results are summarized in Tables 5.11 and 5.13.

Findings Pertaining to Post-intervention Measures of Reading Comprehension

Due to the limited cell size at Roosevelt Public, a One-way ANOVA was conducted to investigate whether statistically significant differences existed across treatment groups on post-intervention measures of reading comprehension. The independent variable included two levels: treatment and control. The outcome variable was student performance on the reading comprehension subtest of the *ITBS*. Results were statistically significant and presented a small effect size in favor of the treatment group, $F(1, 124) = 4.20$, $p = 0.043$, $\eta^2 = 0.03$, indicating that students in the SEM-R group ($M = 203.9$, $SD = 23.64$) performed better on post-intervention measures of reading comprehension than students who received traditional reading instruction ($M = 194.9$, $SD = 25.32$). The results of these tests are summarized in Tables 5.11 and 5.14.

Table 5.13

Summary of Two-way ANCOVA for Post-intervention Measures of Attitude Toward Reading by Treatment Group and Reading Performance Level (RPL) With Pre-intervention Measures of Attitude Toward Reading (Pre-attitude)

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Pre-Attitude	1	7230.41	7230.41	105.37	.000	.478
Treatment	1	.52	.52	.008	.931	.000
RPL	2	2994.013	147.01	2.14	.122	.036
Treatment x RPL	2	127.48	63.74	.93	.398	.016
Within Cells	115	7891.61	68.62			
Total	122	484403.00				

Table 5.14

Summary of One-way ANOVA for Post-intervention Measures of Reading Comprehension by Treatment Group

Source	*df*	*SS*	*MS*	*F*	*p*	η^2
Treatment	1	2536.03	2536.03	4.20	.043	.033
Within Cells	124	74954.01	604.47			
Total	126	5062839.00				

Qualitative Findings—Year 2

Several themes emerged from the observations, field notes, and interviews with participating teachers in Year 2 of the study. This procedure involved time spent understanding the routine of daily reading instruction in each classroom and the subsequent minor differences in implementation across classrooms. Erlandson, Harris, Skipper, & Allen (1993) advocated gathering qualitative data from a variety of sources in a variety of ways, and in this study, data were collected and analyzed across multiple participants over multiple interviews and observations, as summarized in Chapter 3. An agreement was provided for teacher and school anonymity during multiple classroom visits and during interviews with principals, reading consultants, media specialists/librarians, classroom teachers and students, consequently no names are used for any of the teachers. All teachers were interviewed during and after the intervention.

Robert Hill School

Core Category: Increasing Levels of Challenge for All Students

The core category identified in this phase was teachers' inaccurate perceptions of their students' reading levels. The majority of teachers indicated at the end of the study that students in their classes were able to handle higher levels of challenge than the teachers had previously believed. They also discussed the implementation of SEM-R with students of different levels of reading achievement, explaining that the attempt to increase the challenge level differentially affected students at different skill levels. In particular, many mentioned their belief that they had increased the level of reading challenge for their most advanced students as a result of the SEM-R implementation. For example, teachers consistently indicated that they learned in using this approach that their more talented readers could achieve at much higher levels than they had previously believed. In all grade levels, across both urban and suburban schools, teachers explained that using the SEM-R had positively affected their higher level readers; teachers were able to provide specific examples, including students' use of advanced thinking skills and questioning skills, reading and discussing more challenging books, and the self-regulation of advanced readers. The following representative comments are from both the urban and suburban school faculty and administrative staff:

> My average to above-average readers really surprised me. They went really beyond what I ever thought they could do with advanced thinking skills and questioning skills. These readers were able to go well beyond what I had thought they could do and connect with their experiences and the challenge level really inspired them. They could read much more advanced material than I had previously assigned.
>
> The above-average students really excelled. Some of my higher kids had really not been challenged, and I saw how I could really challenge them. Some were only summarizing, and many were not able to predict or use higher skills. I was

> able to challenge them through the individual conferences to use higher-order thinking skills.
>
> I found that my good readers were more easily led to choose more challenging books. Most were able to take my book suggestions, and they were very successful. They read things like *A Wrinkle in Time*.
>
> The average to above-average readers went well beyond what I thought that they could do. The book hooks really roped the advanced readers and the average readers in!! If they could read books at a challenging level, it was fun to go there, and the students rose to the occasion.
>
> I found that it took a couple of weeks to get most of the class comfortable with finding books that challenged them. I found huge differences with my top kids, especially those who had not read chapter books before. They found that these books were much more interesting, and they wanted to read more.

The teachers also explained that it was not always easy to encourage the highest level readers to read appropriately challenging books, and two teachers discussed differences they noticed between some of the boys and some of the girls, as one explained below:

> My higher level readers (boys) gave me a lot of challenges, as they did not find anything to read. They could not settle down and had problems focusing. I finally found them 12 books and made them choose. They just did not want to read anything, and it took a long time to get them to start. That has been frustrating and it made me somewhat frustrated. For the most part, the kids really liked doing this. The content was more advanced, and that really enabled them to fly—many gained the background level they needed to understand the context. They really learned how to do this. Kids came up to me continually and talked to me about their books and their choices.

Some of the teachers found that their average to below-average readers were able to move to more challenging types of reading, but, like the advanced readers, they also tried to read easier books in class. Teachers also commented on the activities of students with special needs and how they were able to adapt the SEM-R for these students, over the course of the implementation, including the use of freedom of choice, books on tape followed by short selections of reading, and other strategies.

> I actually found that a lot of my students [third grade] went ahead 2-3 grade levels in reading in the months that we have been doing this. About a quarter of my students initially wanted to read easy books or books that they already read. I tried to send those kids home with those books, and I told them to read them at night. In school, I encouraged them to read books that were appropriately challenging. I helped them to find the books, and I think about 50% of my kids really did this consistently. I did find this worked across all achievement groups.

> I found that some of my special needs students really wanted to move ahead. Those kids really wanted to listen to my book hooks. They really wanted to read the more advanced books. One of my special education students wanted desperately to read a *Harry Potter* book. It was just too hard for him initially, so we decided to have him read the book on tape. We did not want him just to listen to the book on tape, so we would have him listen to *Harry Potter* for 5 minutes. We used a timer, and he would listen to the book and then read the pages he had just listened to. It really increased his comprehension. He then started reading *Holes* with me, too. The other special education kids had difficulty with trying to read the higher level books. My paraprofessional went to the other special education students, and she worked with them every day. They really did okay. The special ed students did well with this. They were glad not to be spoon-fed every skill. They still had the phonics part [Let's Read] for their weekly time of half-hour daily, 4 times a week [but not from the SEM-R time slot]. They had the freedom to pursue books that they wanted to pursue. They were pulled out from other times of the day for their special education program. The only hard part for the kids was the book choice because sometimes they wanted to choose books that they did not have any prior knowledge about.
>
> Some of my average to below-average readers flitted from book to book, as they could not sustain themselves. One of my students who is an excellent student in a regimented class (like the basal program) could just not regulate well within a self-choice program. One of my low readers who was new to my room wanted to choose books that were not appropriate—choosing books that were way beyond his ability to comprehend. It was a new start, and he wanted other kids to see him reading higher level books. But, all in all, I found that most of my kids were really able to move to higher level work, and they enjoyed it. I also found that I had some inaccurate perceptions of what some of my students could read.

Teachers believed the reason that students of all achievement levels were able to read at appropriately challenging levels was twofold. First, because student interests were such a focus of this study, students of all levels were able to select books based on their interests, and they began to enjoy reading more. Second, because of these interest-based opportunities, students were exposed to literature that both motivated and intrigued them. Many of these books were selected by their teachers after they had the freedom to move beyond the basal reading program.

> My average to below-average readers discovered books that they had never heard of like the *Box Car* series, and so many of my kids had never heard of them. Many of the books that I think are basic core knowledge of literature that I would have assumed kids know, some of my kids had never heard of!! I was shocked. I tried to be consistent at having kids move ahead and be challenged.
>
> The kids preferred reading books that were challenging. Initially, the kids were prone to choose comfort level books. Then, they made a shift and for the most part, they were all good at finding books that were slightly above level. Interest

> was a key factor for the students. Most of the kids consistently found books that were appropriate in interests. Many of the kids found books that they would not have initially been interested in, but their interests grew and expanded.
>
> I think having the kids choose an interest area made a huge difference. We think that they should know background areas of some of the books that we are asking them to read, but many times they do not. By enabling kids and letting them choose books that are in their own area of interest, students were able to choose some books in which they have some background knowledge areas and they really were able to build upon their own prior knowledge. Interests were a huge key to understanding and wanting to read. Many of my students picked non-fiction and especially historical fiction. That really surprised me.

Several teachers suggested that they had observed different patterns of challenge among different students. For example, several teachers began to notice that many of the average and below-average achieving students worked harder than the more advanced students.

> Occasionally, students (who were average readers) took the challenge and tried reading above grade level because they wanted to try it, and they pursued the harder content. If I asked above-average reading students in the class to choose books, they would always choose easy material. That is, my advanced kids would always choose the less challenging material.

Several of the teachers also believed that lower achieving students needed different types of skill instruction that could be provided during conferences. One representative comment illustrates how some of the teachers were able to expand and modify the SEM-R approach and how they hoped to enhance it in the future:

> The kids who were below average readers tried to pick harder books, and then they did not have the strategies to read the books. With the individual kids who did this, I tried to help them gain the strategies during conferences. It worked with some students, but it would be easier for me to group the kids together who did not have the strategies for short lessons in strategy use. Next year, I will try to occasionally group some of the students together to have them learn the skills. I was able to individually identify the lower readers very easily by using the SEM-R. The individual conferences were so helpful.

As teachers were more confident that their students could read and sustain attention while reading for longer periods each day, an increasing level of confidence emerged in their ability to encourage students to find books that were slightly to moderately challenging for them. Prior to this intervention, students had been quite accustomed to being able to read anything they selected, and the SEM-R approach represented a departure from this methodology. Several teachers spoke with pride about how they were able to increase the level of challenge for their students, as described below:

> In the beginning my kids looked at me as if I had two heads when I took the books away from them and told them that they were reading a book that was too easy for them. I play acted a play of me going to the library and showed a funny scene in which I modeled how I picked out a book for myself and then the kids tried to do the same. We talked about comfort level, and I picked a student who could act out a similar scene, and then I picked a good reader and she picked one that was too easy, so I told her that she could read the book at home. I did not have a problem with my students making the transition. They would often ask if it was too easy for them. I think that they all had some concerns initially. We conferenced a lot about this. Now, they are really comfortable. I had a student who went from *Junie B. Jones* to reading *Sounder*, *Old Yeller,* and both *Shiloh* books. Isn't that amazing? And she made a comment to me about the differences that happened in this class as opposed to the other class she was in. She does not read the harder books with her other teacher, she explained. This teacher is really lovey-dovey but she does not challenge these kids, according to them. I pushed the button with the kids. I knew that one loved dogs, and I got her to read complex, challenging books that made her think.
>
> I had one girl who had not had read anything independently in my class prior to this program. She was not a girly-type girl, so I got her *Ella Enchanted*. I thought because she was a very assertive girl, that she would enjoy it. She eventually took off and read three books independently in the last month. I took great pleasure in watching her progress.
>
> I have learned to choose more difficult books. With a quarter of them, I would have to help them as they would select easier books. It was difficult for me with some of the students who were brand new to me, but the student conferences helped. Most kids rose to the level. Some wanted to go back to the comfort level each time, and I had to frequently encourage kids to move forward. But I did and they did.

The most frequent comments of teachers concerned how they tried to increase the level of challenge for all students. Teachers believed that across levels, many students made good progress, and most did well with the increased level of challenge, but this was not always easy:

> We have encouraged them in this study to choose a slightly more difficult book. Most did but some did not, as these students consistently chose a comfort level book because of habit.
>
> I found the challenge level issue to be preferential to the old system. The kids preferred it, too. Initially, the kids were prone to go for the comfort level books. For the most part, the kids were all good at finding books that were slightly above level. Interest was a key factor.

In the process of doing this, many teachers gained insights about their prior reading instruction and the lack of challenge that had occurred for most students.

> In the beginning, I did not realize how much middle-of-the-road reading instruction I did and how few of my kids I really challenged. I really thought that the way we chose the books individually for kids was so much better because everyone started to choose more challenging books. I had not really thought about the stagnation in reading that occurred for kids at the middle and the top. I enjoyed the program; it made me like teaching reading again.

Some of the teachers commented on how some of their lower achieving students struggled with certain tasks and how they used different strategies to address these issues, including helping struggling students gain some general background knowledge, listening to books on tape first and then reading the books, and dealing with students with special needs by helping them identify appropriately challenging, high interest books and learning to increase self-regulation to read them.

> I did find resistance from 3 kids initially who could not find an appropriately challenging book. Once they had the opportunity to choose books from the school library, they found books. I alternated sometimes between easy and hard for some of my kids. Some of them had never been encouraged to read books that were slightly above their level, and they had learned to be a bit lazy. I had kids rate the books they were reading, so it was more enjoyable for them. Sometimes it was hard because of the background that they did not have regarding general knowledge. When they gained some general knowledge, the reading became easier for them because they could connect prior knowledge with the new reading material.

> I found that the books on tape were wonderful to get reluctant readers to read. I went to my town library and would get the books on tape for them to use. I am using the *Lord of the Rings* on tape. He is a high reader (fourth grader) who is listening to it. He has read it before, but he is listening and is doing so much better. One of my low readers is listening to *Winn Dixie* and *June Bug* on tape, and he is able to connect the two books. I have six tape recorders in my room now and my special education students (one who is extremely disabled) use them daily. The one who could not read at all was difficult because he wanted to look like everyone else. Getting him to read with an adult or a book on tape makes it easier for him. He suggested that the tape and the book would work for him. I really took this as a challenge. Because I allow a lot of freedom, I had to monitor carefully. Another child with ADD and language issues was a flitter; he would pretend to read a book and the only way I could get him to stick with a book is to have him listen to it on tape. It is the only way I can get him to move to the reading for 30 minutes with this on tape. Right now, he is doing paired reading with *James and the Giant Peach*. His reading skills and attention issues have been challenging for him. He is from China and does not have a lot of experiences to tie this to. Another LD boy came in and had a negative outlook.

> He did not like to read, and we hooked him. He was a success for me. We talked to him. We got him to read stuff he was interested in, and we found that when he was interested, he could really do well. I let him read out loud, as he told me that he can keep the information intact then. He is so successful now. He has made major gains. He may not show comprehension, but he made gains.

> I had two different experiences in the fourth and fifth grade class with my special education students. I work in a mainstream capacity with 3-5 students in each class. The fifth grade students (3 students) really were interesting. One of the special ed students stayed on grade level. Another multiply handicapped student read on grade level, too. But another student pushed herself well beyond the grade level experience. She has a learning disability but committed to read *James and the Giant Peach* and *Charlie and the Chocolate Factory,* and she kept going and going and really gained in reading. The other student, the little boy, pushed himself but did not have the follow-through to do the work. The fifth graders were so much more able to read for longer periods of sustained effort. We actually used books on tape with one of the students because he consistently chose books beyond his level.

> The fourth grade special education students were less successful, because the children did not have the reading ability or potential that the fifth graders have. In this class, of the four kids, one is a non-reader, but he began to read during the intervention. He also began to enjoy books for the first time. What we would do is to go to the library, and he began to choose books on his own, and he was comfortable with that. The second student did not choose the books because he got overwhelmed so easily, so we had to modify things a bit. We really had to help the second boy, and we did that by giving him limited choice of books and that really worked. I focused on doing the conferences with the special education kids in the classrooms, and I saw some gains. I think that choice and interest were the major reasons that the students made these gains.

In summary, several commonalities existed across the issue of the challenge that students experienced. First, most teachers believed that students had higher achievement because of the increasing challenge level and their belief that students were reading more at home, as demonstrated in the following representative comments:

> I think you will see improvements in the achievement and fluency scores of all of the students. I think you will also find differences in attitude about reading, because I sat in a PPT for one of the students, one of the girls, and the parents said that she was reading and enjoying reading at home and that it was the first time that she had ever read at home.

> I worked hard on the challenge level. I had kids going to the public library to choose books at the seventh or eighth grade level. I had some kids reading *Harry Potter*. I think the kids really liked choosing their own books.

> I think most of the kids took this and flew with it. They enjoyed reading more, and they came to reading really looking forward to it. They saw it as a relief from drudgery. Most of the kids did great. The lower readers had some struggle. One boy had a joke book and he struggled with reading books that were more challenging. The average to above average readers went well beyond what I thought that they could do. The book hooks really roped the advanced readers and the average readers in!! If they could read books at a challenging level, it was fun to go there, and the students rose to the occasion.

Second, teachers were very realistic and understood that if given the opportunity, most of their students would choose easier books, as explained by this representative comment:

> In this study, we encouraged students to choose a slightly more difficult book. Initially, most did not, but some did. As time went on, I found I had to be very diligent because, given a lack of supervision, the students consistently chose a comfort level book, because of habit. The environment in their homes does not stress academics. Many have no educational supplies at home and they have never been read to, and unfortunately, I have found my students display a lack of striving and a lack of encouragement to read.

Finally, most teachers believed that their students benefited from this approach, even though they had to work to keep them at higher levels of challenge. They felt pride that their students worked harder and read more challenging work. One summarized what many others also said:

> Most of the students found it very exciting. Two or three students always tried to stay at comfort level but that is due to personality. There were no big surprises about that. A few kids had to learn it was ok to go higher. It was a challenge for me initially, but I really found that I could do this. Some of my kids read 38-40 books each.

How Students Reacted to Challenge

When asked why they believed that all readers were able to move well beyond what they had previously done, teachers generally explained that they believed that the environment in the community and family lack of interest in reading contributed to students who had not had the opportunity to develop good reading habits. Reasons varied for students of different achievement levels. Teachers explained that most of their advanced and talented students had learned to be lazy and expend minimal levels of effort. Almost every teacher explained, often using similar words, that they believed that "these students" (high level readers) when given an opportunity, would always choose easy books that required little effort. Most teachers, when asked, explained that they sensed that their highest level readers were lazy:

> If I left the advanced kids alone to choose, they would always choose the less challenging material. If left to their own, they really had to be monitored. If you did not monitor it, they would choose the easier stuff. That did not go away.

Most of the educators in both schools believed (no one stated a contrasting view) that students experienced a lack of challenge in their homes and in the community; this perceived absence of reading in homes in the middle class suburb was repeated in every interview with the superintendent, principals, teachers, and reading consultants from the beginning of the research process through the last day of the intervention. This common theme is explained by this representative comment,

> In the beginning of the year, I asked my kids how many of them had ever been read to by anyone other than their parents, and half had never had anyone read to them. If they do not have reading as a part of their lives, reading is not something that they think a great deal about. I had kids who have never read a chapter book. Once they learned they could do it, they flew, and I watched with amazement their progress.

The principal of Robert Hill concurred with his teachers, and stated bluntly,

> Most parents don't read at home, and most students don't either. Reading is not encouraged in this town where athletics rule.

Both reading consultants concurred, and in various interviews over the course of the SEM-R intervention, echoed the same sentiment as the consultant at Robert Hill, who explained,

> I have lived around this community for most of my life and have rarely seen a great deal of encouragement for reading.

This impression may have, in some ways, contributed to the perceptions encountered during the SEM-R intervention by some of the teachers about the inability of the most able readers to pursue challenging work. In the beginning of the intervention, researchers were repeatedly told that some of these students could not and would not self-regulate to read appropriately challenging content, and many of the teachers acknowledged this in interviews both during and at the conclusion of the study. A representative comment may explain these teacher perceptions:

> I also found that I had some inaccurate perceptions of what some of my students could read.

Again, the theme was repeated by many teachers that they had lower expectations in the beginning of the intervention, as so few students in their classes had actually established a regular pattern of reading, and few read regularly. As one teacher explained,

> I think my biggest concern was that I wanted kids to complete a book and at first, they did not want to hear that they had to get a harder book. At first, I just wanted them to finish a book. Then I became more confident and would say, come on now, that is just too easy for you. They would smile, because they knew that I was right. Then, they would really try to find challenging books that were in their interest area and they always did.

They also mentioned the increasing levels of challenge that they were able to deliver, explaining

> Meeting with students individually also let me better understand how many students are really not being challenged. Most of my kids read at a comfort level, and few were willing to push ahead. I was able to encourage them to move forward. I used the bookmarks as a question of the week and asked students to consider how to focus on higher level skills. One question that I asked was "What character trait helped your character succeed or fail?" That was a hard question for third graders, and they did so well with it. We discussed this as a group.
>
> The challenge level grew, and it was easier to identify the kids who had reading difficulties. The kids who did not make progress were much more obvious. It would seem counterintuitive, but it made sense to me.

Professional Development Findings

Teachers were asked an open-ended question about how the use of this intervention affected their own professional development. Every teacher in both schools responded positively to this question. Most mentioned growth related to freedom and having professional choices themselves. Teachers also were quite eloquent about why they believed they had grown in this process, and two reasons were most often mentioned. First, teachers believed that students had grown in reading, were able to read at higher levels, and liked the opportunity to select more challenging books in their areas of interest. A related issue was that teachers believed that students were increasing their skills and improving in reading and that this was happening because teachers were able to give up some of the control associated with the basal reading program.

Several teachers mentioned the freedom to teach and to have choice themselves as well as to provide their students with choices, and the following representative comments explain some of their beliefs:

> I have never taught a reading program in which so much choice is left to the students. In the SEM-R, I learned to give the students more freedom to learn. For example, with the Phase 3 activities, I learned to let students have more control, and I took less control. I felt that this really met the needs of all of my students, even my special education students. I really feel that this was a better way to teach. I am choosing to continue with this way of teaching during the rest of the year. A special ed student who has been mainstreamed into my classroom will

stay in my class for the rest of the year. The rest of the students will be going back to their special education reading class. But he will stay with me, as he has done so well.

I learned that a noisy classroom could be joyful, and I could give up control and still have students learn. In the SEM-R, the focus was not on me teaching, but rather on them learning. I did not have to spend hours on a lesson plan that half of the students did not even follow. Instead, I spent my time thinking of what to read to my students to get them excited about reading. I suggested *Tom Sawyer* to one of my students, and he really connected it with many other characters that he had read about (like Harry Potter). He encouraged other kids to read *Tom Sawyer*, and they read other books together, too. They learned things from my read aloud that they were able to connect to other content. They were able to do what they did, and they got more out of it. I know it is good to have a plan, but I also think that it was good to let students know that they can be in control of their own learning. I knew I had students who were interested in certain things, and I found books to hook them and sustain their interests.

This intervention gave me the freedom to expand upon things that I always wanted to do . . . because I did not have to prepare standard lessons. Instead, I found time to find the literature and think about books that my students would like. I found poetry. I found non-fiction. I designated weeks as non-fiction weeks. I need a plan and have to take the front-end time to get organized. I did higher-level thinking weeks. I did creativity books (like the *Giant Jam Sandwich* book) and had kids read books that encouraged open-ended thinking skills. I also adapted some activities. I always put pressure on myself with the basal to cover all of the material, but in this program [SEM-R], I found that I loved the freedom to pick and choose skills and apply them as a professional. I see this as a bridge between the skills taught in the basal and an innovative program based on student interests and the love of reading coupled with the freedom to read.

I learned to be more creative, and I got to do the things I wanted to do and to be really creative. I hate the basals, and this gave me the freedom to pursue different things, and I loved it. I learned so much more doing this. I had so many chances to learn to use freedom of choice. I am not as nervous to make reading more fun. I thought people would think I was trying too hard to make reading fun as a new teacher, but this SEM-R gave me the opportunity to have freedom and creative choice. I loved it. I made so many creative decisions, and I was comfortable with not being behind. I could make my own decisions.

I had a fear of not being regarded as a professional because I was going in another direction from some of my other colleagues here. In my class, I only have two kids from my other reading class in this, and now they are bubbling with ideas. I have just loved this. I see the differences of these kids in my treatment class coming into my regular reading class. The program kids are so different in my

> other class. The SEMR kids are so much more motivated. They are totally different from the other students.

Several of the teachers indicated that they loved certain components of the SEM-R and that they believed that these components helped them to be more effective at delivering certain parts of reading instruction. For example, they liked the book hooks as a way to get students interested:

> I loved the book hooks, and I had never used my voice in reading to capture the class. I have always been excited about reading but never got this across to the class. Now I do this with ease.

Also mentioned was the opportunity to incorporate gifted education pedagogy to motivate and increase the challenge level for all students and apply this type of teaching to other content areas:

> I also used the book marks, and they helped me to move kids to higher levels of thinking and analysis. I really enjoyed challenging the kids to read interesting books. It helped me to learn more about leveling, as I am sure that I was underchallenging many of my students, and also about the kinds of things that I need to do to direct students to the next level book. I also learned to use a variety of activities in reading that exceeded what I had done before. I especially enjoyed the creative training activities and will use these again.

> The more I used the gifted types of questions from the more I realized that these types of opportunities can transform learning. I should have used these more often years ago. I transferred some of what I learned from the study into my other content area classes. That was really helpful. I incorporated advanced material into my other afternoon classes. In-depth questioning was used in my social studies classes, and I even used ideas from this study in my science class as well.

> I learned that choice can affect student initiative to read and in the end, choice and interests drive initiative. Choice helps increase student initiative, and even parents noticed changes in kids reading at home. I also found that kids enjoyed reading much more.

Several teachers mentioned the opportunity to work collaboratively and discuss teaching and instructional strategies with colleagues. They liked the team teaching opportunities that they had, both with the researchers and with their school colleagues.

> I think for me, this program took an idea that I have always had in the back of my head and let me start a program where kids could work at all different levels, and I really enjoyed that. I saw kids really grow. I have never team taught with a special ed teacher before. I never did inclusion before, and I really enjoyed that experience with my colleague. I liked being able to share ideas, and I really loved the process.

> Definitely talking with my colleagues was helpful to me. I learned a lot from this about many different areas. I learned the most about the differences of the leveling and trying to address all of the different levels in my classroom, and also, I learned about the importance of the role of interests. I went to my own public library and took out books on tape for the kids. I get lists for my own classroom kids about what they want. I also learned from the conferences. I could easily identify kids' levels. I was very surprised with the ability and sophistication of some of my average readers, and they just rose to the occasion, with books such as *Lord of the Rings*. I loved doing this. I want to continue to do more of this kind of work.

Many teachers mentioned what they perceived to be their students' own increasing level of excitement and joy about reading and said that for this reason alone, they would continue using aspects of this approach.

> My students were so excited about selecting a book of their own . . . . They also loved having some choice in writing. They simply loved the program and were happy to read.

> It was interesting; most of the kids sighed with unhappiness that the intervention [SEM-R] was over. There were cheers when I said that we would continue with the intervention.

A Representative Treatment Classroom

The following is a description of a representative third grade SEM-R class at Robert Hill after 5 weeks of participation in the intervention. At this school, a typical 1-hour SEM-R lesson often began with the teacher (or a guest) reading a short selection of literature aloud to the class. Teachers used this opportunity to challenge students to think at higher levels and practice various literacy skills.

"Last week we talked about books that had animals as main characters. The animals often acted like the people. Well, this week we are going to feature books written by one author, Beverly Cleary," said Mrs. Glenn, introducing the read aloud on Monday morning. "Can anyone think of any books written by Beverly Cleary?"

A silence fell over the room as the children searched their memories for book titles. After a few incorrect guesses including *Charlotte's Web* and *Amelia Bedelia*, one student called out *Ramona Quimby, Age 8*. Mrs. Glenn continued to provide hints about the types and number of books written by the prolific author to elicit more responses. As the students raised their hands and answered, the teacher wrote the titles on the board: *Strider*, *Ramona's World*, *Ramona the Brave*, *Ribsy*, *Ramona Quimby, Age 8*, *The Mouse and the Motorcycle*, *Ralph S. Mouse*, and *Runaway Ralph*.

While the teacher was writing the titles, she asked, "Does anyone know why I am underlining all of these words?"

A strong, clear voice called from the back of the room, "Because they're book titles!"

"Exactly right! That's how we know that they are book titles and not someone's name," the teacher responded with a smile.

Having introduced the author, the teacher began to read aloud from *Ramona Quimby, Age 8*. To introduce the book further, Mrs. Glenn drew her students' attention to the illustrations on the cover and read each chapter title aloud. The class discussed their first impressions of the book and its main character, Ramona. Then, in a voice filled with humor and excitement, the teacher read chapter three aloud. The disgusted faces and groans from the students during the scene in which Ramona cracks an egg open on her head demonstrated that the children were listening intently to the tale. At the end of the chapter, the teacher announced that she had several copies of the book available for reading during SIR time, and five hands shot into the air.

Most third grade teachers at Robert Hill noted that the younger students with less literary experience benefited from using a whole week of lessons to focus on one particular bookmark question or literary topic, especially at the beginning of the intervention. Teachers carefully modeled literary discussions and writing during all three phases of the SEM-R. Mrs. Glenn was a master at this.

Before beginning SIR, Mrs. Glenn extended her discussion of the recently read chapter to establish a focus for the week on characterization. "Based on the read aloud," she asked the students, "what words would you use to describe Ramona?"

Once again, Mrs. Glenn wrote student responses on the board: *weird, funny, funky, rude, foolish, follower, impatient, hilarious,* and *silly*. After each word, the students were asked to explain their answers by providing evidence from the book. For example, the student who said that Ramona was a follower explained, "The only reason that she was taking an egg to school and cracking it on her head was because that was what everyone else was doing."

Based on their observations, the class discussed whether or not Ramona seemed realistic or imaginary. After they decided that she was realistic, Mrs. Glenn wrote a focusing question on the board: *What makes Ramona someone you can believe, or realistic*?

Many students waved their hands in the air to share their answers and have them written on the board by the teacher. While discussing the topic, Mrs. Glenn encouraged her students to provide as much detail as possible. Responses included: *1) She follows the fad, 2) She's in third grade and is 8 years old, and 3) Ramona is silly, but she gets embarrassed when she is covered in egg*.

As the discussion drew to a close, Mrs. Glenn reminded students of the week's focus on characters and characterization. She announced, "When you are reading today, I

want you to think about how you would describe your characters and whether they are realistic or not."

Carrying their books and reading logs, students spread out all over the room as the teacher announced that it was SIR time. Four students raced to stretch out on the area rug in the back corner of the room, while two others unfolded low beach chairs. Three students whom the teacher had identified as struggling readers sat at a listening station in the back of the room wearing headphones and following along in their own copies of *Abel's Island* while they listened to the book on tape. Several students preferred to remain at their desks to read.

As the class settled into their reading routine, Mrs. Glenn circulated around the room, making sure that every child had a book and was seated in a place where distractions would be minimized. One talented reader stopped the teacher to describe excitedly the portion of the book, *Among the Hidden*, that she had read over the weekend and how she and her family had gone to the bookstore to purchase the next book in the series because there wasn't one in the library. Mrs. Glenn asked the animated girl if she would recommend the book to which she responded, "Oh yes, you should read it! I think you will like the characters—at least the good ones."

While the students read silently for 20 minutes, Mrs. Glenn held three individual conferences with students at the back table. Each conference began with the student reading aloud from his or her current book to help the teacher assess whether or not the book was appropriately challenging. Mrs. Glenn then asked each student one or two basic fact questions from the reading to assess student comprehension. Because all three students had appropriately challenging reading material and did not demonstrate a need to review or practice a particular reading skill, they then discussed whether or not the characters in the student's current book seemed realistic, again reinforcing that week's book mark question. As the teacher conferenced with each student, she also examined his or her reading log and recorded a few notes in her own reading notebook about her assessment of the student and potential areas of interest for further reading or project exploration. At 5 weeks into the study with an average of 20 minutes of SIR time each day, Mrs. Glenn's goal was to conference with every student at least once each week to chart student progress and encourage growth.

While the teacher was conferencing, approximately 95% of the students continued to read independently without disruption. When the teacher indicated the end of SIR and that it was time to return to their seats, 5 students groaned audibly and asked to keep reading. Students recorded the date, their book title, and 20 minutes of reading time in their reading logs before putting their books and logs in the bin in the back of the room and being dismissed.

Roosevelt Public School

Classroom Reading Instruction in Third and Fourth Grade Bilingual Classrooms Participating in SEM-R Intervention

A Fourth Grade Class's Experience With SEM-R

Eight weeks into the intervention at 10:15 a.m., students completed their writing lesson at their desks in their spacious classroom. The desks were arranged in a U-shape facing the front board. As the fourth grade students put away their papers, they dug through their desks to find their 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 the students to go around the circle and share the book they were reading. Several girls were reading books by Patricia MacLachlan, and they described them as historical fiction. As the class shared their books, more girls explained that they were reading or had already read these books; the girls became inspired to find more books by Patricia MacLachlan. Some of the boys were also reading fiction books. 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. The last several students in the group explained that they were reading some familiar books, such as *Goosebumps* and *The Lion, the Witch, and the Wardrobe* in Spanish. After all 17 students had briefly discussed the book they were reading, the teacher began to read aloud a section of a book he had previously selected. The students enjoyed listening to him read aloud and participated as he asked questions about the reading. After 20 minutes, the teacher told the students it was time for them to read independently.

The students quickly scattered about the room to places of their choice for SIR. Three boys stayed on the rug and lay down or leaned against the bookshelf. Two girls sat behind the book shelf, 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 immediately. The teacher turned on his radio, which quietly played some soft Spanish music. He then joined the researchers in having conferences with several students and using the bookmarks with questioning techniques. The class read easily for about 25 minutes. Although the students begged for more time, it was almost the end of their 1-hour reading block. The teacher directed the students to return to the rug for the last few minutes. He asked students to share some of what they learned during their reading time. Finally, the students were sent back to their seats to record their books and the amount of time spent reading in their reading logs.

During another observation, most of the students began reading immediately. However, several others approached the teacher and research team members asking for assistance in choosing a new book. One girl felt the book she had chosen was too hard because it was written in Spanish. She explained that she is Puerto Rican and she spoke Spanish at home but sometimes it was hard for her to read the language. Another student

wanted to go to the library to find a new book to read. She explained she was interested in poetry, and the research member helped her look through the poetry section. The student selected *A Children's Introduction to Poetry*. When they returned to the classroom, the researcher suggested the student use the bookmark labeled *Theme* to help her consider big ideas in the poems. The researcher also volunteered to bring in some of her own books of children's poetry by Shel Silverstein.

Over the course of 2 months with the intervention program, several changes occurred in the classroom. First, the teacher shortened all Phase 1 introductions from 25 minutes to approximately 5-10 minutes; he began to use a book to introduce a genre such as biographies or adventure or applied a new bookmark technique to a familiar book. To save time, only a few children shared their books each day instead of everyone in the class. Also, the teacher read only sections of books aloud, creating the experience of a "book hook" for the children. Students who found the chosen read-aloud interesting were invited to finish reading that book at their own leisure. A large pile of read-aloud books was spread out on one bookshelf where they could entice students to try reading something new. The student of the week also gained a new privilege; he or she could spend SIR time sitting in the teacher's chair.

As the intervention progressed, the students were involved in more activities of their own choice. They seemed to be reading books focusing more upon individual interests, such as animals, families, or Spanish chapter books. Two girls chose to pursue an independent project in which they decided to write a story of their own based on two characters from books by Patricia MacLachlan. They also wanted to act the story out to the class. Behind them, a new student listened to a book on tape because he needed to sound out all the words. The teacher and researcher were able to reach most of the class for one-on-one conferences. By the end of the intervention, the independent reading time expanded to about 30 or 45 minutes each day; the atmosphere in the classroom created a relaxing environment for the students to focus on their independent work.

A Third Grade Class Implementation of the SEM-R

At 11:00 a.m., the young, experienced female teacher directed her class of 18 third graders to the small, cramped 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 to hold a stuffed animal 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 her enjoyment of this illustrator's work. Next, she read the entire book aloud to the class, and most students appeared to enjoy listening to the story. The teacher stopped several times to move students or speak to them about their behavior on the rug. After about 30 minutes, the read-aloud session was done and students proceeded to SIR.

The students took about 15 minutes to transition from Phase 1 to Phase 2. During SIR, the students all sat at their desks, which were positioned in groups of 4 or 5. 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; however, as students returned books to the bins, they did not pay much attention to returning their book to the correct bin. Some students immediately began reading silently, while others had great difficulty focusing on their own independent work.

The teacher and researchers circulated throughout the room, conducting one-on-one conferences with students. The teacher gravitated toward those students having a difficult time getting started. She spent a great deal of time reminding these students to sit down and read their books. Some students were reading picture books and non-fiction informational books and began by doing a picture walk. Others read short chapter books. After 15 minutes, it was time to stop reading and the students got ready for lunch. Many students jumped from their seats to get in line and seemed glad it was time to stop reading.

During another day's events in the same classroom, the Phase 1 introduction time was spent reading and discussing a section from Roald Dahl's *The BFG*. The teacher began reading the first chapter. As she was reading, she stopped and asked students to repeat some of the descriptions that they heard; they were to visualize the scene and characters. At the end of the chapter, the class made a list on chart paper of things the dark creature had with him. They also listed all the descriptive, detailed characteristics of the characters that they remembered. Finally, the teacher had one student come up to the easel paper to draw the scene. The rest of the students shouted out items that he needed to include. The teacher tried to lead the student illustrator by rereading several sentences detailing the specific scene she wanted him to draw. At this point, 40 minutes had passed leaving little time for SIR. Once the illustration was done, the students spread out to begin their independent reading.

Another new addition to the procedures in the class was the conference sheet in the student reading log. The copy is just a hand drawn sheet titled *Reading Conference Notes*. The page was divided into three columns headed *What I Observed*, *What We Discussed*, and *Next Step*. This new sheet was a helpful guide for the teacher and researcher to know when a student's last conference was and the results of that conference.

Over the 2-month intervention period, little change or progress was visible in this classroom. For instance, the teacher repeatedly redirected several students to start reading silently. Two of these boys started reading books on tape. However, rather than challenging themselves to continue reading more books, they rushed through as many books as possible. The researcher went to the library to find more books on tape to make available to them. Students continuously returned to the classroom library to choose new books to read before finishing current selections. Both the teacher and researcher spent conferences removing a pile of books from a student's desk and sorting through them to

find those of an appropriate level for independent reading. With all the student interruptions, both the teacher and researcher found it difficult to reach many students for conferences during one day's session.

Additionally, many students did not change their own reading habits. The independent reading time increased slightly to about 35 or 40 minutes, but only half the class read during this time. In addition, the amount of time for independent reading continued to vary greatly rather than steadily increase. Some students continued to spend the time talking with the neighbors or cleaning their desks. One girl continued reading books below her level and refused to find books that were more challenging even if about an interesting topic. Several other students chose books that seemed interesting from the cover or because of familiar characters; yet these books were far above their reading level and became too hard to read and comprehend.

None of the students asked to visit the library to find books on their own interests. In addition, the teacher did not introduce any opportunities for students to self-select topics for investigation or any other student options as outlined in Phase 3. In fact, the only project related to books was a project the teacher assigned to the whole class. The students were told they needed to read a chapter book of their own choice, in either English or Spanish. They were then told to draw an illustration of an important scene from one chapter. This illustration was to be attached to one side of a cereal box, which would become a summative assessment of the students' understanding of the chapter book. Several students had a very difficult time reading chapter books since they were too far above the students' reading level. The teacher allowed them to read just one or two chapters of a book. The project itself was not given a specified time in the daily schedule until the final week before the due date. The teacher then used the 1-hour reading block for students to work independently either on reading their chapter books or drawing their illustrations.

Components of the SEM-R Instruction That Teachers Would Use Again

When asked which components of SEM-R that they would use again in their classrooms in the subsequent year, teachers from both schools expressed very similar opinions. The component mentioned most often was the individualized approach that enabled students to have freedom to choose. This was followed by their beliefs about the importance of the book hook part of the SEM-R and the conferences during SIR that they believed enabled them to be more effective at meeting the needs of all students.

Most often, teachers mentioned their pleasure with having choices themselves and being able to give choices to students. Teachers said that they would continue to use the "challenge and choice" approach for the benefit of their students, and this included a wide range of students from high achieving to students identified as having special education needs. Representative comments about this included the following:

> The individualized reading was so enjoyable. I found the basal program brutally boring! The same activities each day followed by the same kinds of questions.

> The same work sheets each day were mind-numbing. I hated it!! I loved doing the individualized stuff. The project component was interesting. I think I need some more direct skill instruction for some of the kids, but I loved the read-alouds. I really loved the freedom to read selections to the kids that I knew that they would love.
>
> I would incorporate some of the components: the independent reading and the kids' choosing their own books. The children loved this and looked forward to reading every day. I would use book hooks, as well, as they really seemed to love this. I did reading reflections at the beginning of the day and monitored the quality.
>
> Student choice was a huge factor for me. I had no idea about how much choice influences students. Next year, I will structure my reading program differently. Now, we read novels for the class, and I pick two novels based on reading ability. Next year, I will choose a theme and then let the students select books in which they had a sincere interest. Some of the boys who did not have an interest have learned to follow their interests, and the kids can direct their own interests now. The kids loved the book hooks.
>
> I will incorporate the level of challenge into my classroom next year. For students at or above grade level, I will continue with this approach, as I loved the independent choice it gave students.
>
> I loved the program because of the freedom and creativity I experienced.

Several teachers discussed the positive impact of the program on students of different achievement levels.

> The special education students were very motivated by allowing them to choose a book and then follow up on a project that was related to the book. Freedom of choice was a big issue for these students. Some of these kids got to choose what they were doing in school for the first time. One little boy did not want to be told what to do at all, and he just flew and made major strides with the choices he had been given. With some of the other students, I did have to rein in the choices, for they were choosing books that were not appropriate for them.

Many also mentioned the instructional benefits of conferencing with students, explaining how they would extend this option and how they might add other components such as parental involvement, small group skill lessons, and the individualizing of teaching the skills.

> I would definitely like to build up to an hour of reading 4 times each week. I really like the conferencing. I would do mini-lessons with lower readers to make the skill acquisition more efficient. I would add a parent component. I also loved having new kids in my class for the semester.

> I like the conferences. I felt I had a much better grasp of where my students were using this program. I also felt I could keep better track of my students' progress by using this program. I have a parent conference coming up, and I can document all of their skills because of the conferences I have done so often with all of the kids.
>
> I think that the kids really enjoyed the individual conferences. I really loved that part of the program, because they let me spend time with every child and really think about reading choices and reading growth for each student.
>
> I enjoyed the one-on-one conferences with the kids and found the process interesting but hard. I was always running around the room trying to find the perfect books that would challenge the kids. I was always trying to find the right pages where the kids left off in the books when kids were doing books on tape. But I enjoyed the challenge and loved doing different things.
>
> I really liked the conferences. I tried to help some of my kids gain individual strategies during conferences. It worked with some students, but it would be easier for me to group the kids together who did not have the strategies for short lessons in strategy use. Next year, I will try to occasionally group some of the students together to have them learn the skills. I was able to individually identify the lower readers very easily by using the SEM-R. The individual conferences were so helpful.

The use of book hooks was also mentioned by many of the teachers who specified how much they enjoyed this aspect of the SEM-R because of the creative options it provided them as professionals, as well as the way their students reacted to them. Many teachers mentioned the personal satisfaction they experienced when the students followed up on the book hooks that they had used in class. Many said they enjoyed this aspect, explaining:

> I also loved the book hooks!! Midway through, the kids asked if they could give me book hooks to read aloud to the class. I read all different types of genres, and many of the kids asked for the books. For example, I did a hook from *Among the Betrayed* and *Among the Imposters*. These are science fiction type books about the future. Every kid in the room wanted to read them, and it was so much fun to see the reactions to so many kids wanting to read.
>
> The book hooks worked so well, and so many of my students followed up on the book hooks. One girl bought the whole *Narnia* series after my hook from *The Lion, Witch and Wardrobe*. That was very gratifying to me. I did find that a lot of the kids were taking suggestions from me and really thinking about what they would read next.
>
> I loved the book hooks!! The kids loved them and the special education students did, too. All of my students did well. I stopped choosing my own books for the

> book, because the kids were bringing in the book hooks and begging me to read them in class.

About half the teachers interviewed mentioned the specific areas, but the other half indicated that they would use the entire SEM-R; all mentioned specific ways that they would modify SEM-R for their classrooms. It was obvious during interviews that these teachers had thought about this, as few reflected on the question and many answered immediately, indicating that they had been considering this throughout the intervention. Representative responses included the following:

> I would probably use the entire program 2 days a week. I would use 3 days a week of the other one, the basal program. I would then be able to model summaries and teach more of the skills. I might alternate with some of the skills. I would do the book hooks definitely. I would use the Phase 2 and 3. I think the higher the grade level reading material, and the more I could do Phase 3 with the kids, I would. I loved the creative aspect of this program. I used the time to focus on my class language arts skills.

> I would like to keep the whole group going and using this program. I would use the entire SEM-R process. I would roll in other skills with the SEM-R, using grammar or reading skills by capitalizing on every child's interests and finding books. I would tie this into what I was doing. I found a great book to help me do this. The writing component of this was something I would enhance. I would definitely use the book hooks. I needed time to tie in the rest of the skills, and I really got into the book hooks. I have always liked this concept of book hooks and freedom of choice in a reading program.

> I would do the book hooks, the silent reading, with the conferences. It is funny that I had not thought of doing that on a regular basis. I would try to do the Phase 3 again in my own class, where I could give them more freedom and more time.

> I would incorporate half an hour a day with book hooks and independent reading options. I love this program. I would continue to do all of it if I could. I would look for challenge and do the conferences. *DEAR* was drop everything and read, but it was free choice and almost all of my kids chose easy books and often, books that they had read before—or what you call *comfort* books. I would do the SEM-R instead of DEAR, 'cause it makes kids read the more challenging stuff. I also have kids make their own bookmarks, and that worked so well. I encouraged them to come up with an easy question, a medium question and a hard question and then they leave their own book marks in the book for their friends. Their friends got a kick out of comparing the bookmarks you had created, and they used with the bookmarks that their friends had made. The best part of this program was the challenge and the independence of the kids, and I would use it again.

> I would definitely use the book hooks again, and I loved sharing my favorite books from when I was a kid. Many of them also loved the reading of an entire

> chapter book together. Conferencing was also something that I would do again. I would also do the 20 minutes' daily reading at their appropriate level.
>
> I have always used reading workshop, but what was different about this was the challenge level issue that I had not previously considered. I have always had kids choose books, but in this case, they read books that were harder for them. There was positive peer pressure to improve and to read more challenging material. I saw great gains in the assessments I just finished.
>
> In the future, I want to incorporate more of the enrichment aspect of what we did into my reading classes. I would try to have kids read independently with challenge and choice. The enrichment activities were also excellent. The book hooks were also really neat, as I would probably start every class that way. It was easy to capture the kids' imaginations that way.

These responses suggest three findings. First, teachers participating in SEM-R had really thought about their own reading instruction and practices and had considered how they could transfer more of an enrichment approach into their classroom reading practices using choice, interest, and creativity. Second, most seemed to want to integrate the SEM-R approach into their regular classroom reading program, suggesting that the SEM-R was regarded as a way to differentiate their teaching through the use of enrichment. Most seemed to want to enrich their basal reading program to offer more challenge and choice as well as opportunities for imagination and creativity in reading. Third, their comments and in-depth interviews suggest that the best approach would be a combination of a basal program for specific teaching of skills and writing and the SEM-R for teaching self-regulation in reading and providing opportunities for students to enjoy reading and pursue individual interests through reading.

CHAPTER 6: Discussion

At the beginning of the intervention with SEM-R in Year 1, a large majority of students in the treatment group could not sustain independent reading of high interest self-selected books for more than a few minutes. Both classroom teachers and the research team considered students' lack of attention and self-regulation as key factors in this inability to read beyond 5 minutes. The majority of third grade students in one school could not read silently and whispered to themselves as they read. During the course of the SEM-R intervention, self-regulation strategies were provided, in addition to strategies for sustaining reading time, as were strategies to increase reading fluency and comprehension. At the conclusion of the first year of the intervention, almost every student in all seven of the SEM-R intervention classrooms achieved 30-45 minutes of SIR in one period, a major achievement for the majority of students who previously could not read for more than a few minutes at one sitting.

Attitudes toward reading also significantly increased in the treatment group in comparison with the control group. The school and district literacy consultant called these results remarkable and invited us to try the intervention in other schools in the district. Post-test results in reading fluency revealed significant differences in reading fluency favoring treatment groups, and significant differences were found in the *ITBS* test of reading comprehension, also favoring the treatment group. Significant differences in increased attitude toward reading favoring the treatment group were also found.

Although students in the control classrooms received high-quality, engaging reading instruction, several key features differentiated the SEM-R intervention from what had already been in place. First, students in the control classrooms were rarely observed reading silently from self-selected material for more than a few minutes during reading class, especially in the younger grades. Independent reading of self-selected material was never regularly scheduled and was typically used as either a transitional or anchoring activity. In all classes, students were more likely to be assigned a selection of literature to be read silently in order to participate in an activity, complete a worksheet, or develop a piece of writing.

Most importantly, a majority of the instruction in the control classrooms was whole group instruction. Typically, all students often read the same class novel or textbook selection, regardless of their reading level. Few accommodations were made to meet the needs of either struggling or talented readers. These findings are similar to those of previous research studies exploring the use of differentiation in heterogeneously grouped reading classrooms (Reis et al., 2003). As a result, students had limited opportunities to pursue their own interests or read at a level other than that of the average student in their grade.

An ongoing debate and considerable research continues to be associated with reading instruction and the development of literacy in children of diverse achievement from different cultural groups. The ramifications of these research findings and the

associated debate constitutes a broad and fundamental rationale for policy development relating to reading achievement. Currently, remedial approaches and test preparation are regularly used in an attempt to increase the test scores of many low scoring students in this country, especially those who live in poverty. Little experimental research is used, however, to examine the achievement of students who receive test preparation and remedial work, as compared to students who receive other types of reading instruction. No research was found that examines the use of a direct instructional program such as SFA with an enriched supplemental reading approach. In addition, no research was found comparing the use of remedial instruction to an enriched reading program. Indeed, few experimental studies have investigated which reading programs have the most positive outcomes for culturally diverse, urban students who achieve at differing levels. One problem encountered by policy makers and those responsible for the selection and implementation of classroom reading programs is the lack of experimental research that explicitly and unambiguously indicates the strengths and shortcomings of various pedagogical practices in the areas of reading comprehension. This study was conducted in an attempt to add a rigorous experimental trial in an urban educational setting using an enriched approach combined with a direct instructional approach (SFA), compared to using a remedial program to augment SFA.

We found that the treatment group scored significantly higher than the control group in reading fluency, achievement, and attitudes toward reading after only a 10-week intervention, suggesting that a student-centered enrichment-based reading program added to SFA was more effective than a program of remediation and test preparation added to SFA. The SEM-R is not intended to be a complete language arts or reading program or as a replacement for any instructional program for students who have yet to master basic reading skills. In fact, the SEM-R framework is suggested as an addition to a core reading program to improve attitudes toward reading, reading fluency, and comprehension and appears to be most effective for those individuals who have transitioned from learning to read to reading to learn. A discussion of specific research findings follow.

Reading Fluency

Results indicate significant mean differences in post-intervention reading fluency scores between conditions favoring the treatment group across all reading fluency levels. The overall trend for this sample is indicated by the generally higher (treatment) or lower (control) means for each level within the treatment and control groups. This trend was somewhat unexpected, as it was thought that students with lower reading fluency might require a longer involvement in the treatment program for more pronounced effects. In addition, and especially for the below-average reader, problems with basic text decoding may have an effect on this trend. Conversely, it was noted that high-level readers in the control group, who might be assumed to have fewer decoding problems did not display proportionately greater gains than either the low or middle level readers. However, while reading fluency requires the application of basic decoding skills, this is only part of the reading process. Comprehension is also implicated in the degree to which one reads

fluently; fluency improves as a students' ability to understand, interpret, and critically analyze texts progresses (Juel, 1988; Pinnell, 1995). Increased fluency is not open ended; as interest in the subject matter and ability to add expression increase, we may decrease our oral reading rate for audience impact. Evidence for the association of fluency and comprehension can be found in this study by examining reading comprehension scores. As might be expected, we found the highest comprehension scores associated with the highest reading fluency level group.

Attitude Toward Reading

Statistically significant treatment effects were found in favor of the treatment group with no interaction effects. Results in this category indicate that the highest attitude toward reading gain scores and effect sizes were achieved by the lowest reading fluency level group. These same students had the lowest mean pre-intervention scores on these measures, suggesting that they had the least favorable disposition toward reading of all three reading fluency level groups. This finding suggests one specific outcome expected of the intervention was a positive increase in the favorable attitude of readers, especially those students who do not initially view reading favorably. The outcome of an unfavorable inclination toward reading, called the "Matthew Effect" by Stanovich (1986), may eventually affect these learners' growth:

> Unrewarding early reading experiences lead to less involvement in reading-related activities. Lack of exposure and practice on the part of the less-skilled reader delays the development of automaticity and speed at the word recognition level. Slow, capacity-draining word recognition processes require cognitive resources that should be allocated to comprehension. Thus, reading for meaning is hindered; unrewarding reading experiences multiply; and practice is avoided or merely tolerated without real cognitive involvement. (Cunningham & Stanovich, 1998, p. 8)

If a positive relationship exists between attitude toward reading and the motivation to read as Alexander and Filler (1976) suggest, then a positive attitude toward reading resulting in a positive motivation to engage in reading activities may be used to ameliorate the Matthew Effect. The lesser gain scores for middle and high reading fluency level readers in the treatment group may reflect a generally positive and stable level of interest in the activity perhaps based upon their relative mastery of the skill.

The mean attitude toward reading difference scores declined for all levels of the control group, while scores increased for all levels of the treatment group. While no claims of causality can be made about the use of the SEM-R, the only difference in activity between the two groups took place during the afternoon reading sessions in which the SEM-R program was implemented. The control group was engaged in a second round of direct, remedial instruction while the treatment group focused on enrichment including exposure to a myriad of styles, authors, and genres; student selected high-interest books, and an opportunity to choose reading activities based on interest.

The modest effect size of the treatment effect lends experimental credibility to discussions regarding contextual effects that increase motivations to read (Guthrie & Alao, 1997).

Another important area to consider is the decline in the gain scores for the high reading fluency level readers in the control group. Direct instruction has been suggested as an effective and efficient means of raising students' levels of reading fluency and comprehension (Slavin et al., 1992; Slavin & Madden, 1999, 2000). While direct instruction may be a useful remediation measure, the long-term effects of direct instruction on student affect and cognitive development is unclear. Some research suggests that the continued use of remedial instructional programs beyond the time when an individual has attained a certain degree of competency in reading comprehension may have a negative impact on the continued development of self-regulated learning behaviors in reading (Risemberg & Zimmerman, 1992; Wingenbach, 1982; Zimmerman & Pons, 1986). Our research suggests that some high-potential readers, who have marked differences in levels of self-regulated learning, may be negatively affected by their participation in remedial reading activities when added to a structured direct reading program.

Reading Comprehension

In general, mean comprehension scores of the students who participated in the SEM-R were higher than control, as indicated by a significant main treatment effect and higher estimated marginal means for the treatment group across all reading fluency levels. As LaBerge and Samuels' theory of automatic information processing in reading (1974) indicates, and as suggested by a strong and significant reading fluency main effect, comprehension scores are most highly associated with reading fluency ability. In addition, students with the highest reading fluency were also associated with the highest comprehension scores followed by the medium and low group readers. Another dimension to reading comprehension is the important role of interest; citing numerous studies supporting this position, Hidi (2001) suggests that:

> Children . . . who have individual interests in activities or topics focus their attention, persist for longer periods of time, and enjoy their engagements more, are more likely to use strategic processing and tend to learn and write better than those without such interests. (pp. 202-203)

In addition, we made consistent attempts to have all students engaged in reading books that were matched according to interests and were slightly above their current level of reading, as suggested by Chall and Conard (1991). The hallmark of the SEM-R is a focus on encouraging and developing individual students' interests for the purpose of sustained engagement in reading. The results of the present study indicate that the SEM-R was effective in helping students who participated in an enriched additional literacy block score significantly higher in comprehension, fluency, and attitudes than a control group of students who participated in remedial reading activities.

Extending the SEM-R to Students of All Achievement Levels

The federal report *National Excellence: A Case for Developing America's Talent* (U.S. Department of Education, 1993) includes the following goals: provide more challenging opportunities to learn, increase learning opportunities for disadvantaged and minority children with outstanding talents, broaden the definition of gifted, and emphasize teacher development. This report emphasized the role that gifted education programs have had on general education, suggesting that they have served as "laboratories for innovative and experimental approaches to teaching and learning" (p. 23).

The report further called for the improvement of education for *all* of America's students and stated that schools must incorporate more advanced materials into the regular school program; provide all students with opportunities to solve problems, analyze materials and situations, and learn from real-life experiences; and serve students identified as having outstanding talent in many places—both in and out of school, as well as to create flexible schools that enable all students, including the most able, to be grouped and regrouped according to their needs and interests.

The application of SEM-R meets these challenges, as it was designed to offer all students the opportunity for challenging, self-selected reading experiences based on students' interests. Gifted programs have developed an impressive menu of curricular adaptations, independent study, and thinking skill strategies that can be used to improve education for all students (Renzulli, l993; Renzulli & Reis, l991; Tomlinson & Callahan, l992; U.S. Department of Education, l993). Renzulli (l993) believes that two reasons explain why practices that have been a mainstay of gifted programs are being absorbed into general education to upgrade the performance of all students. The first reason concerns the limited success of remedial-oriented compensatory education programs and practices, and the second reason is the success of practices developed in gifted programs and the need for these practices to be included in the regular curriculum. "All students should have the opportunities to develop higher order thinking skills and to pursue more rigorous content and first-hand investigative activities" (Renzulli, l993, p. 2). The application of gifted program know-how into general education is supported by a wide variety of research on human abilities (Bloom, 1985; Gardner, 1987; Renzulli & Reis, 1985; Sternberg, 1985). This research provides a clear justification for much broader conceptions of talent development and argues against the restrictive student selection practices that guided identification procedures in the past.

The national report also indicated that although most of these strategies and programs were not designed exclusively for gifted students, they often are not implemented in regular education. The report suggested that the reasons these strategies and programs are not widely implemented may be that general educators do not realize the potential that exists in these opportunities for improving all of American education, and that little research exists to gauge the effectiveness of these programs. This study seeks to add to the limited research base currently available that assesses the benefits of the extension of gifted education pedagogy to the entire school population.

Limitations

Inherent limitations exist in small-scale, survey-based studies. Student self-reports of attitude may be less than candid and may represent students' perception of what their teacher or the researcher would want them to say. Additionally, treatment diffusion is always a concern. We were as diligent as possible in monitoring this intervention regularly during the time research teams spent in the classrooms, resulting in the elimination of North Corner School from the analysis. The treatment group in Center Public School described in this study was separated from the control group. However, students did change classes in Center Public School during the day, and they were in contact with some members of the control group, as were the teachers.

Due to the nested design, it may appear that a limitation to the study was the decision to use ANOVA and ANCOVA procedures. However, the introduction of multilevel modeling techniques would not have significantly added to our understanding of the questions concerned with effects at the treatment group level (aggregated data) rather than at the individual student level. Given the small sample size, the fact that there were only four classes in each treatment condition, the emphasis placed by the intervention on individual student instruction and achievement, and our interest in examining achievement clusters across grades, the use of hierarchical modeling seemed unnecessary in this study.

Next Steps

While there were observable changes in reading practices on the part of the teachers and students, potential for greater gains existed in these schools. Future research will take into account these suggestions. It took 8 weeks for the treatment teachers to gain a level of comfort with the different phases of the intervention and in the final 2 weeks, each of the teachers began to understand the intervention, personalize their implementation, and take ownership of the SEM-R. If the intervention were extended perhaps for as long as a semester, teachers might become comfortable with the different phases, and students might make greater gains.

Second, while students and teachers worked to keep accurate reading logs during the intervention of Year 1, a number of difficulties emerged in the use of the logs. Modifications to the student reading log prior to Year 2 improved its usefulness. Many students struggled to remember the number of minutes read at home and school. The logs were altered to include the number of minutes read. This reduced the transition time before SIR and increased class reading time.

Another suggestion might be to alter the format for the literacy block for Fridays. Monday-Thursday could focus on Phase 1 and Phase 2 and Friday could be used for independent interest investigations perhaps leading to Type III studies as defined in the Enrichment Triad Model (Renzulli, 1977). Many teachers in the second year of the study were successful in using Fridays for Phase 3. These independent explorations may not

occur during the first weeks, but having a larger block of time to explore interests could have an impact on the depth of the students' investigations and their potential product development in these areas of interest.

Importance of the Study

Urban schools often have high numbers of English Language Learners, minorities, and students of lower socioeconomic status. The two schools in which the SEM-R was implemented in Year 1 are in urban areas designated as high poverty schools. They each have a population of over 90% culturally diverse students and over 90% of students in both schools qualify for free and reduced lunch. The study resulted in an increase in reading achievement, attitudes toward reading, and self-regulation.

Little experimental research has addressed reading enrichment experiences as suggested by the SEM-R. In this study, the SEM-R raised the ceiling to increase reading scores for all students. Specifically, we found improvement in the following areas:

- Increased reading fluency and achievement test scores in reading;
- An increase in the ability to read silently and sustain attention to reading, as well as total hours spent reading and number of books read;
- Positive enhancement of students' attitudes toward reading in general.

Evolving from the ideas of philosophers and including William James, John Dewey, Howard Gardner and Albert Bandura, and coupled with previous research on the SEM, Renzulli defined four principles as the basis of the enrichment learning and teaching recommended in the SEM and incorporated into the SEM-R (Renzulli, 1994):

- Each learner is unique.
- Learning is more effective when students enjoy what they're doing.
- Learning is more meaningful and enjoyable when content (for example, knowledge) and process (for example, thinking skills) have a real problem as their context.
- Enrichment learning and teaching focus on enhancing knowledge and acquiring thinking skills.

The implementation of the SEM-R attempted to develop reading talents in all students; the goal of this intervention was to increase reading achievement and motivation to read in every child. A basic tenet of the SEM is that when motivation is increased, students enjoy learning more, and motivation is enhanced when students are able to select certain components of their reading program. Implementation of the SEM in reading began by placing the *act of learning* at the center of the change process. The learning process in the SEM-R highlights the most important components that students bring to the act of learning: (1) their present reading achievement levels and the need to continue to provide increasingly advanced opportunities in reading, (2) their interest in particular topics and the ways in which we can enhance current interests and develop new

interests in reading, as well as encourage more advanced reading; and (3) the preferred styles of learning that will improve the learners' motivation to pursue advanced reading material.

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APPENDIX A

Instruments

READING INTEREST-A-LYZER©

Based on the Interest-A-Lyzer by Joseph S. Renzulli

Name _____

Grade _____ Age _____

1.) When I read for pleasure, I pick the following (Check all that applies):

- ☐ Novels/chapter books
- ☐ Sports books
- ☐ Poetry books
- ☐ History books
- ☐ Biographies
- ☐ Cartoons/comic books
- ☐ Newspapers
- ☐ Fantasy books
- ☐ Science books
- ☐ Other _____
- ☐ Humorous books
- ☐ Magazines
- ☐ Mystery books
- ☐ Scary books

2.) If I were in charge of my reading/language arts class, I would have any students do 10 of the following activities (Check 10):

- ☐ Write a story
- ☐ Write a book
- ☐ Write a poem
- ☐ Write a newspaper article
- ☐ Talk about a book with a friend
- ☐ Write a play
- ☐ Give a speech
- ☐ Read a favorite book again
- ☐ Read a challenging, new book
- ☐ Tell a story
- ☐ Make a cartoon or comic
- ☐ Learn a different language
- ☐ Listen to someone read aloud
- ☐ Learn sign language
- ☐ Create a game or puzzle
- ☐ Learn about an author or illustrator
- ☐ Read a poem
- ☐ Write the story of your life (autobiography)
- ☐ Draw/illustrate a story or poem
- ☐ Read a true story
- ☐ Read a biography or autobiography
- ☐ Read a crossword or other word puzzles
- ☐ Work on a crossword or other word puzzles
- ☐ Read a book aloud
- ☐ Watch a play/movie of a book that you have read (Spanish, French)
- ☐ Write a story about someone's life (biography)

3.) I am most likely to read a book for pleasure that:

☐ A teacher suggests
☐ A librarian suggest
☐ Is by an author whose books I have read
☐ My friend suggests
☐ Has won an award
☐ I just happened to see (hear about) in _____

4.) Three favorite books that I would take on a month-long trip are:

1. _____
2. _____
3. _____

5.) In the past week, I have read for at least half an hour (30 minutes):

☐ No days ☐ 1-2 days ☐ 3-4 days ☐ 6-7 days

6.) In the past month, I have read _____ book(s) for pleasure:

☐ No books ☐ 1-2 books ☐ 3-4 books ☐ 5-7 books ☐ 8 or more books

7.) My favorite time to read for pleasure is:

☐ Never
☐ During school
☐ Lunchtime
☐ In the evening
☐ Whenever I can
☐ In the morning before school
☐ During the midmorning
☐ After school
☐ Before falling sleep
☐ _____

8.) When I read I like to: ☐ read one book ☐ juggle more than one book at a time

9.) I like to receive books as presents. ☐ YES ☐ NO

10.) I view books a presents. ☐ YES ☐ NO

11.) I have a library card. ☐ YES ☐ NO

12.) If I read a book that I like, I am likely

to read more books by the same author. ☐ **YES** ☐ **NO**

13.) If I read a book that I enjoy, I am likely to read more books about that topic. ☐ **YES** ☐ **NO**

14.) I borrow books from the library:

☐ Once a week ☐ Twice a week ☐ A couple of times a month
☐ Every few months ☐ A few times a year ☐ Hardly ever
☐ Never

15.) The number of books I have at home:

☐ None ☐ Less than 10 ☐ 11-20
☐ 21-30 ☐ 31-40 ☐ Too many to count

16.) If I could meet any literary character (for example, Laura from *Little House on the Prairie*, the Lion from *The Wizard of Oz*, Harry from *Harry Potter*, Curious George, Arthur, Babar) I want to meet:

- _____
- _____
- _____

17.) Where is your ideal reading spot?

☐ Bedroom ☐ Living room ☐ Family room
☐ Public library ☐ Kitchen ☐ Bookstore
☐ Car ☐ Home library ☐ Other _____

18.) The last three books that I have read are:

1. _____
2. _____
3. _____

REFLECTIONS

Name: _____ Date: _____

READING LOG

Name: _____ Date: _____

Monday

Minutes Read: _____

Book Title: _____

Tuesday

Minutes Read: _____

Book Title: _____

Wednesday

Minutes Read: _____

Book Title: _____

Thursday

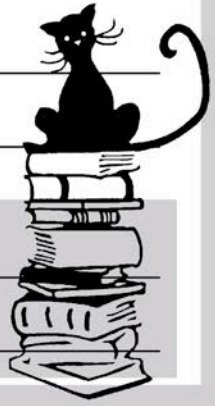
Minutes Read: _____

Book Title: _____

Friday

Minutes Read: _____

Book Title: _____



APPENDIX B

Qualitative Findings for North Corner School

Qualitative Findings for North Corner School

Increase in Students' Ability to Focus on Reading

The most promising observation that occurred during the 10-week intervention in North Corner School was the increase in student ability to self-regulate and focus on reading. In all 3 classes, an increase occurred in the number of minutes students were able to read their self-selected books. In addition, changes were observed in students' attitudes toward reading and the literacy block class. The following scenarios highlight some of these changes.

Teacher 1's third grade class transformed from the beginning to the end of the SEM-R study. Initially, students required constant teacher support to maintain their focus and to increase their self-regulation during both their SIR and their center time. By the end of the 10-week intervention period, these students could maintain a focus during SIR for extended periods of time and work independently at the centers for up to 20 minutes. These young students made great strides toward becoming more independent, effective, and efficient readers.

During week 3 of the intervention, Teacher 1 asked her students, "Why do we read?" Students responded with statements such as, "For fun," "to learn new words," "to get around in different places in the world," "to be able to ask for directions," "to get information," "to get a good job when I grow up," and "because I am interested in a particular book." One student, a struggling reader, explained, "I read so my mind can learn how to read and express my brain." This young student was virtually a non-reader, yet his statement expressed a deeper understanding of why one reads.

In Teacher 2's fourth grade class, two important changes were observed during the SEM-R intervention. First, two girls in the class spent the first 7-8 weeks of the study acting as if they were reading or, as another student explained, "They're faking it." By the eighth week of the intervention, both girls found books that captivated their interests, and their behavior changed. One girl was so excited about the book she was reading that when asked about it, she jumped out of her seat and darted across the classroom to get her log so she could show the observer the book.

Three boys experienced similar improvement stories. One boy was an English language learner who became so excited about reading his first book that he raced across the room to share the news with the NRC/GT researcher. His face ignited into a huge smile and his eyes twinkled. Another boy was a highly able reader whose initial goal during the SEM-R seemed to be to distract his classmates. When this student was provided with the opportunity to read books in his interest area, oceanography, his classroom behaviors changed drastically. He no longer interrupted peers but read books, and during the 10-week period he devoured several non-fiction books on aquatic animals and an abridged version of *20,000 Leagues under the Sea*.

A third student became so interested in Teacher 2's books on Medieval times that he read all the books in the room on the subject. Upon seeing this interest, Teacher 2 looked for a book in the school library entitled *Merlin* and shared it with him. After reading the first few pages, he became so interested in the story that he moved his chair away from his tablemates and into a corner, facing the wall so he could be "alone" with his book.

In Teacher 3's fifth grade class, four students expressed a distinct interest in four particular areas: dinosaurs, theatrical make-up, submarines, and famous African-Americans. Three of these interests were at an exploratory stage, but the student who was interested in famous African-Americans decided to document his reading about significant African-Americans who had made contributions to our society by writing a journal. He explained that his goal was to know more about these individuals if he heard their names in the future. This student demonstrated a readiness to pursue more in-depth study than the majority of his peers. If more time and support had been available, this child might have developed a product to share with a real-world audience.

The changes in students' reading behaviors demonstrated the impact of student choice in reading and the need for increasing student opportunities to read for extended periods of time. These students stopped "faking it" and began to read actively for up to 45 minutes without any interruptions or distractions. They were transformed from distracted students who could not read for more than a few minutes to more focused students who read books for up to an hour.

Teacher 1

Teacher 1 utilized the first 5-6 weeks to model and teach students how to choose books and to use successful reading strategies to increase the SIR focus, as suggested in the training provided for the SEM-R. Reading strategies included choosing a book by examining the front and back covers for clues, reading the inside cover, reading a minimum of 10 pages before rejecting the book, looking at the illustrations, and leafing through the book. For example, during one observation, Teacher 1 shared a personal story about how her opinion changed about a book after using these strategies and how she found a book she enjoyed and almost missed it. Teacher 1 had the most effective implementation of the SEM-R.

Daily observations in Teacher 1's classroom over the 10 weeks indicated that students' ability to maintain interest during read-alouds increased, as did their ability to focus during SIR. The time that the majority of students were able to read silently increased from 15 minutes to 30 minutes with an average of 16 out of 20 students actively engaged during the 30-minute SIR period. This increase occurred despite Teacher 1's absence from instructional time for over 3 weeks and her replacement with a teacher who lacked skills in classroom management and comfort with this program. In addition to changing the students' pre-reading skills and SIR focus, Teacher 1 exposed her students to a variety of topics not traditionally found in the third grade curriculum. These topics included fiction and nonfiction books on Egypt, ocean life, and author

studies. Several Mary Pope Osborn partner books were utilized, and this fiction captured an initial interest, while the non-fiction partner books supplemented students' initial interest with factual information.

According to the North Corner library policy, no student was permitted to check out more than one book per week from the school library. Likewise, once a student had lost a book, the student was never again allowed to check out a book. Teacher 1 ordered additional reading materials, choosing to use her own money to purchase multiple copies of high interest books. This process enabled students to have high interest books that they could take home to read. Teacher 1 explained that she understood that these books might not be returned to the classroom library, but her goal was to motivate the students to read and enjoy books, as that was important.

During the eighth week, the third grade class began working in small groups in the interest centers, reading on the Internet, listening to books on tape, enjoying the creativity activities provided as a part of the SEM-R, and continuing with SIR. Teacher 1 modeled the way to use each of the centers, providing students with the necessary skills to work independently and successfully at the centers. The students demonstrated success with this freedom during the last 2 weeks of the intervention. All students worked at each of the centers at least once a week. Students' enthusiasm for the centers was seen in their focus on the activities and the speed with which they transitioned to centers and began work.

The Use of Structured Reading of Above Grade Level Material

Students consistently maintained their reading behaviors when assigned to the reading center and often did not look up from their books during the transition time from regularly scheduled SIR to center time. During the first week of the SEM-R intervention, most of the students could not find books that they wanted to read and had a difficult time settling down to read. By the eighth week of the intervention, all seemed to have developed a connection to their chosen books and did not want to stop their reading.

Computer Center

The computer center attracted the most interest from the third grade students, as their traditional daily schedule did not provide time to work on the computer. When this center was introduced in the literacy block, students initially wanted to play on game sites. Teacher 1 quietly and consistently redirected their attention to sites that focused on an interest area or favorite author, or on the biographies that were suggested as a part of the SEM-R. The activities included in the SEM-R book provided as part of the intervention served as a support mechanism for the teacher and students. By week 10, students had visited multiple sites, including sites about ancient Egypt and their favorite authors' lives. They had also read summaries of a variety of high interest books.

Listening Center

After one day of teacher modeling, the students used two different listening centers. Students retrieved the books, tape, listening station and headsets, plugged everything in, and listened to a read-aloud in a matter of minutes. The listening tapes were recorded so students listened twice to a passage from the book, followed by listening to a partner read the same section. All these actions occurred with minimal teacher involvement.

Teacher 1 implemented the SEM-R, and her class responded accordingly. Observations in her classroom indicated that students gained independent work habits and increased their desire to read during the literacy block class. The students expressed disappointment when the class was shortened on professional development days, saying that they didn't wanted to miss the read-aloud or time with the books they had selected.

Teacher 2

Teacher 2 had difficulty with all phases of the SEM-R, in addition to the numerous challenges he faced with discipline and management. To address his discipline problems, Teacher 2 began the SEM-R by dividing the class time period evenly into 3 phases, 20 minutes for read-aloud, 20 minutes for structured reading and 20 minutes for creativity and Internet activities. During observations in his class, students struggled with transition time between the phases. In an attempt to decrease student distractibility, Teacher 2 divided the class into two groups. After the read-aloud, he grouped students according to their learning needs. During the remaining 40 minutes, one group engaged in structured reading while the other worked on center activities with the teacher. For example, group 1 started with SIR while group 2 worked on the creativity learning center and activities. After 30 minutes, the groups switched. This format provided Teacher 2 with time to focus on the particular needs of each group and increase student success with the activities. While this did reduce the students' off-task behaviors, the quantity of time available for SIR was lessened.

At the beginning of seventh week, after several coaching attempts to improve the intervention went unheeded, the research team requested that Teacher 2 increase the duration of SIR. The time available for read-aloud and centers was no longer fixed, and the instructional grouping stopped. Because of this direct request, Teacher 2 read aloud for only 7 minutes, stopped mandating the creativity activities, and focused on increasing the students' SIR, resulting in an increase in SIR time from 10 minutes to 40 minutes with 15/18 students actively engaged during the entire 40-minute time period.

Teacher 3

Teacher 3 struggled the most with each phase of the SEM-R. During various observations of Phase 1, he was observed reading aloud hesitantly in a monotone voice. He appeared to lack the reading and/or language skills required to read with either confidence or enthusiasm. While reading *Cinder Edna* (a creative picture book) during a

read-aloud, his voice had no expression, and he stopped after every page to ask skill questions. After he had read for 30 minutes for the read-aloud (far more than the time suggested in SEM-R), he asked the students if they would like him to continue reading. The students audibly groaned. The entire experience was painful to watch, and students were noticeably bored and distracted during this read-aloud time, rather than engaged in listening to the story. Research team members read aloud when he allowed them and brought in exciting books on tape that were occasionally used, but read-alouds remained a problem.

Teacher 3 expressed concerns during the initial training session about giving students choice and time to explore biography sites on the web. He indicated his concern about student access to inappropriate sites during searches. As a result, the class was not given access to the Internet during any observation. Teacher 3 appeared most comfortable when students were on an even time schedule for each of the 3 phases and liked to structure the classroom with 30 minutes on Phases 1 and 2, despite indications that the read-aloud phase should be short and enjoyable. He announced the end of one phase and the beginning of the next, "This is the end of Phase 1. Take out your books to begin Phase 2." During visitations, some students pretended to read but were not actually reading. Numerous literacy block cancellations occurred over the 10-week intervention, hindering the increase in SIR time.

Teacher 3 required the most assistance in implementing the intervention, seeking constant reassurance during multiple class observations. He requested all coaching information to be carefully explained in writing. He did exactly what he was told, to the letter, except for shortening the read-aloud time. His instructional style and continual need for help and reassurance hindered the progress of the SEM-R intervention.

The differences in the 3 teachers' experiences appear to be connected to their comfort level with the intervention design, reading, and student choice, their readiness to take ownership of the 3 phases, and their personal teaching styles. Each teacher had students who demonstrated the ability to read for longer periods of time and showed a desire to pursue personal interests.

APPENDIX C

Mean and Standard Deviation Tables for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading

Table C.1

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for Center Public and North Corner Without Special Education Students

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	14.31 (n = 105)	13.38	10.25 (n = 43)	10.28	17.20 (n = 30)	12.66	17.05 (n = 32)	16.40
Control	11.13 (n = 111)	12.00	9.54 (n = 41)	7.31	12.48 (n = 35)	13.02	11.64 (n = 35)	15.10
Attitude Gain Score								
Condition								
Treatment	.57 (n = 89)	11.57	.51 (n = 35)	14.00	2.76 (n = 25)	10.40	-1.24 (n = 29)	9.09
Control	-2.59 (n = 100)	11.76	-3.26 (n = 35)	12.48	-1.28 (n = 29)	10.06	-3.00 (n = 36)	12.51

Table C.2

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for Center Public School Without Special Education Students

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	16.97 (n = 60)	13.98	11.24 (n = 17)	11.96	19.32 (n = 19)	12.09	19.17 (n = 24)	15.92
Control	11.86 (n = 64)	12.79	10.06 (n = 17)	5.46	14.06 (n = 17)	13.51	11.63 (n = 30)	15.29
Attitude Gain Score								
Condition								
Treatment	2.18 (n = 57)	11.05	7.71 (n = 14)	12.91	2.39 (n = 18)	11.62	- 1.08 (n = 25)	8.38
Control	- 4.06 (n = 65)	12.26	- 4.39 (n = 18)	12.86	- 4.59 (n = 17)	10.16	- 3.57 (n = 30)	13.32

Table C.3

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for Center Public School With Special Education Students

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	16.46 (n = 68)	13.62	11.52 (n = 23)	11.43	19.50 (n = 20)	11.80	18.56 (n = 25)	15.87
Control	11.51 (n = 72)	12.72	10.19 (n = 21)	5.38	14.10 (n = 20)	12.99	10.74 (n = 31)	15.83
Attitude Gain Score								
Condition								
Treatment	2.54 (n = 65)	11.80	7.05 (n = 20)	13.67	1.53 (n = 19)	11.90	-.19 (n = 26)	9.37
Control	-3.26 (n = 72)	12.79	-2.77 (n = 22)	12.50	-3.35 (n = 20)	12.95	-3.57 (n = 30)	13.32

Table C.4

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for North Corner Without Special Education Students

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	10.77 (*n* = 45)	11.77	9.61 (*n* = 26)	9.21	13.55 (*n* = 11)	13.35	10.69 (*n* = 18)	17.22
Control	10.13 (*n* = 47)	10.87	9.17 (*n* = 24)	8.47	10.98 (*n* = 18)	12.74	11.66 (*n* = 5)	15.65
Attitude Gain Score								
Condition								
Treatment	-2.28 (*n* = 32)	12.10	4.29 (*n* = 21)	12.82	3.71 (*n* = 7)	6.97	-2.25 (*n* = 4)	14.43
Control	.14 (*n* = 35)	10.37	-2.06 (*n* = 17)	12.34	3.42 (*n* = 12)	8.16	-.17 (*n* = 6)	7.41

Table C.5

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for North Corner With Special Education Students

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	10.23 (n = 58)	11.65	9.51 (n = 38)	9.82	12.17 (n = 12)	13.59	10.69 (n = 8)	17.22
Control	10.26 (n = 54)	11.92	9.56 (n = 30)	11.39	10.98 (n = 19)	12.38	11.56 (n = 5)	15.63
Attitude Gain Score								
Condition								
Treatment	-1.58 (n = 38)	11.56	-3.54 (n = 26)	11.76	5.13 (n = 8)	7.59	-2.25 (n = 4)	14.43
Control	.00 (n = 39)	10.12	-1.90 (n = 20)	11.84	3.00 (n = 13)	7.96	-.17 (n = 6)	7.41

Table C.6

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for Center Public and North Corner With Special Education Students

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	13.59 (*n* = 126)	13.08	10.27 (*n* = 61)	10.41	16.75 (*n* = 32)	12.80	16.65 (*n* = 33)	16.30
Control	10.98 (*n* = 126)	12.35	9.82 (*n* = 51)	9.33	12.58 (*n* = 39)	12.63	10.87 (*n* = 36)	15.58
Attitude Gain Score								
Condition								
Treatment	1.02 (*n* = 103)	11.83	1.07 (*n* = 46)	13.56	2.59 (*n* = 27)	10.79	-.47 (*n* = 30)	9.89
Control	-2.12 (*n* = 111)	11.98	-2.36 (*n* = 42)	12.05	-.85 (*n* = 33)	11.54	-3.00 (*n* = 36)	12.51

Table C.7

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for Roosevelt Public and Robert Hill

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	15.50 (n = 306)	11.94	12.33 (n = 91)	8.19	14.82 (n = 121)	12.58	19.45 (n = 94)	13.13
Control	13.19 (n = 238)	13.17	13.71 (n = 73)	14.22	11.80 (n = 97)	13.04	14.60 (n = 68)	12.14
Attitude Gain Score								
Condition								
Treatment	-1.68 (n = 302)	10.67	.76 (n = 91)	9.85	-3.42 (n = 119)	12.11	-1.85 (n = 92)	8.94
Control	-1.84 (n = 235)	8.88	-.68 (n = 72)	8.37	-1.93 (n = 94)	9.57	-2.94 (n = 69)	8.36

Table C.8

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for Roosevelt Public

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	15.60 (n = 55)	11.40	13.06 (n = 34)	8.85	20.63 (n = 16)	12.96	16.80 (n = 5)	17.96
Control	9.94 (n = 63)	17.97	12.18 (n = 39)	19.70	5.18 (n = 17)	15.50	9.00 (n = 7)	11.76
Attitude Gain Score								
Condition								
Treatment	.31 (n = 59)	8.25	1.59 (n =37)	8.70	-2.76 (n = 17)	5.72	1.20 (n = 5)	10.87
Control	-.86 (n = 63)	9.39	-.56 (n = 39)	10.42	-2.19 (n = 16)	7.63	.38 (n = 8)	7.84

Table C.9

Means and Standard Deviations for Gain Scores on Measures of Reading Fluency and Attitude Toward Reading for Robert Hill

			Reading Fluency Level					
	Total		Below Average		Average		Above Average	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Reading Fluency Gain Score								
Condition								
Treatment	15.48 (n = 251)	12.08	12.74 (n = 68)	8.16	13.77 (n = 101)	12.72	19.85 (n = 82)	12.88
Control	14.36 (n = 175)	10.77	13.40 (n = 47)	9.73	13.42 (n = 72)	10.61	16.37 (n = 56)	11.67
Attitude Gain Score								
Condition								
Treatment	-2.16 (n = 243)	11.13	-.07 (n = 67)	9.68	-3.77 (n = 96)	13.27	-1.99 (n = 80)	9.09
Control	-2.20 (n = 172)	8.68	-.1.15 (n = 46)	9.73	-1.61 (n = 70)	9.22	-3.80 (n = 56)	8.54

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