

Time to Read:

Advancing Reading Achievement After School

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Concerns over reading achievement levels have been dominating discussions among educators and policy-makers (Allington, 2002), and considerable school hours in the elementary and middle grades are devoted to increasing the percentage of proficient readers and ensuring overall growth gains from year to year. In efforts to support these growth gains, schedules have often been realigned and subjects reduced or eliminated so that more time can be spent covering basics and teaching students how to take tests (Moon, Brighton, & Callahan, 2003). Yet, despite the weight of attention given to reading instruction, often students receive a heavy focus on reading skill and less focus on fostering habits of reading and matching students to books (Allington, 2001, 2002).

Common sense suggests that children who read more tend to be stronger readers than those who do not read much, and some research evidence has suggested a positive relationship between time spent reading and reading performance (Anderson, Wilson, & Fielding, 1988; Taylor, Frye, & Maruyama, 1990; Taylor, Pearson, Clark, & Walpole, 2000), although the National Reading Panel (2000) has called for further research on this issue to clarify some inconsistent findings. Nevertheless, it is often the case that formal reading instruction neither excites children

Out-of-school programs provide a context for enriching academic experiences. This study describes a 12-week after-school reading program, Project Expanding Horizons, which is based on the Schoolwide Enrichment Model-Reading (SEM-R) framework. SEM-R has three phases: exposure, supported independent reading, and choice. The exposure phase is designed to broaden students' literature experiences through short read-alouds. During the next phase, supported independent reading, teachers circulate and hold conferences with students as they read independently from self-selected books. Teachers give guidance to students in selecting books of appropriate challenge during this phase and promote thinking about reading through questioning and discussion. Finally, during the last stage, teachers give students a choice of a variety of activities related to their reading. The program provided wide exposure to books and emphasized individually challenging reading, including a specific focus on meeting the needs of advanced readers. In this study, the participants included 155 students in grades 3–6 from 3 demographically diverse districts. Average weekly gain scores in reading fluency were compared to grade-level national norms. Third and fifth graders showed statistically significantly higher gain scores than the national sample; fourth and sixth graders did not. These results suggest that participation in the after-school program may have contributed additional support to students' growth in reading achievement over the course of 12 weeks. Further analyses indicated similar gain scores across subgroups by gender, district, and entry reading level. Thus, this program shows potential benefits for both low-ability and high-ability readers.

Summary

about reading nor gives them much time to read, particularly not to read books of their own choosing (Ivey, 2000). Meanwhile, the time spent reading for enjoyment by adults in the United States has suffered a decline in recent decades, with the decline most prominent among younger adults (National Endowment for the Arts, 2004). This decline in reading among adults, coupled with the limited attention given to reading for enjoyment in schools and the extensive scheduling of students' time outside of school hours (Lareau, 2003), paints a troubling picture of the value placed on habits of reading in the United States today. Furthermore, given the concerns over ensuring basic reading proficiency, it is questionable whether advanced opportunities are provided for students who demonstrate competency at higher levels, and whether all students are encouraged to pursue reading that is challenging for them (Reis et al., 2004). Particularly for those students who are advanced in reading, a combination of grade-level reading material that is insufficiently challenging and skill-based activities focusing on lower level skills limits their opportunities to grow as readers and to learn strategies for handling difficult texts.

One response to these challenges involves a more individualized approach to reading, through which students read books of their own choosing, while individualized conferences with teachers promote metacognitive awareness of challenge level and reading strategies (Reis et al., 2003). Such an approach, including not only individualized reading, but also book talks by teachers and more extended explorations of areas of interest, may be employed during the school day but also has the potential to foster reading habits in settings outside of school time, as a way of connecting students to academic experiences beyond the school day (Gordon, Bridglall, & Meroe, 2005).

Many after-school programs primarily focus on homework completion and tutoring (Halpern, 2003). Educational activities, including homework, are central elements of after-school time for students in grades K–8, whether they are enrolled in formal programs or go home after school (National Center for Educational Statistics, 2004). However, in reviewing a wide

range of after-school experiences, Edwards (2001) commented that “There is still something disappointing . . . something not found—and that something seems to be the excitement and creativity symbolized by Milo and *The Phantom Tollbooth*” (p. 62). For students with high ability, who are often unchallenged by their schoolwork, the excitement and challenge potential of after-school programs focused on homework and tutoring may be even more limited.

In an effort to capture that often-absent “excitement and creativity,” Project Expanding Horizons was designed to support challenging reading and independent pursuit of reading interests among elementary and middle school students in an after-school setting, especially targeting students with high reading potential. The program, which was funded by the Jack Kent Cooke Foundation, was established as a partnership between eight elementary and middle schools and the Neag Center for Gifted Education and Talent Development at the University of Connecticut. Establishing the program in out-of-school time has allowed integration of students across grade levels; has lessened the pressures of schedules, standards coverage, and testing; and has provided a flexible environment for promoting challenge.

Program Description and Related Literature

During school, a focus on independent reading of self-selected books is limited by the demands of multiple content areas, an expanding information base, and accountability. Programs that occur during out-of-school time (OST), however, provide potential opportunities to foster enjoyment of reading and to allow extended time for students to sit and read on their own, while still obtaining support from educators to approach more difficult texts.

Emerging quality standards and evaluation results for OST programs have suggested the importance of challenge, freedom to pursue interests, flexibility and varied activities, and the development of caring relationships between staff and stu-

dents (Beckett, Hawken, & Jackowitz, 2001; Hall, Yohalem, Tolman, & Wilson, 2003; Halpern, 2003). Another hallmark of strong programs has been the opportunity for students to pursue goal-focused activities that provide challenge and differ somewhat from the activities of the regular school day (Hall et al.; Halpern). Although few empirical studies have emerged on the effectiveness of OST programs, some evidence has demonstrated association with certain academic gains, including increases in reading achievement (Bissell & Malloy, 2002), and with more positive attitudes toward school and learning (Brown, McComb, & Scott-Little, 2003).

In the area of literacy specifically, structured reading experiences beyond the school day allow greater flexibility than is often possible during reading instruction in school (Miller & Snow, 2004). Therefore, they are well-suited to helping students recognize the intrinsic rewards of reading and understand the social and cultural dimensions of literacy (Allington, 2001; Miller & Snow). Particularly for students from disadvantaged backgrounds, after-school programs have the potential to provide some of the supplementary experiences that their peers from more advantaged homes might already receive (Gordon et al., 2004). Indeed, some evidence suggests that structured after-school programs, literacy-related and those focused on other academic goals, are particularly beneficial for students from disadvantaged backgrounds (Bissell & Malloy, 2002; Schinke, Cole, & Poulin, 2000; Shumow, 2001). Such programs, when coordinated with regular school goals, provide support toward closing the achievement gap between disadvantaged students and their peers (Gordon et al., 2004).

In *Expanding Horizons*, the project described in this study, students are encouraged to spend the program time reading books that are interesting but also somewhat difficult for them, saving “easier” books for reading at home. Therefore, the program responds to OST recommendations for an emphasis on challenge, as well as enjoyment. It also supports students in developing self-regulation skills that allow them to monitor the difficulty level of their own reading and to talk about the strategies they

use to approach text. Furthermore, because of the individualized nature of the book selection process, the program is designed to make the reading experience a challenging one even for students who read at advanced levels.

The SEM-R Framework (Reis et al., 2003) serves as the foundation of the project. This framework, which has been previously implemented both during the school day and in after-school settings (Reis et al., 2005), has the following three central goals:

- to encourage students to pursue independent reading at challenging levels,
- to strengthen reading fluency and comprehension, and
- to increase enjoyment in reading.

The framework is organized around three phases, as outlined in Table 1 and discussed below. Each phase provides opportunities for students to explore interests, broaden their reading experiences, and develop relationships with adults and one another.

During Phase 1, as teachers read aloud, they model reading enjoyment, various reading strategies, and ways of finding books that are individually challenging and interesting. Reading aloud to children has long been a practice recommended in reading instruction (Jacobs, Morrison, & Swinyard, 2000; Lickteig & Russell, 1993); indeed, the Commission on Reading concluded in its 1985 report that “the single most important activity for building the knowledge required for eventual success in reading is reading aloud to children” (Anderson, Hiebert, Scott, & Wilkinson, 1985, p. 23). Although reading aloud is generally accepted as common practice in the primary grades, several researchers have also discussed its importance in the intermediate grades (Ivey, 2002; Jacobs et al., 2000). Teachers who engage in reading aloud not only support reading growth through overall literacy exposure, but also model reading enjoyment and broaden students’ exposure to different types and levels of books (Ivey, 2002; Jacobs et al.; Lickteig & Russell).

Students spend most of Phase 2 reading independently from books that they have selected, with guidance to help to ensure that

Table 1

Phases of the Schoolwide Enrichment Model-Reading
(Reis et al., 2003)

Phase 1: Exposure

Teachers provide brief “book talks,” reading aloud short sections from a variety of texts. They also provide some instruction in reading skills and discuss strategies for selecting books. This phase is intended to broaden students’ literature experiences by exposing them to a wide range of genres, authors, and topics; it also emphasizes challenge in reading through presentation of texts that will be advanced for all or some of the readers listening to them.

Phase 2: Supported Independent Reading

All students read independently from books of their choice, with guidance in selecting them to ensure that the books will be appropriately challenging for them. Teachers circulate in the room, holding brief conferences with individual students about their reading. Conferences generally involve an opening discussion about what is happening in the book, followed by a read-aloud by the student. The last part of the conference involves discussion of reading strategies, higher level questions about the text, and connections with other books and experiences.

Phase 3: Choice Components

Students choose from a variety of activities related to reading and to their individual interests. During each session, teachers generally provide several options, which might include online exploration of interests; development of expressive products such as writing, artwork, or performances; or shared conversations about books. In addition, students may choose to continue reading independently or with a friend or to listen to an audio book.

the books will be appropriately challenging. This second phase is the centerpiece of the program, addressing the troubling issue of the limited time available for students to read during the school day. Many instructional programs focused on developing reading skills do not, in fact, engage students in extensive time actually reading, focusing instead on responding to skill questions and basic comprehension questions related to brief reading passages (Ivey, 2000). Cunningham and Stanovich (1998) argued that the amount of reading, or reading volume, is a significant contributor to other aspects of verbal intelligence and reading development, including strong positive relationships with vocabulary, general knowledge, and verbal fluency. However, given the limits on time children spend reading during the school day, the contributions of reading volume may depend in large part also on how much time is spent reading outside of school.

The distinctions between levels of reading volume among children expand considerably if reading in out-of-school time is included. Anderson et al. (1988) determined that OST reading volume for elementary students ranged from only about 8,000 words per year to 2 million words per year. By incorporating an emphasis on reading volume in an after-school program, educators can work to reduce this disparity by creating an environment that encourages and supports reading outside of the requirements of regular school day and homework assignments, with the ultimate goal of fostering habits of reading as a leisure-time activity.

Although the primary emphasis of Phase 2 is to allow students time to read, this phase also represents a critical instructional component of the program. As students read, teachers circulate and hold brief, individualized conferences with students, using this context to assess progress, to ensure that the books students read are neither too easy nor too difficult, and to provide individualized instruction around specific reading and analysis skills as appropriate to the particular student and text. Furthermore, the conferences serve as a context for modeling and supporting discussion of literature and higher level thinking about the books being read. Teachers use prepared ques-

tions and those that emerge from conversations with students to stimulate thinking about the books and to encourage students to make connections beyond the book. Although such questioning occurs formally during conferences, students are also given laminated bookmarks with guiding questions to promote independent higher level thinking during reading. These bookmarks are an aid to supporting critical engagement with text, such that the reader learns to see reading as a thinking process (Collins & Aiex, 1995). As students advance their reading skills and take on more difficult and complex texts, the simultaneous expectation to consider structured, challenging questions makes the reading experience even more stimulating (VanTassel-Baska, 2003).

The SEM-R framework maintains challenge as a central expectation, while also promoting engagement by encouraging students to select books in areas of their interest. Students' attitudes toward reading are affected by their level of personal interest, and teachers who know about those interests are more readily able to recommend books that will be engaging, as well as challenging on an individual level (Cavazos-Kottke, 2006). For instructional purposes, an optimal reading selection is one that is slightly above a student's measured reading level, so that the student must make an effort and use reading strategies to understand the text (Chall & Conard, 1991). A classroom or program designed to support such reading must have a collection of books that is extensive and varied not only in genre and topic, but also in level of difficulty, to ensure that advanced reading opportunities are available to everyone.

The framework overall is grounded in the Schoolwide Enrichment Model (SEM; Renzulli & Reis, 1997). A basic tenet of the SEM is that enjoyment and motivation work hand-in-hand, and that both are supported when students take an active role in decision-making about their learning. Moreover, the model posits that students are more willing to take on challenging tasks—or, in this case, challenging reading—and to devote considerable energy to them if these tasks are in an area of their particular interest and allow them to develop their strengths.

The present study reports on results from the first year of Expanding Horizons, with a focus on students' reading achievement. Using reading fluency as an indicator of achievement (Fuchs, Fuchs, Hosp, & Jenkins, 2001), the study examines pretest and posttest fluency scores to measure growth in comparison to expected gains. The study also explores the results for various subgroups of participants.

Method

The study explored student results on a test of reading fluency as an indicator of reading achievement relative to participation in the Expanding Horizons program. The fluency test was used as an indicator of overall reading competence, consistent with literature suggesting it is the most salient characteristic of skillful reading (Fuchs et al., 2001; Shin, Knutson, Collins, Good, & Tilly, 1992). Oral reading fluency was identified by the National Reading Panel (2000) as one of five critical components of reading, and it is receiving considerable attention from researchers and use by practitioners as a measure of reading achievement (Pikulski & Chard, 2005). Fluency provides the basis for automaticity in reading, which, in turn, allows the reader's attention to focus on comprehension and other higher-level skills (Fuchs et al. 2001). Furthermore, research on reading fluency has demonstrated strong positive correlations between decoding and comprehension (Shinn et al., 1992). Therefore, fluency tests provide a good general indicator of reading achievement.

Data were collected on students' reading fluency at the beginning and at the end of the 12-week program, with the intent to measure fluency gains compared to expected gains for students at the relevant grade levels across the time period. The following questions framed the study:

1. Do students who participate in the after-school program demonstrate gains in reading fluency from pretest to posttest?

2. Do fluency gains for students in the program exceed expected fluency gains over the same period as determined by national norms on the fluency measure?
3. Do fluency gains differ for various demographic groups within the program?
4. Are there differences in fluency gain scores between students whose pretest scores exceeded the 90th percentile (relative to national norms) and those whose scores did not?

Context

The project was implemented in eight schools across three school districts in a small northeastern state. Within this state, school districts are classified into reference groups based on similar levels of socioeconomic status and need among the population, including such considerations as number of children in poverty, median family income, and parental education and occupation. One of the study districts, which we will call “Winter Park,” is classified in the “lowest” reference group, or the one that serves the highest percentage of students from disadvantaged backgrounds. More than 65% of students at each of this district’s five elementary and middle schools receive free or reduced lunch. In each of the other two districts, approximately 10-15% of students receive free or reduced lunch; both of these districts are classified within the top half of reference groups in the state. We will refer to these districts as “Forest Hills” and “Ivy Brook.” One elementary and one middle school from Forest Hills participated in the project; one elementary school from Ivy Brook participated.

Six elementary schools and two middle schools participated in the study. One of the middle schools serves grades 6–8 and the other 5–8; the elementary schools in the same districts serve grades K–5 and K–4, respectively. Students in grades 3–6 were eligible for the project. A total of 11 classes participated across the schools, led by classroom teachers and college student volunteers.

Table 2

Grade Levels by District

	Grade 3	Grade 4	Grade 5	Grade 6	Totals
Forest Hills					
Female	9	8	9	6	23
Male	5	9	4	5	32
Total	14	17	13	11	55
Ivy Brook					
Female	2	8	N/A	N/A	10
Male	2	10	N/A	N/A	12
Total	4	18	N/A	N/A	22
Winter Park					
Female	25	29	5	1	18
Male	5	8	2	3	60
Total	30	37	7	4	78
Overall Totals	48	72	20	15	155

Participants in the study were invited to the program based on demonstration of interest in reading and/or strong reading skills as demonstrated in classroom activities. All students had to be capable of independent reading in order to participate. The program teachers determined student eligibility based on conversations with the students' classroom teachers, to ensure that the students were capable both academically and behaviorally of reading independently for at least a short period.

Sample

The sample consisted of 155 students in grades 3–6, with 53 boys (34.2%) and 102 girls (65.8%). Grade level and school district distributions are illustrated in Table 2. The students represented a wide range of socioeconomic and cultural backgrounds, reflective of their school districts described above. Ethnic and socioeconomic data on individual students from some of the

schools were not made available to the researchers. The after-school program was optional, and students volunteered to participate; no control or comparison group was utilized.

Treatment

The treatment consisted of the implementation of the SEM-R framework in an after-school setting twice a week for 12 weeks from January to April of 2006. Each program session was 90 minutes in length and involved Phases 1–3 (see Table 1). The length of time spent in the independent reading segment, Phase 2, increased gradually over the course of the program and varied from class to class depending on student readiness; all classes reached Phase 2 lengths of at least 45 minutes, and a few reached 65 minutes. Consistent with the program emphasis on flexibility and differentiation for individual needs, some students had longer reading times if they chose to continue reading during Phase 3.

Classes ranged in size from 14–24 students. More than 190 students were initially enrolled in the program; the study sample is somewhat smaller because of attrition and students who missed either the pretest or posttest.

Teachers involved in the project completed a one-week professional development experience on the SEM-R framework. Volunteers also received SEM-R training through a one-credit course or through an informal workshop followed by readings and online communication. Project staff regularly visited program classrooms to provide technical support and to monitor treatment fidelity.

Instrumentation

The study utilized standardized fluency passages obtained from the AIMSweb program through EdFormation (Howe & Shinn, 2002). The test requires students to read orally for one

minute from a given text passage. Passages were calibrated to particular grade levels during the test preparation, piloting, and norming process, and Lexile scores for the passages increase across grade levels. Technical adequacy studies yielded high alternate form reliability across text passages at each grade level (between .81 and .90) and evidence of consistency across grade levels, with means at each grade level within 1 *SEM* of the overall mean and similar standard deviations across levels (Howe & Shinn). During a test, students read aloud for one minute from a passage at their grade level, regardless of their instructional reading level (Hasbrouck & Tindal, 1992).

The fluency tests are scored by counting the number of total words read in a minute minus the number of error words, for a final score of Words Read Correctly (WRC). Events classified as errors include mispronunciation of words, replacement of words with different words, omission of words, and reversal of words.

Data Collection Procedures

Assessments were administered by researchers and other project staff within the first 2 weeks and the last 2 weeks of the 12-week program. To ensure appropriate test administration and promote reliability, project staff members participated in half-hour training sessions to learn to give the tests properly. Test administrators timed the students using a stopwatch and marked reading errors on a copy of the passages.

For this study, the test involved three consecutive one-minute periods of oral reading, each from a different grade-level passage. To gain a broader sampling of fluency and to facilitate possible comparisons across the program, all students in grades 3–5 read from a third-grade passage, a fourth-grade passage, and a fifth-grade passage. Students in grade 6 read from a sixth-grade passage, a seventh-grade passage, and an eighth-grade passage. The same passages were used at both pretest and posttest for consistency, although this may be seen as a limitation because of the potential for student posttest scores to be influenced by familiarity with the text. Scores on each grade-level passage were

recorded separately, and an average score was computed across the three passages for each student. To ensure scoring accuracy, all scores and averages were checked by a second scorer; more than 95% of tests were found to have been accurately scored.

Data Analysis

The format of the program, as an after-school program with volunteer participants, prevented the use of an experimental design, and no comparison group was available. Within a modified quasi-experimental design, mean gain scores from a national sample on the fluency measure were used as comparative values at each grade level. Additional analyses on fluency results included pretest-posttest comparisons and other within-group comparisons.

Data analysis included the use of paired-samples t tests to compare pretest and posttest scores to answer Research Question 1. One-sample t tests were used to compare each grade-level group's gain to national norm gains at the relevant grade levels, to explore Research Question 2. A two-way ANOVA was used to examine results based on district and gender for Research Question 3, and an independent-samples t test was used to investigate differences in gain scores between students who began the program already scoring at or above the 90th percentile for fluency and those students who began with lower scores; this analysis explored Research Question 4.

The national norm results used as comparative values for the study are reported by AIMSweb from a multiyear aggregate of scores on the reading passages at each grade level (AIMSweb Growth Table Reading, 2006; Howe & Shinn, 2002). These scores represent results for thousands of children tested in the fall, winter, and spring at each grade. Means and standard deviations across the sample are reported for each testing period, as well as a Rate of Improvement (ROI) score representing rate of improvement per week, determined by dividing gain scores by the number of weeks between test periods. In addition, percentile scores are reported for each test period for the 10th, 25th, 50th, 75th, and 90th percentile.

Table 3

ROI Mean Scores by Percentile Group and Grade Level

Percentile	Grade 3 ROI	Grade 4 ROI	Grade 5 ROI	Grade 6 ROI
90	.9	1	.8	.8
75	1	.9	.8	.7
50	.9	.8	.8	.7
25	.9	.8	.7	.7
10	.6	.7	.6	.7
Mean	.9	.8	.7	.7
<i>SD</i>	.1	2.3	.1	1.1

Note. From http://www.edformation.com/norms/reading_fluency.htm (March 2006).

The students in the present study represented a smaller range of fluency performance than the national norm group, because of the size of the study and because teachers were specifically recruiting students who were capable of independent reading and those who were high-performing in reading to participate. However, for the grade levels in question in the present study, ROI results from AIMSweb across percentile groups were highly similar to the ROI mean scores, as evidenced in Table 3. Therefore, ROI mean scores were used as comparative values for Research Question 2.

Results

Fluency test results were first examined to explore gains in fluency and to compare those gains to expected gains as determined by national norms. The results were then explored further to analyze whether the program appeared to provide similar influences to different groups of students.

Results for Research Question 1

Paired-samples *t* tests were run within each grade-level group to compare students' fluency scores from pretest to posttest on

Table 4

Mean Pretest and Posttest Scores
on Grade-Level Fluency Passages

	<i>n</i>	Pretest Mean	Pretest <i>SD</i>	Posttest Mean	Posttest <i>SD</i>	<i>t</i> (<i>df</i>)	Effect Size <i>d</i>
Third Graders	48	124.65	34.37	140.75	35.40	6.778 (47)**	.46
Fourth Graders	72	133.38	28.58	144.35	32.88	6.252 (71)**	.36
Fifth Graders	20	147.05	38.20	165.45	33.79	5.453 (19)**	.51
Sixth Graders	15	139.73	33.96	156.87	39.32	2.98 (14)*	.47

* $p < .05$. ** $p < .001$.

their grade-level tests. Results indicated statistically significant gains for students at every grade level from 3–6, as shown in Table 4. Effect sizes were small to medium (Cohen, 1988), with a smaller effect size at grade 4 ($d = .36$) and effect sizes at the other grade levels approximating .5. Effect sizes were computed using the pooled standard deviations of the pretest and posttest scores at each level, as recommended by Dunlap, Cortina, Vaslow, and Burke (1996) for use in correlated designs.

Results for Research Question 2

One-sample t tests were used to compare students' average weekly gain or rate of improvement (ROI) on their grade-level tests to the ROI in the national norm group (determined on samples from approximately 20,000 to 45,000 students per grade level; AIMSweb Growth Table Reading, 2006). The weekly gain scores for the national group are computed by dividing the gain scores from winter to spring testing by 18, representing the 18 weeks between tests (Howe & Shinn, 2002); these weekly scores are reported with the norms. Given that the program in the present study occurred over 12 weeks, individual student gain scores

Table 5
One-Sample *t*-Test Results

Grade	<i>n</i>	Pretest Mean (<i>SD</i>)	Posttest Mean (<i>SD</i>)	Average Weekly Gain (<i>SD</i>)	Norm Group Weekly Gain* (<i>SD</i>)	<i>t</i> (<i>df</i>)
3	48	124.65 (34.37)	140.75 (35.40)	1.34 (1.37)	.9 (.1)	2.232 (47)*
4	72	133.38 (28.58)	144.35 (32.88)	.91 (1.24)	.8 (2.3)	.782 (71)
5	20	147.05 (38.20)	165.45 (33.79)	1.53 (1.26)	.7 (.1)	2.964 (19)**
6	15	139.73 (33.96)	156.87 (39.32)	1.43 (1.86)	.7 (1.1)	1.519 (14)

Note. Norms are from http://www.edformation.com/norms/reading_fluency.htm.

* $p < .05$. ** $p < .01$.

from pretest to posttest were divided by 12 to obtain an ROI for comparison with the national scores.

The *t*-test results indicated statistically significant differences between the study group weekly gain scores and the national norm group ROI scores on grade-level tests at grades 3 and 5. At grades 4 and 6, average weekly gain scores were nonsignificant when compared with national norm weekly scores. Table 5 illustrates the results for each grade level.

Results for Research Question 3

Specific subgroups within the sample were compared to explore how the program seemed to affect different groups of students. A two-way between-groups ANOVA was conducted to explore the impact of gender and district grouping on reading fluency gain scores. Because of the demographic characteristics of the districts, the two higher SES group districts (Ivy Brook and Forest Hills) were combined into one group, to be compared with the district classified in the low-SES group (Winter Park). Main effects for gender [$F(1, 151) = .09, p = .76$] and for district [$F(1, 151) = .008, p = .929$] were nonsignificant. There was also

Table 6
Independent Sample *t*-Test Results

Group	<i>n</i>	Pretest Mean (<i>SD</i>)	Posttest Mean (<i>SD</i>)	Gain Score (<i>SD</i>)	<i>t</i> (<i>df</i>)
90th percentile and above	27	177.96 (18.83)	192.00 (25.47)	14.04 (16.96)	.028 (153)
Below 90th percentile	128	123.58 (26.66)	137.71 (29.04)	14.13 (16.28)	

no significant interaction effect [$F(1, 151) = .045, p = .83$] based on gender and district, suggesting that the program's influence on boys and girls and on the different demographic groups was similar.

Results for Research Question 4

One of the program's areas of focus was to provide an enriching after-school opportunity that challenged highly able students, as well as their grade-level peers. Therefore, it was important to explore how the program appeared to function for this high-level group compared to the rest. Because not all the districts identify students for gifted programs, the reading fluency pretest was used as a way of drawing distinctions among the students regarding readiness. Scores in the national norm group are reported only in broad percentile categories; therefore, the 90th percentile was used to make a distinction between the higher performing and lower performing groups of readers in the study. Those students whose grade-level pretest results met or exceeded the national norm scores at the 90th percentile were classified into one group to be compared with students whose scores placed them below the 90th percentile.

An independent-samples *t* test was run to determine any differences between the groups' gain scores on their grade-level fluency tests. No significant differences were found between the two groups, as displayed in Table 6. Therefore, students who began the program at higher levels of reading fluency achieve-

ment achieved similar gains to their peers, although their total fluency scores showed large differences on average.

Discussion

Gains in reading fluency for elementary and middle school students over the course of 12 weeks are an expected area of growth, especially given the attention that reading instruction receives during the school day. Therefore, the overall significant gains in reading fluency for the students in this study are unsurprising and would be more notable if they did not occur. The more interesting and important results to explore, therefore, are how the fluency gains differ from what might have been predicted by national norms, along with the similarity of fluency gain scores for various subgroups of students within the sample.

Two grade-level groups showed average weekly gains that exceeded the average weekly gains for their grade level in a national sample. Statistically significant differences emerged for third and fifth graders in the study when compared to the expected weekly gains from the national norm group, and scores for fourth and sixth graders also exceeded the national weekly gains, although not to the level of statistical significance. These results suggest that participation in the after-school program may have contributed additional support to students' growth in reading achievement over the course of 12 weeks.

In addition, the fluency gains experienced by the students were consistent across groups within the sample, with no significant differences across subgroups. None of the within-group comparisons based on gender or school district showed significant differences. Moreover, there were no differences between gain scores for the higher readiness group and the lower readiness group, despite the fact that the higher readiness group was less likely to make large gains as students neared a potential ceiling on the test. Therefore, the program seemed to influence all groups of participants similarly. This result is particularly promising because it provides support for using a program of this type

with students from disadvantaged backgrounds and with students whose advanced reading levels may place them at a disadvantage in school because of limited differentiation.

Cunningham and Stanovich (1998) and Anderson et al. (1988) commented on the relationship between reading volume and reading achievement. A central intent of the SEM-R framework is to increase reading enjoyment by providing a supportive context for increasing reading volume, as well as promoting interest in reading. Students in the present study had increased reading volume over what their schools generally provided, and it is a reasonable assumption that, for at least some of the students, reading volume was greater than they would have experienced in out-of-school time without the program. In addition, the exposure to a variety of books through Phase 1 and the emphasis on reading books that were challenging, as well as interesting on an individual level, may have contributed, along with reading volume, to the gains in reading achievement that students experienced.

The results of the study are limited by several features of the program structure and the design, and should therefore be interpreted with caution. Students who participated, for the most part, volunteered because of their own interest in reading; therefore, because these students enjoy reading anyway, the reading achievement they experienced may have mirrored what they would have done had they been reading at home on their own instead of participating in the program. Comparison with similarly motivated students who did not participate would be useful in further study of program effects.

The study utilized the same passages to test reading fluency at pretest and at posttest. This is a major limitation to the present study. Although a gap of approximately 3 months occurred between tests, student performance on the posttest may have been falsely inflated by familiarity with the text passages. The single grade-level passage, although consistent with the design of the test (Howe & Shinn, 2002), may also have limited the degree to which the test adequately sampled students' reading

fluency. A wider sampling of on-grade-level passages may be advisable for further studies of the program's effects.

Further limitations of the study included the small sample sizes at two of the grade levels and the consequent strong influence of outlier results. Full pretest and posttest data were only available for 20 students at grade 5 and for 15 students at grade 6. At grade 6 in particular, a 40-point decline between pretest and posttest for a student who showed a negative attitude throughout the program influenced the overall average group scores considerably. The combination of these sample size issues and the volunteer nature of the program limit the inferences to be drawn from the data. Finally, given the number of statistical tests run on the data, readers should interpret the results of the significance tests cautiously.

Nevertheless, the results of the study do provide support for the potential benefits of having students engage in independent reading that is individually interesting and challenging. The OST context of this program allowed extensive flexibility and informality in the reading experience, suggesting the appropriateness of the SEM-R framework for the after-school setting. Furthermore, the program's results contribute to other data supporting such reading experiences during the school day (Reis et al., 2005).

Further research should compare reading achievement for participating students with scores for similar students not enrolled. Other measures of reading achievement, including reading comprehension results, would also contribute to an understanding of the program's influence on reading achievement, and the role of student attitudes toward reading should also be explored. Additional research to determine program influence should analyze more carefully the degree to which students are reading individually challenging books, to explore the relative contributions of difficult books and reading volume to achievement. Overall, the results of this study and future studies exploring the directions noted may be used to clarify guidelines for after-school experiences that encourage advanced reading and provide challenges that engage a wide range of learners.

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