

The Enhanced Reading Opportunities Study

Early Impact and Implementation Findings

Executive Summary

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JANUARY 2008

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NCEE 2008-4017
U.S. Department of Education



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January 2008

This report was prepared for the National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, under contract no. ED-01-CO--0111/0001 with MDRC.

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Acknowledgments

This study represents a collaborative effort among the authors and the staff from the participating school districts and schools, the program developers, our colleagues at MDRC and American Institutes for Research (AIR), and Institute of Education Sciences (IES) staff. The study has benefited especially from the time, energy, and commitment put forth by staff in the participating school districts to implement the two literacy programs used in the Enhanced Reading Opportunities (ERO) Study, allow access to classrooms, and respond to requests for data.

At the U.S. Department of Education, Paul Strasberg, Marsha Silverberg, Phoebe Cottingham, and Ricky Takai at the Institute of Education Sciences provided helpful support and guidance on the design and execution of the evaluation and in the development of the report. Braden Goetz and Valerie Randall-Walker at the Office of Elementary and Secondary Education provided invaluable support to the school districts in their efforts to implement the supplemental literacy programs and meet the demands of the evaluation.

The study's technical working group provided valuable insights on the evaluation design, data analysis, and early versions of the report. We thank Donna E. Alvermann, Donald L. Compton, Robinson Hollister, Mark W. Lipsey, Robert H. Meyer, Christopher Schatschneider, Timothy Shanahan, and Catherine Snow for their expertise and guidance.

The listed authors of this report represent only a small part of the team involved in this project. Linda Kuhn and the staff at Survey Research Management managed and conducted the follow-up testing and survey data collection effort.

At AIR, Courtney Zmach, Rebecca Holland-Coviello, Christopher Doyle, and Andrea Olinger coordinated the classroom observations and supported the observation staff. Nancy Lang and Courtney Tanenbaum processed and managed the interview and observation data. These AIR staff also conducted classroom observations and phone interviews.

At MDRC, Susan Sepanik and Edmond Wong assisted with data collection and provided programming and analysis support. Corinne Herlihy and Kristin Porter served as school district coordinators. Gordon Berlin, Howard Bloom, Fred Doolittle, Corinne Herlihy, Janet Quint, and Pei Zhu provided substantive expertise through their thoughtful comments on, and reviews of, this report. Mario Flecha and Vivan Mateo assisted with report production. Robert Weber and John Hutchins edited the report, and Stephanie Cowell and Inna Kruglaya prepared it for publication.

The Authors

Disclosure of Potential Conflicts of Interest¹

The research team for this evaluation consists of a prime contractor, MDRC, Inc., of New York City, NY, and two subcontractors, American Institutes for Research (AIR) of Washington, DC, and Survey Research Management (SRM) Corporation of Boulder, CO. None of these organizations or their key staff has financial interests that could be affected by findings from the evaluation of the two supplemental literacy interventions considered in this report. No one on the eight-member Expert Advisory Panel, convened by the research team once a year to provide advice and guidance, has financial interests that could be affected by findings from the evaluation. One member of the Expert Advisory Panel, Dr. Timothy Shanahan of the University of Illinois at Chicago, participated only in an early (2005) panel meeting on the study design. Subsequent to that meeting, he developed a commercial literacy intervention targeted to striving middle-school readers that might either compete with or be used along with the two programs for high school students chosen and evaluated as part of the current study. Dr. Shanahan had no role in the selection of the study programs or in the analysis of evaluation data.

¹Contractors carrying out research and evaluation projects for IES frequently need to obtain expert advice and technical assistance from individuals and entities whose other professional work may not be entirely independent of or separable from the particular tasks they are carrying out for the IES contractor. Contractors endeavor not to put such individuals or entities in positions in which they could bias the analysis and reporting of results, and their potential conflicts of interest are disclosed.

Executive Summary

This report presents early findings from the Enhanced Reading Opportunities (ERO) study — a demonstration and rigorous evaluation of two supplemental literacy programs that aim to improve the reading comprehension skills and school performance of struggling ninth-grade readers. The U.S. Department of Education’s (ED) Office of Elementary and Secondary Education (OESE)¹ is funding the implementation of these programs, and its Institute of Education Sciences (IES) is responsible for oversight of the evaluation. MDRC — a nonprofit, nonpartisan education and social policy research organization — is conducting the evaluation in partnership with the American Institutes for Research (AIR) and Survey Research Management (SRM).

The present report — the first of three — focuses on the first of two cohorts of ninth-grade students who will participate in the study and discusses the impact that the two interventions had on these students’ reading comprehension skills through the end of their ninth-grade year. The report also describes the implementation of the programs during the first year of the study and provides an assessment of the overall fidelity with which the participating schools adhered to the program design specified by the developers. The key findings discussed in the report include the following:

- **On average, across the 34 participating high schools, the supplemental literacy programs improved student reading comprehension test scores.** This impact estimate is statistically significant. Despite the improvement in reading comprehension, 76 percent of the students who enrolled in the ERO classes were still reading at two or more years below grade level at the end of ninth grade.
- **Although they are not statistically significant, the magnitudes of the impact estimates for each literacy intervention are the same as those for the full study sample.**
- **Impacts on reading comprehension are larger for the 15 schools where (1) the ERO programs began within six weeks of the start of the school year and (2) implementation was classified as moderately or well aligned with the program model, compared with impacts for the 19 schools where at least one of these conditions was not met.** The difference in impacts on reading comprehension between these two groups of schools is statistically significant. It is important to note, however, that these two factors

¹The implementation was initially funded by the Office of Vocational and Adult Education (OVAE), but this role was later transferred to OESE.

did not necessarily cause the differences in impacts and that other factors may be also associated with differences in estimated impacts across schools.

The next report from the study — scheduled for 2008 — will provide findings for a second year of program implementation and a second cohort of ninth-grade students who are enrolled in the ERO classes. The ultimate goal of the two ERO programs is to improve students' academic performance during high school and to keep them on course toward graduation. With this in mind, the final report from the evaluation — scheduled for 2009 — will examine the impact of the ERO programs for both cohorts of students on their performance in core academic classes, their grade-to-grade promotion rates, and their performance on high-stakes tests required by their states.

The Supplemental Literacy Interventions

The ERO study is a test of supplemental literacy interventions that are designed as full-year courses and targeted to students whose reading skills are two or more years below grade level as they enter high school. Two programs — Reading Apprenticeship Academic Literacy, designed by WestEd, and Xtreme Reading, designed by the University of Kansas Center for Research on Learning — were selected for the study from a pool of 17 applicants by a national panel of experts on adolescent literacy. To qualify for the project, the programs were required to focus instruction in the following areas: (1) student motivation and engagement; (2) reading fluency, or the ability to read quickly, accurately, and with appropriate expression; (3) vocabulary, or word knowledge; (4) comprehension, or making meaning from text; (5) phonics and phonemic awareness (for students who could still benefit from instruction in these areas); and (6) writing. The overarching goals of both programs are to help ninth-grade students adopt the strategies and routines used by proficient readers, improve their comprehension skills, and be motivated to read more and to enjoy reading. Both programs are supplemental in that they consist of a year-long course that replaces a ninth-grade elective class, rather than a core academic class, and in that they are offered in addition to students' regular English language arts classes.

The primary differences between the two literacy interventions selected for the ERO study lie in their approach to implementation. Implementation of Reading Apprenticeship Academic Literacy is guided by the concept of “flexible fidelity” — that is, while the program includes a detailed curriculum, the teachers are trained to adapt their lessons to meet the needs of their students and to supplement program materials with readings that are motivating to their classes. Teachers have flexibility in how they include various aspects of the Reading Apprenticeship curriculum in their day-to-day teaching activities, but have been trained to do so such that they maintain the overarching spirit, themes, and goals of the program in their instruction.

Implementation of Xtreme Reading is guided by the philosophy that the presentation of instructional material — particularly the order and timing with which the lessons are presented — is of critical import to students’ understanding of the strategies and skills being taught. As such, teachers are trained to deliver course content and materials in a precise, organized, and systematic fashion designed by the developers. Xtreme Reading teachers follow a prescribed implementation plan, following specific day-by-day lesson plans in which activities have allotted segments of time within each class period. Teachers also use responsive instructional practices to adapt and adjust to student needs that arise as they move through the highly structured curriculum.

Study Overview

Interventions: Reading Apprenticeship Academic Literacy and Xtreme Reading — supplemental literacy programs designed as full-year courses to replace a ninth-grade elective class. The programs were selected through a competitive applications process based on ratings by an expert panel.

Study sample: 2,916 ninth-grade students from 34 high schools and 10 school districts. Districts and schools were selected by ED’s Office of Vocational and Adult Education through a special Small Learning Communities Grant competition. Students were selected based on reading comprehension test scores that were between two and five years below grade level.

Research design: Within each district, high schools were randomly assigned to use either the Reading Apprenticeship Academic Literacy program or the Xtreme Reading program. Within each high school, students were randomly assigned to enroll in the ERO class or to remain in a regularly scheduled elective class. A reading comprehension test and a survey were administered to students at the start of ninth grade prior to random assignment and at the end of ninth grade. Classroom observations in the second semester of the school year were used to measure implementation fidelity.

Outcomes: reading comprehension and vocabulary test scores, reading behaviors, student attendance in the ERO classes and other literacy support services, implementation fidelity.

The ERO Evaluation

The supplemental literacy programs are being implemented in 34 high schools from 10 school districts across the country. The districts were selected through a special grant competition organized by the U.S. Department of Education’s Office of Vocational and Adult Education (OVAE). Experienced, full-time English/language arts or social studies teachers were self-selected and approved by ED, the districts, and the schools to teach the programs for a period of two years.

The ERO evaluation utilizes a two-level random assignment research design. First, within each district, eligible high schools were randomly assigned to use one of the two supplemental literacy programs: 17 of the high schools were assigned to use Reading Apprenticeship Academic Literacy, and 17 schools were selected to use Xtreme Reading.

The second feature of the study design involves the random assignment of eligible and appropriate students within each of the participating high schools. During the first year of the study, the participating high schools identified an average of 85 ninth-grade students who were reading at least two years below grade level. Approximately 55 percent of these students were randomly assigned to enroll in the ERO class, and the remaining students make up the study's control group and were enrolled in or continued in a regularly scheduled elective class. The first cohort of the study sample includes 2,916 ninth-grade students with baseline test scores indicating that they were reading between the fourth- and seventh-grade levels.

Evaluation data were collected with the Group Reading Assessment and Diagnostic Examination (GRADE) reading comprehension and vocabulary tests and a survey.² Both instruments were administered to students at two points during the ninth-grade year: a baseline assessment and survey at the start of ninth grade and a follow-up assessment and survey at the end of ninth grade. Follow-up test scores and surveys are available for 2,413 (83 percent) of the students in the study sample. To learn about the fidelity of program implementation, the study also included observations of the supplemental literacy classes during the second semester of the school year.

First-Year Implementation

During the first year of the project, the developers for each of the ERO programs provided three types of training and technical assistance to one teacher from each of the 34 participating schools who volunteered to teach the ERO classes: a five-day summer training institute in August 2005, booster training sessions during the 2005-2006 school year, and a minimum of two 1-day coaching visits during the 2005-2006 school year.

Each ERO teacher was responsible for teaching four sections of the ERO class. Each section accommodated between 10 and 15 students. Classes were designed to meet for a minimum of 225 minutes per week and were scheduled as a 45-minute class every day or as a 75- to 90-minute class that met every other day. The ERO classes began an average of six weeks after the start of the 2005-2006 school year, with the earliest programs starting three weeks into the

²American Guidance Service, *Group Reading Assessment and Diagnostic Evaluation: Teacher's Scoring and Interpretive Manual, Level H*; and *Technical Manual* (Circle Pines, MN: American Guidance Service, 2001a, 2001b).

school year and the latest programs starting 10 weeks into the school year. The late start was due to the fact that the process for identifying eligible students for the program could not begin until the start of the school year and required extensive effort on the part of school staff and the study team to help complete the baseline data collection process and gain consent from students and their parents.

The study team assessed the overall fidelity with which the ERO programs were implemented in each school during the first year of the project. In the context of this study, “fidelity” refers to the degree to which the observed operation of the ERO program in a given high school was aligned with the intended learning environments and instructional practices that were specified by the model developers. Measures of implementation fidelity were developed from 140 to 180 minutes of observation of each ERO classroom conducted in the second semester of the school year. Composite fidelity scores were calculated from numeric ratings (ranging from one to three) of classroom activities related to two overarching program dimensions: classroom learning environment and comprehension instruction. The implementation fidelity for each dimension was classified as *well aligned*, *moderately aligned*, or *poorly aligned*, based on the composite scores. Following is a summary of key findings.

- **The implementation of the ERO programs in 24 of the 34 schools was classified as well aligned or moderately aligned with their program models on both the classroom learning environment and the comprehension instruction dimensions. This included 11 of the schools using Reading Apprenticeship Academic Literacy and 13 of the schools using Xtreme Reading.**

The implementation of the ERO programs in 16 of the 34 schools was classified as well aligned on both program dimensions. Because the classroom learning environments and comprehension instruction activities were designed to be interdependent and mutually reinforcing, the implementation of ERO program in a given school was classified as well aligned only if both of these dimensions were rated as well aligned. According to the protocols used for the classroom observations, teacher behaviors and classroom activities in these schools were rated consistently as being well developed and reflective of the behaviors and activities specified by the developers.

The implementation of the ERO programs in eight of the 34 schools was classified as moderately aligned with the program model on at least one of the two key program dimensions and moderately or well aligned on the other dimension. In six of these schools, the classroom learning environment was classified as well aligned with the program model while the comprehension instruction was classified as moderately aligned. In the remaining two schools, both the

classroom learning environment and the comprehension instruction were rated as being moderately aligned with their program models.

- **The implementation of the ERO programs in 10 of the 34 schools was classified as poorly aligned with the program models on at least one of the two overarching program dimensions. This includes six of the schools using Reading Apprenticeship Academic Literacy and four of the schools using Xtreme Reading.**

Overall implementation fidelity was judged to be poorly aligned with the program model if the composite rating for either the classroom learning environment dimension or the comprehension instruction dimension was rated as inadequate. Poorly aligned implementation for a given dimension meant that the classroom observers found that at least half of the classroom characteristics were not aligned with the behaviors and activities specified by the developers and described in the protocols. The ERO programs in these schools were the least representative of the activities and practices intended by the respective program developers and were found to have encountered serious implementation problems on at least one of the two key program dimensions during the first year of the study.

Student Enrollment and Attendance in the ERO Classes and Participation in Literacy Support Activities

The study team collected data on the frequency with which students attended the ERO classes and participated in other classes or tutoring services that aimed to improve their reading and writing skills.

The ERO classes began an average of six weeks after the start of the school year and operated for an average of seven and a half months of the nine-month school year. More than 95 percent of the students randomly assigned to the ERO group enrolled in the ERO classes, and 91 percent were still attending the classes at the end of the school year.

- **Students in the ERO group attended 83 percent of the scheduled ERO classes, and they received an average of just over 11 hours of ERO instruction per month. Attendance rates were similar for schools using Reading Apprenticeship Academic Literacy (82 percent) and for those using Xtreme Reading (84 percent).**
- **Students who were randomly assigned to the study's ERO group reported a higher frequency of participation in supplemental literacy services than students who were assigned to the non-ERO group.**

The ERO classes served as the primary source of literacy support services for students in the study sample. Although the largest difference in use of supplemental literacy supports between the study's ERO and non-ERO groups occurred in students' attendance in school-based literacy class, ERO students were also more likely to report attending a literacy class outside school and working with a tutor in and outside school. According to the student survey, students in the ERO group reported that they attended an average of 52 more school-based class sessions during the year that focused on reading or writing, compared with students in the non-ERO group. Depending on a school's scheduling structure, classes meet between 90 and 180 times per year. Students in the ERO group were also more likely to report attending these types of classes outside school (an average of 3 more sessions reported during the year, compared with the non-ERO group). Finally, students in the ERO group were more likely to report working on their reading and writing with a tutor (an average of 17 more sessions for the year, compared with the non-ERO group). Each of these differences is statistically significant.

Early Impact Findings

The primary measure of reading achievement for the ERO study is students' scores on the reading comprehension assessment subtest of the GRADE. A secondary measure of students' reading achievement is their scores on the GRADE vocabulary assessment. Following is a summary of the study's early impact findings.

- **When analyzed jointly, the ERO programs produced an increase of 0.9 standard score point on the GRADE reading comprehension subtests. This corresponds to an effect size of 0.09 standard deviation and is statistically significant.**

The top panel of Table ES.1 shows the impacts on reading comprehension and vocabulary test scores across all 34 participating high schools. The first row in the table shows that, overall, the ERO programs improved reading comprehension test scores by 0.9 standard score point and that this impact is statistically significant (its p-value is less than or equal to 5 percent). Expressed as a proportion of the overall variability of test scores for students in the non-ERO group, this represents an effect size of 0.09 (or 9 percent of the standard deviation on the non-ERO group's test scores).

Figure ES.1 places this impact estimate in the context of the actual and expected change in the ERO students' reading comprehension test scores from the beginning of ninth grade to the end of ninth grade. The bottom section of the bar shows that students in the ERO group achieved an average standard score of 85.9 at the start of their ninth-grade year. This corresponds, approximately, to a grade equivalent of 5.1 (the first month of fifth grade) and indicates an average reading level at the 16th percentile for ninth-grade students nationally. The middle

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Table ES.1

**Impacts on Reading Achievement,
Cohort 1 Follow-Up Respondent Sample**

Outcome	Non-ERO ERO	Non-ERO Group	Estimated Impact	Estimated Impact Effect Size	P-Value for Estimated Impact
<u>All schools</u>					
Reading comprehension					
Average standard score	90.1	89.2	0.9 *	0.09 *	0.019
<i>Corresponding grade equivalent</i>	6.1	5.9			
<i>Corresponding percentile</i>	25	23			
Reading vocabulary					
Average standard score	93.4	93.2	0.3	0.03	0.472
<i>Corresponding grade equivalent</i>	7.7	7.7			
<i>Corresponding percentile</i>	32	31			
Sample size	1,408	1,005			
<u>Reading Apprenticeship schools</u>					
Reading comprehension					
Average standard score	89.8	88.9	0.9	0.09	0.097
<i>Corresponding grade equivalent</i>	6.1	5.9			
<i>Corresponding percentile</i>	24	23			
Reading vocabulary					
Average standard score	93.2	92.8	0.5	0.05	0.393
<i>Corresponding grade equivalent</i>	7.7	7.7			
<i>Corresponding percentile</i>	31	31			
Sample size	686	454			
<u>Xtreme Reading schools</u>					
Reading comprehension					
Average standard score	90.5	89.6	0.9	0.09	0.090
<i>Corresponding grade equivalent</i>	6.2	6.0			
<i>Corresponding percentile</i>	25	24			
Reading vocabulary					
Average standard score	93.6	93.5	0.1	0.01	0.846
<i>Corresponding grade equivalent</i>	7.8	7.8			
<i>Corresponding percentile</i>	32	32			
Sample size	722	551			

NOTE: The statistical significance level is indicated (*) when the p-value is less than or equal to 5 percent.

section of the bar shows the estimated growth in test scores experienced by the non-ERO group. This growth of 3.4 standard score points provides the best indication of what the ERO group would have achieved during their ninth-grade year had they not had the opportunity to attend the ERO classes. At the end of the ninth-grade year, therefore, the non-ERO group was estimated to have achieved an average standard score of 89.2, which corresponds to a grade equivalent of 5.9 and an average reading level at the 23rd percentile for ninth-grade students nationally.

The top section of the bar shows the estimated impact of the ERO programs on reading comprehension test scores. At the end of the ninth-grade year, the ERO group was estimated to have achieved an average standard score of 90.1, which corresponds to a grade equivalent of 6.1 and an average reading level at the 25th percentile for ninth-grade students nationally. Thus, the impact of the ERO programs represents a 26 percent improvement over and above what the ERO group would have achieved if they had not had the opportunity to attend the ERO classes.³

The solid line at the top of Figure ES.1 shows the national average (100 standard score points) for students at the end of ninth grade, in the spring. Students scoring at this level are considered to be reading at grade level. Despite the program impact, therefore, the ERO group's reading comprehension scores still lagged nearly 10 points below the national average. In fact, almost 90 percent of the students in the ERO group had reading comprehension scores that were below grade level at the end of ninth grade. Hence, 76 percent of students who participated in the ERO classes would still be eligible for the programs because they had scored more than two years below grade level at the end of their ninth-grade year.

- **Although neither program-specific impact is statistically significant, estimated impacts for schools using the Reading Apprenticeship Academic Literacy program and for schools using Xtreme Reading are 0.9 standard score point.**

Table ES.1 shows that the impacts on reading comprehension for both Reading Apprenticeship and Xtreme Reading are of similar magnitude to that found for the full sample of schools in the study. Neither of these estimates is statistically significant, however.

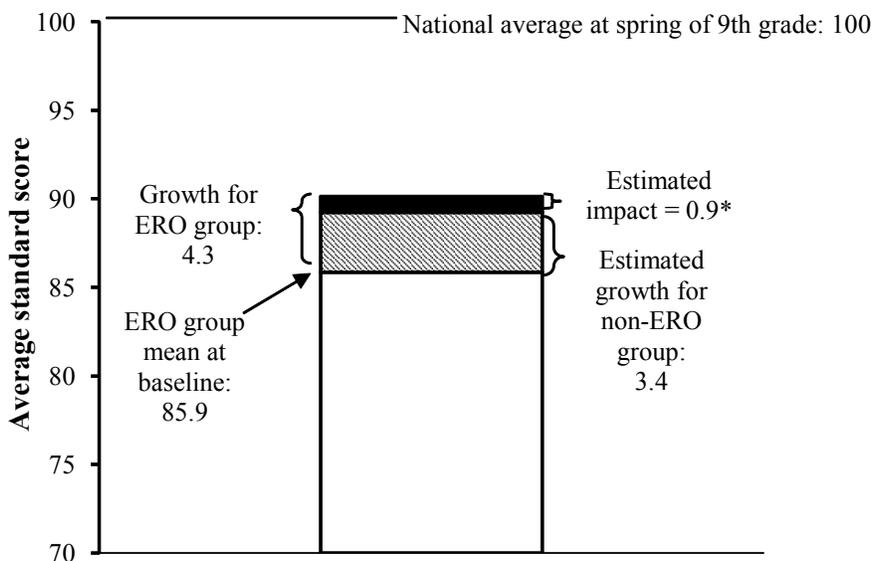
The ERO Student Follow-up Survey included questions about students' reading behavior. The impact analysis focused on three measures that were developed from these questions: the amount of reading students do for school, the amount of reading students do for non-school purposes, and students' use of reflective reading strategies. While the ERO programs produced some changes in these reading behaviors (both positive and negative), none of the estimated impacts is statistically significant.

³This was calculated by dividing the impact (0.9 standard score point) by the average improvement of the non-ERO group (3.4 standard score points).

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Figure ES.1

Impacts on Reading Comprehension, Cohort 1 Follow-Up Respondent Sample



NOTE: The statistical significance level is indicated (*) when the p-value is less than or equal to 5 percent.

First-Year Implementation Challenges and Early Impacts

The first-year start-up experiences in 19 of the 34 participating high schools were particularly problematic either because of poorly aligned implementation fidelity or because of especially long delays in enrolling students in their ERO classes. Of these, seven high schools experienced poorly aligned implementation, even though they were able to begin the classes within six weeks of the start of the school year, and nine high schools experienced a start-up delay of more than six weeks, even though the implementation of their ERO programs ended up being classified as at least moderately aligned with their program models. The remaining three high schools experienced both poorly aligned implementation and a start-up delay of more than six weeks. The presence of these implementation challenges in 19 of the high schools raises questions about whether the ERO programs had stronger impacts for the 15 high schools that were able to begin classes within six weeks of the start of the school year *and* where implementation was classified as moderately or well aligned with the program models.

Table ES.2 shows the impacts on reading test scores for the two groups of schools defined by their first-year start-up experiences. The top panel of the table shows the impacts for the 15 schools that operated their programs for at least seven and a half months and reached a limited or adequate level of implementation fidelity on both the classroom learning environment and the comprehension instruction dimensions. These ERO programs produced positive and statistically significant impacts on reading comprehension test scores. The schools with a stronger start-up produced an increase of 1.8 standard score points in reading comprehension. This is equivalent to an effect size of 0.17 standard deviation and is statistically significant.

The bottom panel of Table ES.2 presents estimated impacts on reading comprehension test scores for ERO programs in schools where implementation fidelity was found to be inadequate or where the programs operated for seven and a half months or less in the first year. The difference is not statistically significant. The difference between the impact for the stronger start-up schools and the weak start-up schools is 1.6 standard score points and an effect size of 0.16. This difference in impacts is statistically significant, indicating that there is a systematic difference in impacts across these two groups of schools.

It is important to note that the analyses just discussed are exploratory and are not able to establish causal links between these early implementation challenges and variation in program impacts across the sites. There are other school characteristics and implementation factors that may also be associated with variation in estimated impacts. As an exploratory analysis, it is also not appropriate to extrapolate from these findings to determine the impact of the ERO programs in the second year of the project.

Next Steps for the ERO Study

The early impact findings discussed in this report do not represent conclusive evidence about the efficacy or effectiveness of the supplemental literacy interventions being tested. The next report from the ERO study will provide evidence on the impact of the supplemental literacy programs during the second year of implementation. A critical goal of the second year of the implementation has been to build on the experiences of the ERO teachers and the program developers to address the start-up challenges that arose in the first year. Twenty-seven of the 34 teachers who taught the ERO classes in the first year of the study returned for the second year. These teachers participated in a second summer training institute and continued to learn more about how to use the instructional strategies that lie at the heart of the two interventions. The seven new teachers participated in extensive training to help them begin teaching the class with as much fidelity to the model's specifications as possible and have received coaching throughout the year. A second cohort of ninth-grade students entered the study sample in the 2006-2007 school year. Most of the students in the ERO group from this cohort began their enrollment in the ERO classes at or near the start of the school year.

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Table ES.2

**Impacts on Reading Achievement,
Cohort 1 Follow-Up Respondent Sample,
by First-Year Implementation Issues**

Outcome	Non-ERO ERO	Non-ERO Group	Estimated Impact	Estimated Impact Effect Size	P-Value for Estimated Impact
<u>Moderately or well-aligned implementation and longer duration</u>					
Reading comprehension					
Average standard score	90.7	89.0	1.8 *	0.17 *	0.002
<i>Corresponding grade equivalent</i>	6.2	5.9			
<i>Corresponding percentile</i>	26	23			
Reading vocabulary					
Average standard score	93.6	93.5	0.1	0.01	0.848
<i>Corresponding grade equivalent</i>	7.8	7.7			
<i>Corresponding percentile</i>	32	32			
Sample size	656	488			
<u>Poorly aligned implementation or shorter duration</u>					
Reading comprehension					
Average standard score	89.6	89.5	0.1	0.01	0.811
<i>Corresponding grade equivalent</i>	6.0	6.0			
<i>Corresponding percentile</i>	24	24			
Reading vocabulary					
Average standard score	93.3	92.9	0.4	0.04	0.412
<i>Corresponding grade equivalent</i>	7.7	7.7			
<i>Corresponding percentile</i>	32	31			
Sample size	752	517			
<u>Differences in impacts</u>					
Difference in Impacts Between Subgroups			Difference in Impacts	Difference in Impact Effect Sizes	P-Value for Difference
Reading comprehension standard score			1.6 *	0.16 *	0.035
Reading vocabulary standard score			-0.3	-0.03	0.667

NOTE: The statistical significance level is indicated (*) when the p-value is less than or equal to 5 percent.

The ultimate goal of the two ERO programs is to improve students' academic performance during high school and to keep them on course toward graduation. With this in mind, the final report from the evaluation will examine the impact of the programs on student performance in their core academic classes, their grade-to-grade promotion rates, and their performance on high-stakes tests required by their states. The final report will present impacts on these outcomes through the eleventh grade for students in the study's first cohort and through the tenth grade for students in the second cohort.

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American Guidance Service. 2001a. *Group Reading Assessment and Diagnostic Evaluation: Teacher's Scoring and Interpretive Manual, Level H*. Circle Pines, MN: American Guidance Service.

American Guidance Service. 2001b. *Group Reading Assessment and Diagnostic Evaluation: Technical Manual*. Circle Pines, MN: American Guidance Service.

