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Effectiveness of Selected Supplemental Reading Comprehension Interventions: Impacts on a First Cohort of Fifth-Grade Students

NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Education Sciences

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May 2009

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DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

The research team for this evaluation consists of a prime contractor, Mathematica Policy Research, and two major subcontractors: RG Research Group and RMC Research Corporation. None of these organizations or their key staff members have financial interests that could be affected by findings from the study. None of the members of the Technical Working Group, convened by the research team to provide advice and guidance, have financial interests that could be affected by findings from the study.

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EXECUTIVE SUMMARY

EFFECTIVENESS OF SELECTED SUPPLEMENTAL READING COMPREHENSION INTERVENTIONS: IMPACTS ON A FIRST COHORT OF FIFTH-GRADE STUDENTS

There are increasing cognitive demands on student knowledge in middle elementary grades where students become primarily engaged in reading to learn, rather than learning to read (Chall 1983). Children from disadvantaged backgrounds often lack general vocabulary, as well as vocabulary related to academic concepts that enable them to comprehend what they are reading and acquire content knowledge (Hart and Risley 1995). They also often do not know how to use strategies to organize and acquire knowledge from informational text in content areas such as science and social studies (Snow and Biancarosa 2003). Instructional approaches for improving comprehension are not as well developed as those for decoding and fluency (Snow 2002). Although multiple techniques for direct instruction of comprehension in narrative text have been well demonstrated in small studies, there is not as much evidence on teaching reading comprehension within content areas (National Institute of Child Health and Human Development 2000).

Improving the ability of disadvantaged students to read and comprehend text is an important element in federal education policy aimed at closing the achievement gap. Title I of the No Child Left Behind Act (NCLB) calls on educators to close the gap between low- and high-achieving students using approaches that scientifically based research has shown to be effective. Such rigorous research is relatively scarce, however, so it is difficult for educators to determine how best to use Title I funds to improve student outcomes. Identifying interventions that improve reading comprehension is part of this challenge.

The Institute of Education Sciences (IES) of the Department of Education (ED) has undertaken a rigorous evaluation of curricula designed to improve reading comprehension as one step toward meeting that research challenge. In 2004, ED contracted with Mathematica Policy Research, Inc. (MPR) and its subcontractors to conduct the study.[1] The study team worked with ED to refine the study design and select the curricula to be tested, and then recruited districts and schools, collected data on implementation and outcomes, and analyzed the data. The study was conducted based on a rigorous experimental design for assessing the effects of four reading comprehension curricula on reading comprehension among fifth-grade students in selected districts across the country, where schools were randomly assigned to use one of the four treatment curricula or to a control group.

[1]These subcontractors were RMC Research Corporation, RG Research Group, the Vaughn Gross Center for Reading and Language Arts at the University of Texas at Austin, the University of Utah, and Evaluation Research Services.

The experimental design ensures a strong basis for answering the study's key research questions:

1. What is the impact of the reading comprehension curricula as a whole on reading comprehension, and how do the impacts of the individual curricula compare to one another?

2. How are student, teacher, and school characteristics related to impacts of the curricula?

3. Which instructional practices are related to impacts of the curricula?

This report focuses on findings based on the first year of data collected for the study. It presents findings about the impacts of the reading comprehension interventions over one school year (2006-2007) for a first cohort of fifth graders.[2] The main finding from the first year of the study regarding the basic question of intervention effectiveness is:

- **Reading comprehension test scores in schools randomly assigned to use one of the four reading comprehension curricula were not statistically significantly higher than scores in control schools.** In addition, there was evidence that test scores were lower in treatment schools than in control schools (4 of the 20 impacts[3] comparing treatment and control group test scores were negative and statistically significant, effect sizes: -0.14 and -0.21 for Reading for Knowledge on the composite test score and science comprehension test score, respectively, and -0.08 for the combined treatment group on both the composite test score and Group Reading Assessment and Diagnostic Evaluation (GRADE) test score).[4]

[2]Impacts are reported as "effect sizes" to facilitate comparisons of impacts on different outcomes. The effect size is the impact divided by the standard deviation of the outcome for students in the control group. For example, an impact of 4 units on an outcome with a standard deviation of 20 would be reported as an effect size of 0.20. When control group means are shown in tables in the report, they are the *actual* control group means (they are not regression-adjusted means). Unadjusted means for treatment groups are presented in Table K.1 in Appendix K.

[3]The 20 impacts arise from having 4 reading comprehension assessments (Group Reading Assessment and Diagnostic Evaluation (GRADE) (Williams 2001), ETS science comprehension (Educational Testing Service 2007a), ETS social studies comprehension (Educational Testing Service 2007b), and a composite test score that is an average of the three tests listed here) and 5 intervention groups for whom impacts were estimated (4 individual intervention groups and the combined treatment group, which groups the 4 interventions together).

[4]To put this in perspective, for a student at the 50th percentile, an effect size of 0.10 represents about 4 percentile points, an effect size of 0.15 represents about 6 percentile points, and an effect size of 0.20 represents about 8 percentile points. To provide additional perspective, a meta-analysis by Rosenshine and Meister (1994) found an average effect size of 0.32 across nine studies examining the impact of multiple reading comprehension strategy instruction on standardized test scores (this meta-analysis focused on reciprocal teaching, which involves the use of guided practice and dialogue between students and teachers to teach students about four comprehension strategies including question generation, summarization, prediction, and clarification). Another meta-analysis by Rosenshine, Meister, and Chapman (1996) found an average effect size of 0.36 across 13 studies examining the impact of question generation on standardized test scores.

The main finding from the first year of the study regarding questions about for whom and under what conditions the interventions may be effective is:

- **Reading comprehension test scores in schools using the selected reading comprehension curricula were statistically significantly lower than scores in control schools for some subgroups defined by student, teacher, and school characteristics.** These subgroups include students with:

  - above-average baseline fluency levels (effect size: -0.23 for the combined treatment group on the social studies comprehension test score),
  - students with baseline comprehension levels in the lowest third of the sample (effect sizes: -0.08 and -0.09 for the combined treatment group on GRADE and composite test scores, respectively),[5]
  - students in schools with below-average School Professional Culture scale scores[6] (effect size: -0.14 for the combined treatment group on the composite test score),
  - students in schools with an above-average concentration of students eligible for free or reduced-price lunch (effect size: -0.11 for the combined treatment group on the composite test score),
  - students in schools with a below-average concentration of English language learners (effect sizes: -0.15 for the combined treatment group on the composite test score and -0.19 for the difference in impacts [on the composite test score and for the combined treatment group] between students in schools with below-average and above-average concentrations of English language learners),
  - students whose teachers had more than five years of experience (effect size: -0.09 for the combined treatment group on the composite test score), and
  - students whose teachers had more than 10 years of experience (effect size: -0.36 for Reading for Knowledge on the science comprehension test score).

[5]These effect sizes are from impact models that included the *middle* and bottom third of students to permit an assessment of whether there was a difference in impacts between these two groups. We found effect sizes of -0.14 and -0.15 on the GRADE and composite test scores for students in the lowest third of the sample when the impact models included the *top* and bottom third of students.

[6]The School Professional Culture scale is based on 35 items from the study's Teacher Survey and reflects teachers' perceptions of the culture in their school, including relationships with colleagues, access to professional development, experiences with changes being implemented in their school, and leadership support in their school. See Chapter I and Appendix F for details.

Study Design

Drawing on input from the Title I Independent Review Panel (IRP) and the study's technical working group (TWG), IES decided on an evaluation plan (Glazerman and Myers 2004).[7] The study focused on upper elementary students—fifth graders—so that it complemented other IES initiatives to understand the effectiveness of Reading First for younger students, and to reflect the concern that disadvantaged students in upper elementary grades may still struggle with reading. The focus of the study was on testing curricula designed to improve comprehension of expository text. Outcomes were defined as the ability to comprehend such text generally and in two specific content areas, science and social studies.

SUMMARY OF FIRST-YEAR EVALUATION DESIGN

Intervention: Four reading comprehension curricula (Project CRISS, ReadAbout, Read for Real, and Reading for Knowledge) were selected as interventions for the study based on public submissions and ratings by an expert review panel.

Participants: 10 districts, 89 schools, 268 teachers, and 6,350 fifth-grade students. Districts were recruited from among those with at least 12 Title I schools, and schools were recruited only if they did not already use any of the four selected curricula. Students in those schools were eligible to participate if they were enrolled in fifth-grade classes when the baseline tests were administered in fall 2006 or if they enrolled after the baseline administration but before January 1, 2007. Students in combined fourth-/fifth- or fifth-/sixth-grade classes were excluded, as were those in special education classes, although special education students mainstreamed in regular fifth-grade classes were eligible to participate.

Research Design: Within each district, schools were randomly assigned to an intervention group that would use one of the four curricula or a control group that did not have access to any of the four curricula being tested. For example, in a district with 10 schools, 2 schools were assigned to each treatment group and 2 schools were assigned to the control group. Control group teachers could, however, use other supplemental reading programs. The study administered tests to students in intervention and control schools near the beginning and end of the 2006-2007 school year. It also observed classrooms during the school year and collected data from teacher questionnaires, student and school records, and from the intervention developers.

Outcomes: Impact estimates focused on student reading comprehension test scores.

Schools in districts that agreed to participate were randomly assigned to one of the five study arms (four intervention groups and one control group). Teachers in schools assigned to an intervention group developed their own strategies for incorporating the assigned reading comprehension curriculum into their daily schedules and their core reading instruction. (As described in more detail in the next section, the curricula being evaluated in this study were designed to supplement—not replace—the core curriculum being used by each teacher.) Teachers in control group schools continued to teach reading using whatever methods they had

[7]The Title I Independent Review Panel (IRP) was set up by Congress to provide ED with policy recommendations on Title I research. The MPR study design team worked with the IRP, TWG, and IES on defining the key elements of this study's design (as laid out in the text that follows) (Glazerman and Myers 2004).

been using in the absence of the study. Due to the experimental design, differences in outcomes of students in the treatment and control groups are attributable to the curricula being tested.[8]

This study provides educators with a sense of the effectiveness of these curricula when used for the first time by teachers in "real-world" conditions. Although the study team worked to facilitate study activities such as the collection of data in study schools, the developers provided teacher training and follow-up support to teachers throughout the year, and teachers and schools could discontinue use of the curricula if they believed they were ineffective or too challenging to use. Therefore, the study conditions may be comparable to those many districts might face if they implemented these curricula in their schools.

Selecting Curricula for the Study

The goal of the reading comprehension evaluation is to test "high quality" supplemental curricula that would be available to schools searching for ways to improve students' comprehension skills. An open, competitive process was used to solicit proposals from curriculum developers and to select study curricula. The plan, based upon the evaluation design and available resources, was to select four curricula for the study.

Proposals were formally solicited by the study team. The Request for Proposals (RFP) described the type of interventions to be included in the study. The reading comprehension interventions needed to supplement—not displace—the core reading, science, and/or social studies instruction in fifth-grade classrooms. They also needed to take an average of 30 to 45 minutes per day to implement and to encompass an entire school year.

In response to the RFP, a total of 13 proposals were submitted to the study team. Those that met a set of predetermined, minimum requirements were forwarded to the panel of reading experts for review.[9] The expert panel then assessed the extent to which the proposals met substantive criteria for inclusion in a pilot implementation stage. These criteria related to the theoretical and empirical underpinnings of the curriculum, evidence of the intervention's effectiveness, the support developers proposed to provide for teachers, the developers' institutional capability, and the appropriateness of the curriculum for the study's target population.

Five programs were selected to participate in a pilot implementation for the 2005-2006 academic year.[10] After the pilot year, four of the five curricula that were included in the pilot year were selected for the full implementation of the study. Based on the study team's recommendations, IES selected the following curricula:

[8]The study design just discussed is also described in James-Burdumy et al. (2006). Early study design proposals are laid out in Glazerman and Myers (2004).

[9]To meet the minimum requirements, a proposal needed to include a technical discussion of the intervention, teacher training materials, classroom materials, and a budget.

[10]During the pilot year, each developer recruited three Title I schools, trained an average of three teachers per school, and provided support to teachers during the year. The study team observed training and instruction, reviewed training and instructional materials, and provided formative feedback to the developers.

- **Project CRISS (**developed by CRISS) (Santa et al. 2004): Project CRISS focuses on five keys to learning—background knowledge, purpose setting, author's craft (which involves using text structure to improve comprehension), active learning, and metacognition. The program is designed to be used each day during language arts, science, or social studies periods.

- **ReadAbout** (developed by Scholastic) (Scholastic 2005): Students are taught reading comprehension skills such as author's purpose, main idea, cause and effect, compare and contrast, summarizing, and inferences, primarily through a computer program. Students apply what they have learned to a selection of science and social studies trade books.

- **Read for Real** (developed by Chapman University and Zaner-Bloser) (Crawford et al. 2005): In Read for Real, teachers work with a six-volume set of books to teach reading strategies students can use before, during, and after reading (such as previewing, activating prior knowledge, setting a purpose, main idea, graphic organizers, and text structures). Each of these units includes vocabulary, fluency, and writing activities.

- **Reading for Knowledge** (developed by the Success for All Foundation) (Madden and Crenson 2006): Reading for Knowledge makes extensive use of cooperative learning strategies and a process called SQRRRL (Survey, Question, Read, Restate, Review, Learn).

Recruiting Districts and Schools for the Study

The study team recruited school districts for the study beginning in January 2006. The team focused on districts that served low-income students and had enough schools to support the random assignment of schools in each participating district to the five arms of the study.

Interested districts worked with the study team to identify schools that served low-income students and did not already use any of the four curricula identified for the study (or other similar comprehension curricula). By August 2006, participating districts and schools had been identified and participation agreements with districts obtained. A total of 10 districts and 89 schools agreed to participate. As expected—given the types of districts and schools being recruited—the participating districts and schools were statistically significantly different from schools and districts nationwide in several respects. They had higher poverty levels (63 percent of students in study districts were eligible for free or reduced-price lunch, compared to 40 percent of students in districts nationally), were larger (38,026 students per study district, compared to 3,153 students per district nationally), and were more urban than districts and schools nationally (70 percent of study districts were in urban areas, compared to 11 percent of districts nationally).

Collecting Data

Addressing the study questions required information about the curricula and how they were implemented, study participants, and students' performance outcomes. Information about teaching and implementation of the curricula was collected to support an examination of the fidelity of implementation to each curriculum design, the ways the curricula affected more general (non-curriculum-specific) teaching practices related to comprehension and vocabulary instruction, and the resources required to implement the curricula. Data on all three "levels" of study participants—schools, teachers, and students—were collected as a basis for describing their characteristics as they entered the study. Student outcomes were measured through assessments administered towards the end of the 2006-2007 school year. More information on the study's key data sources is provided below (see box for a summary).

Data Source	Time Collected	Description of Data
Classroom Observations (Developed by study team. See Appendix J for a copy of the instrument.)	January-April 2007	Observers documented the number of times they observed instructional practices related to vocabulary and comprehension instruction. In treatment classrooms, observers also documented whether the teachers adhered to the curriculum content and procedures prescribed by the developers.
Teacher Survey (Developed by study team. See Appendix J for a copy of the instrument.)	August-November 2006	This survey gathered data on teacher characteristics, experience, educational credentials, impressions about the culture in their school, and attitudes about student engagement, instructional strategies, and classroom management.
School Information Form (Developed by study team. See Appendix J for a copy of the instrument.)	April-June 2007	This form collected data on school characteristics such as enrollment, the percentage of students classified as English Language Learners, and the percentage of students eligible for free or reduced-price lunch.
Student Records (Developed by study team. See Appendix J for a copy of the instrument.)	May-October 2007	This form gathered data on student characteristics such as gender, date of birth, race, ethnicity, and eligibility for free or reduced-price lunch.
Test of Silent Contextual Reading Fluency (TOSCRF) (Hammill 2006)	August-October 2006	This assessment measured students' skills in word identification, word meaning, and sentence structure.
Passage Comprehension Subtest of the Group Reading Assessment and Diagnostic Evaluation (GRADE) (Williams 2001)	August-October 2006 (baseline), April-June 2007 (follow up)	This test assessed students' general reading comprehension skills.
Science and Social Studies Reading Comprehension Assessments (Educational Testing Service 2007a and 2007b)	April-June 2007 (follow up)	These assessments focused on students' reading comprehension of science and social studies text.

Information About Teaching and Implementation of the Curricula. Three data collection activities focused on teachers, teaching, and implementation of the four reading comprehension curricula. Two of these involved classroom observations, conducted in spring 2007 for two purposes. To support interpretation of the impact estimates, intervention-specific "fidelity" observations of classes taught by treatment group teachers were conducted to determine the extent to which the teachers adhered to the curriculum content and procedures prescribed by each developer. To describe more general teacher practices related to comprehension and vocabulary instruction (as opposed to practices linked to a specific intervention) and determine whether these practices were correlated with intervention impacts, "quality of instruction" observations were carried out in both treatment and control group classrooms to record the frequency with which teachers engaged in behaviors that research suggests are effective comprehension and vocabulary teaching practices. The third data collection activity that addressed the implementation of the curricula was a survey of developers on the cost of their curriculum to school districts.

To help summarize the large amount of "quality of instruction" observation data collected on general (non-intervention-specific) teaching practices related to comprehension and vocabulary instruction, the following three summary scales were created (for details on these scales, see Chapter II and Appendix F):[11]

- ***Traditional Interaction.*** This scale captures interactive teaching practices, primarily focused on vocabulary instruction and drawing inferences from text, that have been in use for many decades in American schools (Durkin 1978-1979; Brophy and Evertson 1976).

- ***Reading Strategy Guidance.*** This scale captures teachers' use of aspects of strategy instruction (such as using text structure and generating summaries to improve comprehension) to build students' comprehension ability.

- ***Classroom Management and Student Engagement.*** This scale captures teaching practices related to the management of student behavior and students' engagement.

Data on Teacher Characteristics. The Teacher Survey, conducted in early fall 2006, served three main purposes. First, it allowed the study team to describe the teachers participating in the study. Second, it was used to assess the similarity of treatment and control group teacher characteristics. Third, it made it possible to examine the relationship between teacher characteristics and impacts, including examining the relationship between impacts and school culture and teachers' ability to benefit from the professional development provided to treatment group teachers as part of the study.

The Teacher Survey data were used to create two scales for this third purpose (see Appendix F for details):

[11]These scales were used in two ways: (1) to describe teacher practices in the treatment and control groups and (2) to examine the nonexperimental relationship between impacts on student reading comprehension outcomes and these scale scores.

- ***School Professional Culture.*** The School Professional Culture scale is intended to capture conditions in schools that affect the quality of instruction (Consortium on Chicago School Research 1999; Carlisle 2003). The scale's 35 items were included in the Teacher Survey developed for this study. They reflect teachers' perceptions of the culture in their school, including relationships with colleagues, access to professional development, experiences with changes being implemented in their school, and leadership support in their school.

- ***Teacher Efficacy.*** The Teacher Efficacy scale is intended to capture teachers' ability to benefit from professional development (Sparks 1988; permission to use scale provided by Hoy and Woolfolk 1993). The scale's 12 items, included in the Teacher Survey developed for this study, ask about teachers' attitudes concerning student engagement, instructional strategies, and classroom management.

Data on School and Student Characteristics. The School Information Forms, collected at the end of the 2006-2007 school year, captured data on school characteristics, which were used to describe the study context, contribute school-level variables to the impact analysis, and examine the relationship between impacts and conditions in schools. At the end of the 2006-2007 school year, the study team also asked schools to provide records data on each student, including several stable items that could be used to describe students' baseline characteristics (such as gender, race, and ethnicity).

Data on Students' Baseline Achievement Levels. Two student assessments administered at the start of the 2006-2007 school year allowed the study team to characterize the achievement level of study students at baseline:

- ***Passage Comprehension subtest of the Group Reading Assessment and Diagnostic Evaluation (GRADE).*** This assessment, published by Pearson Learning Group, measures a student's ability to comprehend text passages (Williams 2001).

- ***Test of Silent Contextual Reading Fluency (TOSCRF).*** This assessment yields a score that reflects skills such as word identification, word meaning, and sentence structure, all of which are important skills for reading comprehension (Hammill et al. 2006).

Data on Student Outcomes. Data on student outcomes were collected from two sources at the end of the fifth-grade year (spring 2007). First, students were retested using the GRADE (Williams 2001). In addition, students were tested for comprehension of social studies and science informational text, using assessments specially developed by the Educational Testing Service (ETS) for the study (Educational Testing Service 2007a and 2007b). To reduce burden, half the students were randomly assigned to take the science test and half to take the social studies test.

Summary of Study Findings

The study's key findings focus on curriculum implementation and impacts on student achievement. The implementation analyses document treatment teachers' training and feelings of preparedness to implement the curricula, adherence to their assigned curriculum, and teaching practices observed among teachers in the treatment and control group classrooms. The impact analyses examine how student outcomes were affected by the curricula and how the impacts relate to conditions and practices in study schools and classrooms.

Implementation Findings. Five key findings emerged from the implementation analyses:

1. **During summer and early fall 2006, over 90 percent (91-100 percent) of treatment teachers were trained to use the curricula.** Ninety-one percent of Read for Real teachers, 96 percent of Reading for Knowledge teachers, and 100 percent of Project CRISS and ReadAbout teachers were trained in the use of the curricula.

2. **More than half of the teachers (56 to 80 percent) reported feeling very well prepared by the training to implement the curricula.** Fifty-six percent of Reading for Knowledge teachers, 69 percent of Project CRISS teachers, 72 percent of ReadAbout teachers, and 80 percent of Read for Real teachers reported that they felt very well prepared to implement their assigned curricula.

3. **At the time of the classroom observations in the spring, over 80 percent (81 to 91 percent) of treatment teachers reported using their assigned curriculum.** Eighty-one percent of Read for Real teachers, 83 percent of Reading for Knowledge teachers, 87 percent of ReadAbout teachers, and 91 percent of Project CRISS teachers reported using their assigned curriculum.

4. **Classroom observation data showed that teachers implemented 55 to 78 percent of the behaviors deemed important by the developers for implementing each curriculum.** ReadAbout and Project CRISS teachers implemented, on average, 71 and 78 percent of such behaviors, respectively. Reading for Knowledge teachers implemented 58 and 65 percent of the behaviors deemed important for the two types of instructional days that are part of the curriculum. Finally, Read for Real teachers implemented 55 and 71 percent of the behaviors deemed important for the two types of instructional days that are part of that curriculum.

5. **Two of three teacher practice scales were not statistically significantly different between the treatment and control groups.** For the purposes of describing teacher practices, the study team constructed scales summarizing teacher practices in three areas. There were no statistically significant differences in the Reading Strategy Guidance and Classroom Management and Student Engagement scales. Scores on the third scale, Traditional Interaction, were statistically significantly lower for the treatment group than the control group (effect size: -0.52).

Impact Findings. The effectiveness of the study curricula was gauged by experimental comparisons of reading comprehension test scores between students in treatment and control schools. Effects on test scores were estimated using a statistical model that accounts for clustering of students within schools, adjusts tests of statistical significance for the multiple

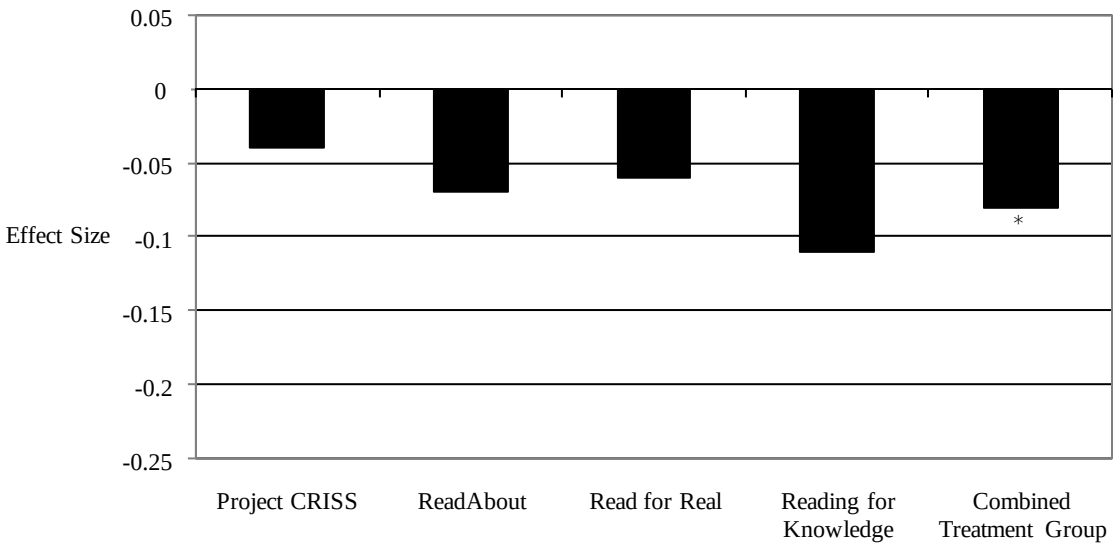
comparisons being made in the study, and includes covariates to increase statistical precision. The study's key impact findings, described below, were robust to a variety of sensitivity tests including variations in model specification, method of estimation, and method of adjusting for multiple comparisons.

In this report, two types of impacts are presented. First, impacts are presented for each intervention (for example, outcomes of students in ReadAbout schools are compared to outcomes of students in the control group). These impacts provide information on the effectiveness of each intervention, which may be helpful to readers considering implementing one of the interventions included in the study. Second, impacts are presented for the combined treatment group. In this analysis, the outcomes of students in all four intervention groups *combined* are compared to outcomes of students in the control group. These impacts provide information on the effectiveness of reading comprehension interventions more broadly (not the specific impacts of any one intervention). Impacts for the combined treatment group are presented for two main reasons. First, although the details of each intervention differ, the four interventions share common strategies for improving reading comprehension, so examining the interventions as a group is a reasonable approach to address the question of whether the use of these types of interventions, in general, improves comprehension. Second, examining the combined treatment group gives the study more power than looking at an individual treatment group.

The analysis of impacts was designed to answer two types of questions: (1) confirmatory (primary) questions about whether the reading comprehension interventions "work" and (2) exploratory (secondary) questions about for whom and under what conditions they might work. Answers to the confirmatory questions, all of which are supported by the experimental design and have a causal interpretation, indicate whether or not the interventions have the intended effect of improving reading comprehension. Answers to the second set of questions can help interpret the answers to confirmatory impact questions and guide future research on reading comprehension interventions. Answers to these exploratory questions do not always allow causal conclusions to be drawn about the impacts of the interventions for subgroups. A subgroup analysis that maintains the properties of random assignment allows causal conclusions about the impacts of the intervention for that subgroup to be drawn because it ensures that there are no systematic differences between subgroup members in the treatment and control groups. In this report, such subgroup analyses are those in which the subgroups are based on teacher, student, or school characteristics that could not have been influenced by the intervention, including teacher experience, students' prior test scores and English language learner status, and the schools' concentration of English language learners and students eligible for free or reduced-price lunch. A subgroup analysis that does *not* maintain the properties of random assignment does *not* allow causal conclusions about the impact of the intervention for that subgroup to be drawn because subgroup members in the treatment and control groups might differ systematically. In this report, such subgroup analyses are those in which the subgroups are based on teacher characteristics that could have been influenced by the intervention, including teachers' reported professional development participation, teaching efficacy, and professional culture in the school (all of which could be affected by the product-specific training teachers in the treatment group received during the summer before the intervention year).

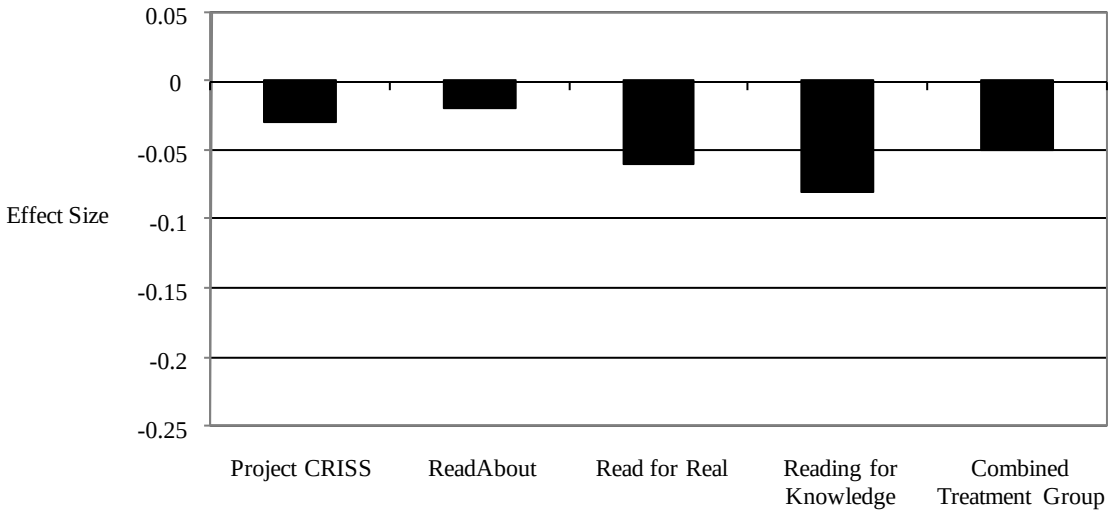
Answers to Confirmatory Questions on Intervention Effectiveness. Figures 1 through 4 show observed score differences on the GRADE, ETS science comprehension assessment, ETS social studies comprehension assessment, and a composite score based on an average of the GRADE and ETS test scores. All differences are shown in effect size units, which (as noted above) allows for a comparison of results for tests scored in different units.

Figure 1: Effects of Reading Comprehension Curricula on GRADE Score



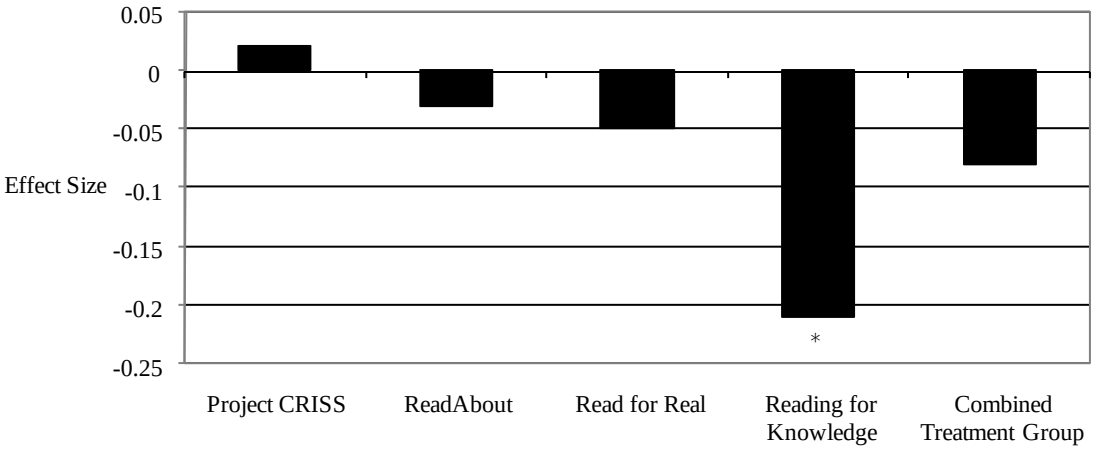
*Statistically different from the control group at the .05 level.

Figure 2: Effects of Reading Comprehension Curricula on Social Studies Reading Comprehension Assessment Score



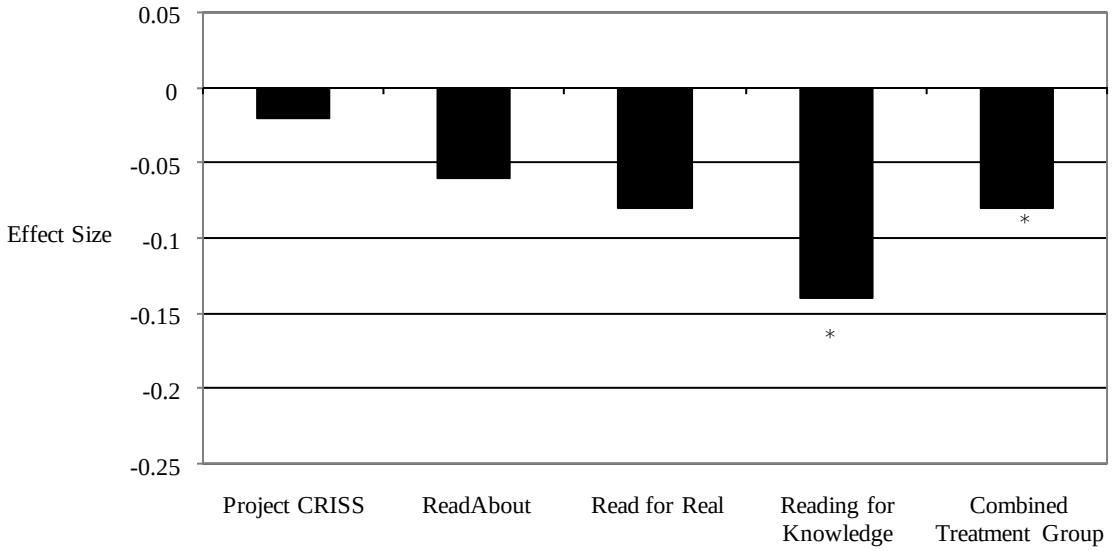
*Statistically different from the control group at the .05 level.

Figure 3: Effects of Reading Comprehension Curricula on Science Reading Comprehension Assessment Score



*Statistically different from the control group at the .05 level.

Figure 4: Effects of Reading Comprehension Curricula on Composite Test Scores



*Statistically different from the control group at the .05 level.

Reading comprehension test scores were not statistically significantly higher in schools using the selected reading comprehension curricula than in control schools. In fact, students' reading comprehension test scores were statistically significantly lower in treatment schools than in control schools. The treatment group as a whole scored lower than the control group on the GRADE assessment (Figure 1, effect size: -0.08), and the Reading for Knowledge group scored lower than the control group on the ETS science comprehension assessment (Figure 3, effect size: -0.21). On the composite test score, the treatment group as a whole scored lower than the control group and the Reading for Knowledge group scored lower than the control group (Figure 4, effect sizes: -0.08 and -0.14, respectively).

Answers to Exploratory Questions on the Effectiveness of the Interventions for Subgroups of Students. The student subgroups examined were defined based on variables that can be observed by teachers, and thus could be used as a basis for targeting the interventions to specific students (for example, students with below-average fluency levels might respond better to a particular intervention). Similarly, the teacher and school subgroups examined were defined using characteristics that might be used by teachers and principals to target interventions to specific settings (for example, certain interventions might be more effective in schools with above-average concentrations of English language learners or they might be more effective for teachers with below-average years of experience).

Although reading comprehension test scores in treatment schools were statistically significantly lower than scores in control schools for subgroups of students defined by certain baseline characteristics of students, teachers, and schools, no clear pattern to these findings emerged. For the combined treatment group, negative impacts (treatment students scoring lower than control students) were observed for the following subgroups, all of which have a causal interpretation because the subgroups are defined in terms of characteristics that were measured at the beginning of the study's implementation year, and thus could not have been influenced by the intervention:

- students with above-average baseline fluency levels (effect sizes: -0.23 for the social studies comprehension test score, where above-average is defined as above the average of 100 for the national norm sample, and -0.14 for the social studies comprehension test score, where above-average is defined as above the sample median of 89),
- students with baseline comprehension levels in the bottom third of the sample (effect sizes: -0.08 and -0.09 for the GRADE and composite test scores, respectively),
- students of teachers with more than five years teaching experience (effect size: -0.09 for the composite test score),
- students in schools with an above-average concentration of students eligible for free or reduced-price lunch (effect size: -0.11 for the composite test score), and
- students in schools with a below-average concentration of English language learners (effect sizes: -0.15 for the composite test score and -0.19 for the difference in impacts [on the composite test score] between students in schools with below-average and above-average concentrations of English language learners).

For the subgroups that did not maintain the properties of random assignment because teachers in the treatment group might have been affected by the product-specific training they received in the summer before the intervention year, the study found:

- for the combined treatment group, negative impacts for students in schools with a below-average School Professional Culture scale score (effect size: -0.14 for the composite test score), and
- no statistically significant impacts for the subgroups based on teachers' past professional development or teaching efficacy.

For Reading for Knowledge, statistically significant negative impacts were observed for students whose teachers had 10 or more years of teaching experience (effect size: -0.36 for the science comprehension test score). Other characteristics examined were not statistically significantly related to impacts. These include students' English language learner status, teachers' Teacher Efficacy scale scores, and teachers' past reading professional development. Impacts for subgroups defined by the Teacher Efficacy scale, School Professional Culture scale, and teachers' professional development cannot be interpreted causally, because treatment group teachers received additional professional development prior to the administration of the Teacher Survey (which could have affected the teachers' responses to questions on the survey about their professional development, teaching efficacy, and professional culture in their schools).

Answers to Exploratory Questions on the Relationship Between Intervention Effects and Teacher Practices. The study team also examined the relationship between intervention effects and classroom practices. These relationships must be interpreted cautiously because the interventions may have affected the extent to which teachers engage in specific practices or the types of teachers who choose to engage in those practices. More specifically, because the research design did *not* randomly assign interventions to teachers with different levels of teacher practices, factors that led teachers to have a certain level of teacher practices could explain the observed correlations. As a result, treatment and control teachers who engage in teaching practices to the same degree may differ in unmeasurable ways.[12] Therefore, it is important to note that these estimates of the relationship between intervention effects and teacher practices do *not* allow causal conclusions to be drawn.

Keeping these caveats in mind, several statistically significant relationships between teacher practices and intervention effects were observed. Students in Reading for Knowledge classrooms whose teachers had below-average scores on the Reading Strategy Guidance scale had statistically significantly lower composite test scores than students in control group classrooms in which teachers had below-average Reading Strategy Guidance scale scores (effect size: -0.23). Students in Read for Real classrooms of teachers with Classroom Management scale scores below the sample median had statistically significantly lower scores than students in control group classrooms taught by teachers with Classroom Management scale scores below the sample

[12]If the intervention affected teacher practices, then that impact on teacher practices might explain the overall impact on student test scores. However, it is not possible to make causal statements about that relationship (causal statements would require a different study design than the one we used on this study, such as one in which teachers or schools were randomly assigned to implement the interventions to different degrees or amounts).

median (effect sizes: -0.23 for the composite test score and -0.35 for the social studies reading comprehension test score).[13] In both cases, these differences raise questions for further research, but—as noted above—the estimates do *not* provide experimental or causal evidence.

A second study report will use a second year of data to examine two further questions: (1) whether the curricula are more effective after teachers and schools have had more experience using them, and (2) whether the curricula have any lasting impacts on student outcomes. To address the first question, we enrolled a second cohort of fifth-grade students in study schools and will determine whether impacts over one school year for those students are more positive than the impacts reported in the first report for the first cohort. To address the second question, students from the first fifth-grade cohort are being tested again at the end of the 2007-2008 school year to assess whether the impact results observed in the first year persist or change after a second year.

[13]See Appendix Figures F.1A through F.3 for information on how the frequency of specific teacher practices corresponds to different scale scores.

I. INTRODUCTION

There are increasing cognitive demands on student knowledge in middle elementary grades where students become primarily engaged in reading to learn, rather than learning to read (Chall 1983). Children from disadvantaged backgrounds often lack general vocabulary, as well as vocabulary related to academic concepts that enable them to comprehend what they are reading and acquire content knowledge (Hart and Risley 1995). They also often do not know how to use strategies to organize and acquire knowledge from informational text in content areas such as science and social studies (Snow and Biancarosa 2003). Instructional approaches for improving comprehension are not as well developed as those for decoding and fluency (Snow 2002). Although multiple techniques for direct instruction of comprehension in narrative text have been well-demonstrated in small studies, there is not as much evidence on teaching reading comprehension within content areas (National Institute of Child Health and Human Development 2000).

Improving the ability of disadvantaged children to read and comprehend text is an important element in federal education policy aimed at closing the achievement gap. Title I of the No Child Left Behind Act (NCLB) of 2002 calls on educators to close the gap between low- and high-achieving students, using approaches found effective in scientifically based research. Such research is limited, however, so it is difficult for educators to decide how best to use Title I funds to improve student outcomes. Finding effective interventions to improve reading comprehension is part of this challenge.

The Institute of Education Sciences (IES) of the Department of Education (ED) has undertaken a rigorous evaluation of interventions designed to improve reading comprehension as one step toward meeting that research challenge. The Impact Evaluation of Reading Comprehension Interventions, begun in 2004, will contribute to the scientific research base available to practitioners. Carefully selected reading comprehension interventions are being tested using a rigorous experimental design to determine their effects on reading comprehension among fifth-grade students in selected districts across the country.

Concerns over students' reading achievement[14] helped shape IES's process for defining research on issues related to Title I and the ultimate decision to focus this evaluation on reading comprehension of informational text. IES contracted with Mathematica Policy Research, Inc. (MPR) and its subcontractors in October 2002 to help identify issues relevant to Title I evaluation and to propose evaluation design options, and later, in October 2004, to conduct an evaluation.[15] IES and MPR drew on input from two expert panels in the design of the study: the

[14]Findings from the 2007 National Assessment of Educational Progress (NAEP) show that one-third of the nation's fourth graders have difficulty reading (U.S. Department of Education 2007). Other estimates suggest as many as 30 percent of elementary, middle, and high school students have reading problems that curtail educational progress and attainment (Moats 1999).

[15]These subcontractors were RMC Research Corporation, RG Research Group, the Vaughn Gross Center for Reading and Language Arts at the University of Texas at Austin, the University of Utah, and Evaluation Research Services.

Title I Independent Review Panel (IRP) set up by Congress to advise ED on Title I evaluation, and a special Technical Work Group (TWG) of experts on reading comprehension and evaluation design.

With input from these sources, IES decided on an evaluation plan focused on fifth graders, so that the study complemented other IES initiatives to investigate the effectiveness of Reading First for younger students. This focus also reflected the concern that disadvantaged students may continue to struggle with reading as they reach upper elementary grades. The focus was on testing interventions designed to improve comprehension of expository text. Outcomes were defined as the ability to comprehend such text generally and in two specific content areas, science and social studies.

The resulting evaluation addresses a need for reliable information on the effectiveness of commercially available curricula designed to improve students' reading comprehension skills. There is a massive body of research on children's reading and the individual comprehension strategies (or combinations of strategies) that may improve students' reading comprehension, but it offers little guidance on whether (and the extent to which) commercially available curricula improve students' reading comprehension (National Institute of Child Health and Human Development 2000). Moreover, the studies reviewed in the National Reading Panel (NRP) report suffered from a mix of limitations including small sample sizes, a focus on outcome assessments designed by the developers of the interventions being studied, the use of analytic methods that were not aligned with the unit of assignment, and the use of nonexperimental methods.

This study is designed to overcome those limitations. It focuses on curricula designed for commercial distribution. It is based on a rigorous experimental design and a large sample that includes 10 districts, 89 schools, 268 teachers, and 6,350 students. The student assessments used to examine the interventions' impacts on reading comprehension were selected by the study team rather than developers.

This report presents the background and design of the evaluation, and impact results from the 2006-2007 school year—the first year of intervention implementation and data collection. As background for those results, this chapter reviews the existing research on reading comprehension strategies, the study design, selection and recruitment of study sites, and the data collected. The remainder of the report presents findings on the implementation of the reading comprehension interventions and the impacts of those interventions on the first cohort of fifth-grade students, enrolled in the study in the 2006-2007 school year.[16]

A. PAST READING RESEARCH HAS FUELED USEFUL RECOMMENDATIONS, BUT LEFT QUESTIONS UNANSWERED

A significant amount of research on specific instructional strategies to enhance reading comprehension is available. Although that research has been used to guide the development of

[16]A second cohort of fifth-grade students was enrolled in the study in the 2007-2008 school year; results for that cohort will be presented in a later report.

many reading comprehension instructional programs, the effectiveness of those programs has not been studied (Liang and Dole 2006). In addition, the research base consists primarily of small-scale studies, many of which suffer from limitations in the rigor of their research design.

The NRP recommendations (National Institute of Child Health and Human Development 2000) and other research syntheses support a variety of techniques and approaches that can be classified into four groups: (1) student comprehension strategies, (2) teaching strategies, (3) instructional delivery, and (4) professional development. These recommendations are summarized below.

Student Comprehension Strategies. The NRP recommendations focus most of all on teaching students strategies for making meaning out of text. Two recent reviews (National Institute of Child Health and Human Development 2000; Gersten et al. 2001) concluded that research shows the most benefit comes from approaches in which students use multiple strategies flexibly as they read. Two types of strategies have been highlighted (both by the NRP and others, as noted in the citations that follow) as particularly important (Pearson et al. 1992; Pressley 2002; National Institute of Child Health and Human Development 2000; RAND Reading Study Group 2000):

- ***Summarizing.*** Summarizing consists of condensing textual information into essential or main points; it employs multiple strategies, such as determining what is important, categorizing, and organizing information (Brown and Day 1983).

- ***Question generation.*** Question generation involves students, not teachers, asking questions as they read (Martin and Pressley 1991; Wood et al. 1990; Rosenshine et al. 1996). The point of this strategy is for students to actively engage in the text by thinking about questions they want to answer as they read.

Teaching Strategies. A second group of recommendations from the NRP for effective comprehension instruction rests on strategies for teaching that appear to influence students' comprehension of text (National Institute of Child Health and Human Development 2000). These strategies include:

- ***Use of engaging text.*** Research has shown that students who read texts that are interesting or that relate to topics of interest to them demonstrate improved comprehension compared to when they read other types of text (Renninger et al. 1992). Similarly, other research (Guthrie et al. 1998; Guthrie et al. 2000a; Guthrie et al. 2000b) supports the benefits of using texts containing vivid details that are relevant to the task and easily accessible, with colorful photographs and illustrations (Schraw et al. 1995).

- ***Embedding strategy instruction in texts students use in learning academic disciplines.*** Research suggests that, when strategy instruction (for example, teaching students about summarizing or question generation) is embedded into the reading of text in different academic content areas, students will be more likely to transfer their use of the strategies to texts they read in other content areas and on their own (Pressley 1998; Pressley 2002). Conversely, when strategies are taught in isolation

(for example, on reading instruction workbook pages), students do not transfer skills from workbook pages to reading of expository texts (Pearson and Fielding 1991; Pressley 2000).

- ***Cooperative learning.*** Research suggests that cooperative learning—having students work together in groups, interacting with their peers while discussing text—can encourage students to think about and internalize comprehension strategies (National Institute of Child Health and Human Development 2000). Practicing a strategy in a small group has been found to contribute to the success of at least some researcher-developed instructional activities (National Institute of Child Health and Human Development 2000; Gersten et al. 2001).

Instructional Delivery. A third set of NRP recommendations focuses on instructional delivery—how best to implement instruction on student comprehension strategies (National Institute of Child Health and Human Development 2000). These recommendations encourage using direct, or explicit, instruction and explanation, two methods supported by research:

- ***Direct, or explicit, instruction.*** Teachers model how the comprehension strategy or skill is used (often called a "think aloud"), give feedback to students as they begin to use the strategy, and provide opportunities for students to practice using the strategy or skill independently (Rosenshine and Stevens 1986; Adams et al. 1982; Darch and Gersten 1986; Darch and Kame'enui 1987; Lloyd et al. 1980; Patching et al. 1983).

- ***Direct explanation of strategies.*** Teachers first *name and explain* a strategy, describe *when* and *how* it might best be used, and tell *why* it is important for improving reading. They next engage in a significant amount of explanation and cognitive modeling to show how to use the strategy. Students practice the strategy in teacher-mediated activities until they are able to use the strategy independently (Duffy et al. 1987; Duke and Pearson 2002; National Institute of Child Health and Human Development 2000; RAND Reading Study Group 2000).

Professional Development. A fourth focus of NRP recommendations, professional development in the teaching of reading comprehension strategies, has been found to be important in promoting effective teaching of reading comprehension (National Institute of Child Health and Human Development 2000). With sufficient professional development, teaching of comprehension strategies improves (Brown et al. 1996). Ongoing professional development consisting of one-on-one coaching, collaborative sharing, and lesson observation and feedback has helped teachers learn to teach comprehension strategies (Duffy et al. 1987). This body of research suggests that building skill in teaching reading comprehension requires a good deal of professional development and that thorough use of comprehension strategy instruction is difficult for many teachers.

The NRP's research review and other research summaries referenced above suggest that interventions to improve reading comprehension can have positive effects on student outcomes, but many of the individual studies on comprehension instruction have limitations that highlight the importance of this study. First, many studies have been based on instruction delivered to

students by well-trained graduate students or teachers personally trained by the researchers, which indicates little about how useful the interventions would be in "real-world" classrooms with teachers not exposed to such training (Klingner et al. 1998; Shany and Biemiller 1995). Another limitation is that reading materials that researchers used were sometimes different from those students typically encountered in classrooms (Anderson and Roit 1993; Baumann and Bergeron 1993). Although individual and even multiple strategies have been researched, no large-scale, rigorous studies of commercially available supplemental comprehension curricula have been conducted. Developers of most current commercial programs indicate that their programs are "research-based," but they generally mean that several instructional activities in the programs have been found to be effective. However, the *total* program usually has not been rigorously researched and found to be effective (Liang and Dole 2006). Finally, many studies used outcome measures that were closely aligned to the specific goal of the intervention and failed to use broader measures of comprehension ability (see, for example, Baumann 1984; Hare and Borchardt 1984; Raphael and Pearson 1985; Taylor and Beach 1984).

B. STUDY DESIGN: FOCUS ON RIGOR AND UNDERSTANDING INTERVENTIONS

To address the limitations of earlier research noted in the prior section, the plan for this evaluation is based on a rigorous experimental design and an emphasis on understanding the thoroughness of teachers' implementation of interventions under regular school conditions. The experimental design ensures a strong basis for answering the study's key research questions:

1. What is the impact of the reading comprehension curricula as a whole on reading comprehension, and how do the impacts of the individual curricula compare to one another?

2. How are student, teacher, and school characteristics related to impacts of the curricula?

3. Which instructional practices are related to impacts of the curricula?

The first research question provides confirmatory answers about intervention effectiveness. It addresses the question faced by school districts interested in investing in a curriculum to improve students' reading comprehension. The second and third questions are exploratory in nature. They help to understand what lies behind the basic impact results and might suggest directions for future research. In addition, answers to those questions provide school districts with more detailed information on the conditions in which the interventions might be effective.

Schools in districts that agreed to participate were randomly assigned to one of the five study arms (four intervention groups and one control group). Teachers and schools assigned to a treatment or intervention group developed their own strategies for incorporating the assigned reading comprehension curriculum into their daily schedules and their core reading instruction. (As described in more detail in the next section, the curricula being evaluated in this study were designed to supplement—not replace—the core reading curriculum being used by each teacher.) Teachers in control group schools continued to teach reading using the methods they had been using in the absence of the study. Due to the experimental design, differences in outcomes of students in the treatment and control groups are attributable to the interventions being tested.

Carrying out the study involved training fifth-grade teachers in treatment schools, and a careful examination of the "fidelity" with which treatment teachers adhered to the implementation guidelines for their assigned intervention. Curriculum developers provided training for teachers in schools assigned to their intervention. Researchers observed classes to collect information needed to assess the extent to which curricular implementation guidelines were followed.

SUMMARY OF FIRST-YEAR EVALUATION DESIGN

Intervention: Four reading comprehension curricula (Project CRISS, ReadAbout, Read for Real, and Reading for Knowledge) were selected as interventions for the study based on public submissions and ratings by an expert review panel.

Participants: 10 districts, 89 schools, 268 teachers, and 6,350 fifth-grade students. Districts were recruited from among those with at least 12 Title I schools, and schools were recruited only if they did not already use any of the four selected curricula. Students in those schools were eligible to participate if they were enrolled in fifth-grade classes when the baseline tests were administered in fall 2006, or if they enrolled after the baseline administration but before January 1, 2007. Students in combined fourth-/fifth- or fifth-/sixth-grade classes were excluded, as were those in special education classes, although special education students mainstreamed in regular fifth-grade classes were eligible to participate.

Research Design: Within each district, schools were randomly assigned to an intervention group that would use one of the four curricula or a control group that did not have access to any of the curricula being tested. For example, in a district with 10 schools, 2 schools were assigned to each treatment group and 2 schools were assigned to the control group. Control group teachers could, however, use other supplemental reading programs. The study administered tests to students in intervention and control schools near the beginning and end of the 2006-2007 school year. The study also observed classrooms during the school year and collected data from teacher questionnaires, student and school records, and the intervention developers.

Outcomes: Impact estimates focused on student reading comprehension test scores.

This study tests whether interventions are effective when districts volunteer to participate and schools and teachers volunteer to implement the interventions. Eligible districts that were invited to participate in the study were under no obligation to participate, and only some of them (10 of 71) agreed to do so.[17] When districts agreed to participate, they did so after holding discussions with leaders of schools that they felt best met the selection priorities for the study. Individual teachers could decline to participate in the study, but few did (94 percent of fifth-grade teachers in study schools agreed to participate).

[17]See Section D of this chapter for more details on the eligibility criteria for school districts.

The voluntary nature of the study, and the fact that schools and districts were participating in a study, could have affected impacts. In particular, impacts might differ from what might result if a district mandated a curriculum, or if curricula were used outside the context of a study.[18]

C. FOUR INTERVENTIONS SELECTED THROUGH A COMPETITIVE PROCESS

The goal of the reading comprehension evaluation was to test "high quality" supplemental interventions that would be available to schools searching for ways to improve students' comprehension skills. Criteria for selecting interventions were developed with input from the Technical Work Group and were based on existing reading research. An open, competitive process was used to solicit proposals from curriculum developers and to select study interventions. The plan, based upon the evaluation design and available resources, was to select four curricula for the study.

Proposals were formally solicited by the study team. A wide range of reading researchers and educational publishers were given advance notice and sent a formal Request for Proposal (RFP). The RFP described the type of interventions to be included in the study. The reading comprehension interventions needed to supplement—not displace—the core reading, science, and/or social studies instruction in fifth-grade classrooms. They needed to take an average of 30 to 45 minutes per day to implement and they needed to encompass an entire school year.

In response to the RFP, a total of 13 proposals were submitted. Those that included a technical discussion of the intervention, teacher training materials, classroom materials, and a budget were considered to have met minimum requirements and were forwarded to the expert panel for review. The expert panel then assessed the extent to which the proposals met substantive criteria for inclusion in a pilot implementation stage. These criteria related to the theoretical and empirical underpinnings of the intervention, evidence of the intervention's efficacy or effectiveness, the intervention design and the support proposed for teachers, institutional capability, and the appropriateness of the intervention for the study's target population (Table I.1).

Five programs were selected to participate in a pilot implementation during the 2005-2006 academic year. During the pilot year, each developer recruited three Title I schools, trained an average of three teachers per school, and provided support to teachers during the year. The study team observed training and instruction, reviewed training and instructional materials, and provided formative feedback to the developers so they could refine their interventions.[19]

After the pilot year, four of the five interventions that were included in the pilot year were selected for full implementation of the study. To make this decision, the expert panel reviewed curriculum materials and initial proposals as well as data collected during the pilot year (including notes on teacher training and classroom observations, comments to developers, and

[18]The study design just discussed is also described in James-Burdumy et al. (2006). Early study design proposals are laid out in Glazerman and Myers (2004).

[19]To eliminate any potential conflict of interest, the subcontractor who interacted with developers during the pilot year to refine the interventions was not involved in the impact study.

TABLE I.1

CRITERIA FOR SELECTING PROGRAMS FOR THE PILOT STUDY

Criteria		Points
1.	Summary description of intervention, theoretical and empirical support for the intervention content, and evidence of the intervention's efficacy or effectiveness	35
2.	Quality of the proposed intervention design	30
	a. Objectives of intervention, including description of desired teacher practices and skills that comprise the intervention	10
	b. Intensity and quality of teacher training design and follow-up support design	10
	c. Quality of training and support materials, quality of classroom activity materials, and quality of any intervention-specific assessments	10
3.	Institutional capability to provide training and follow-up support (staff qualifications, capacity to schedule and manage training)	20
4.	Appropriateness of intervention	15
	a. For target population (grade 5, Title I schools)	5
	b. For content (comprehension of expository text in social studies or science)	10

the developers' responses to those comments). The panel discussed all the interventions with IES and the study team and recommended the four curricula they concluded best met the study's selection criteria (Table I.2). Based on the study team's recommendations, IES then selected the following interventions (see Table II.1 for a summary of these interventions):

- **Project CRISS (**developed by CRISS) (Santa et al. 2004): Project CRISS focuses on five keys to learning—background knowledge, purpose setting, author's craft (which involves identifying and using the structure of text to help improve comprehension), active learning, and metacognition. The program is designed to be used during language arts, science, or social studies periods.

- **ReadAbout** (developed by Scholastic) (Scholastic 2005): Students are taught reading comprehension skills such as author's purpose, main idea, cause and effect, compare and contrast, summarizing, and inferences, primarily through a computer program. Students apply what they have learned during this time to a selection of science and social studies trade books.

- **Read for Real** (developed by Chapman University and Zaner-Bloser) (Crawford et al. 2005): In Read for Real, teachers work with a six-volume set of books to teach reading strategies appropriate for use before, during, and after reading (such as previewing, activating prior knowledge, setting a purpose, main idea, graphic organizers, and text structures). Each of these units includes vocabulary, fluency, and writing activities.

TABLE I.2

CRITERIA FOR SELECTING PROGRAMS FOR THE FULL STUDY

1. Meets contractual requirements for pilot test year
2. Ease of use for teacher
   a. Materials and activities are readily integrated into classroom routines (for example, teacher's guide provides lesson plans that are easy to follow; student materials have a wrap-around teacher's guide; activities, including computer applications, are functional)
   b. Teacher friendly materials (for example, lessons follow similar format; use of color or graphics makes lesson plans or scripts appealing and easy to follow)
3. Intensity/duration of teacher professional development
   a. Duration of initial training and follow-up support are commensurate with (or adequate for) program complexity
   b. Initial training and follow-up support are sufficient in motivating teachers to implement program as intended
   c. Initial training and follow-up support is well-specified
4. Program is well-specified and robust
   a. Program activities are clearly outlined and tied to expository reading comprehension objectives
   b. Program activities can be satisfactorily implemented by teachers with a range of teaching skill or experience
5. Developer has the capacity to support large-scale implementation
   a. Developer has sufficient staff to support up to 20 schools
   b. Training and support model is adequate to ensure fidelity of implementation
6. Theoretical and empirical support for the program's content and effectiveness
   a. Effectiveness of program's strategies based on prior theory or research
   b. Effectiveness of program based on program-specific empirical research

- **Reading for Knowledge** (developed by the Success for All Foundation) (Madden and Crenson 2006): Reading for Knowledge makes extensive use of cooperative learning strategies and a process called SQRRRL (Survey, Question, Read, Restate, Review, Learn).

D. STUDY DISTRICTS AND SCHOOLS SERVE DISADVANTAGED STUDENTS

The study's recruiting effort focused on engaging a large number of schools serving low-income students. This focus was guided by two factors: (1) the study's planned focus on schools serving this population of students and (2) the need to recruit enough schools to ensure we could detect a policy-relevant improvement in student achievement. There was no intention of identifying a sample of schools that would be statistically representative of U.S. schools or low-income schools, and, in fact, it was expected that study schools would be more disadvantaged than the typical U.S. school.

1. The Focus on Low-Income Schools Was Reflected in the Search for Eligible Districts and the Ultimate Sample

Three criteria were used to identify potential districts: (1) geographic diversity, (2) number of Title I schools with high poverty rates and ample numbers of fifth-grade students, and (3) adequate numbers of willing schools. We used the Common Core of Data (CCD) to identify districts that met specific thresholds with respect to poverty and size (National Center for Education Statistics, accessed 2005). To be eligible, districts had to have at least 12 schools that (1) received Title I funds, (2) had high poverty rates (at least 40 percent of students eligible for the federal free or reduced-price lunch program), and (3) had at least 60 fifth-grade students per school. These thresholds were set to increase the likelihood of recruiting a sufficient number of high-poverty Title I schools from each district to participate, and to ensure that the Title I schools identified included enough fifth graders to support the desired minimum detectable effect.

Once the set of potential districts was identified, an intensive recruitment effort was undertaken. The study team contacted eligible districts to find out whether they were interested in participating in the study. Beginning in January 2006, study staff visited all districts that expressed interest to describe the study and answer questions about participating. Study staff worked with district administrators to identify schools suitable for and interested in participating in the study. During this process, the study team focused on schools that were not using the reading comprehension supplements being tested in the study (or other comprehension supplements similar to those being tested).

This effort yielded a sample very close to the projected sample. The set of participating districts and schools was identified and agreements with districts to participate in the study were obtained by August 2006. A total of 10 districts and 89 schools agreed to participate (Table I.3). The 10 districts are spread across 8 states: Oregon, California, Arizona, Texas, Louisiana, Wisconsin, Georgia, and Florida. The number of participating schools in each district ranges

from 4 to 16.[20] Six districts included 10 or more participating schools, and 4 districts included between 4 and 7 participating schools.

TABLE I.3

NUMBER OF DISTRICTS, SCHOOLS, TEACHERS, AND STUDENTS IN STUDY SAMPLE

Intervention	Number of Districts	Number of Schools	Number of Teachers	Number of Students[a]
Project CRISS	10	17	52	1,319
ReadAbout	10	17	50	1,246
Read for Real	9[b]	16	54	1,227
Reading for Knowledge	10	18	53	1,191
Control Group	10	21	59	1,367
Total	**10**	**89**	**268**	**6,350**

[a]This number includes all consenting students in the analysis sample in spring 2007. Over 85 percent of students in the analysis sample were tested at follow up.

[b]One district did not have enough participating schools to include all four intervention groups. The interventions that were assigned in that district were selected randomly.

The districts included in the study were statistically significantly more disadvantaged, larger, and more urban than the average U.S. district (Table I.4). In particular, study districts had a higher percentage of students eligible for free or reduced-price lunch than the average district in the United States (63 percent vs. 40 percent). Study districts included more schools (69 vs. 6) and students (38,026 vs. 3,153) than the average U.S. district. Study districts were also more likely to be in urban areas (70 percent vs. 11 percent) and less likely to be in rural areas (10 percent vs. 52 percent) than the average district.

Similar statistically significant patterns were found for the schools participating in the study (Table I.5). For example, study schools were more likely to be eligible for Title I funds (99 percent vs. 70 percent) and almost twice as likely to be operating schoolwide Title I programs, as compared to the average U.S. school (86 percent vs. 44 percent).[21] Study schools also included a higher percentage of black (37 percent vs. 17 percent) and Hispanic (30 percent vs. 19 percent) students than the average school, reflecting the more urban nature of the study districts and schools.

[20]In the district with four schools, three schools were randomly assigned to three randomly selected treatment groups and one school was randomly assigned to the control group.

[21]Schools in which poor children make up at least 40 percent of enrollment are eligible to use Title I funds for schoolwide programs that serve all children in the school.

TABLE I.4

CHARACTERISTICS OF DISTRICTS IN THE STUDY

Characteristics	U.S. Districts[a]	Districts in Study	Difference	*p-value*
Number of Schools per District[b]	6.2	69.0	-62.8*	0.00
Number of Title I Schools per District				
Title I Eligible	3.3	43.8	-40.5*	0.00
Schoolwide Title I	1.9	36.6	-34.7*	0.00
District Location (Percentage)[c]				
Urban	10.9	70.0	-59.1*	0.00
Urban fringe	25.7	20.0	5.7	0.68
Town	11.4	0.0	11.4	0.26
Rural area	52.0	10.0	42.0*	0.01
Number of Full-Time Teachers per District[d]	157	2,054	-1,897*	0.00
Number of Students per District[b]	3,130	38,026	-34,895*	0.00
Percentage of Students Eligible for Free or Reduced-Price Lunch[e]	39.5	62.7	-23.2*	0.00
Number of Districts	**16,038**	**10**		

Source: 2004–2005 *Common Core of Data*.

[a]Data include districts with one or more regular schools. Regular schools are defined as public schools that do not focus primarily on vocational, special, or alternative education.

[b]Data is missing for 2 percent of districts with at least one regular school nationwide.

[c]Data is missing for 3 percent of districts with at least one regular school nationwide.

[d]Data is missing for 11 percent of districts with at least one regular school nationwide and 30 percent of study districts.

[e]Data is missing for 12 percent of districts with at least one regular school nationwide.

*Statistically different at the .05 level.

TABLE I.5

CHARACTERISTICS OF SCHOOLS IN THE STUDY

Characteristics	U.S. Schools[a]	Schools in Study	Difference	*p-value*
Schools Receiving Title I (Percentage)				
Title I Eligible School	70	99	-29*	0.00
Schoolwide Title I	44	86	-42*	0.00
School Location (Percentage)				
Urban	31	69	-38*	0.00
Urban fringe	34	19	15*	0.00
Town	7	0	7*	0.00
Rural area	29	11	18*	0.00
Students per Teacher (Average)	16	16	0	0.87
Number of Students per School (Average)	451	552	-101*	0.00
Students Eligible for Free or Reduced-Price Lunch (Percentage)	48	77	-29*	0.00
Student Race/Ethnicity (Percentage)				
White	58	31	27*	0.00
Black	17	37	-20*	0.00
Hispanic	19	30	-11*	0.00
Asian	4	2	2*	0.03
Native American	2	1	1	0.35
GRADE Score (Average)	100	100	0	1.00
Number of Schools[b]	**45,293**	**88**		

Source: 2004–2005 *Common Core of Data* (CCD). Data from the last row of the table is from two sources: (1) the study team's baseline GRADE test administration and (2) national GRADE norm information provided by the GRADE test's developer.

[a]Data include regular primary schools that reported having fifth-grade classrooms. Regular primary schools are defined as public elementary schools that do not focus primarily on vocational, special, or alternative education.

[b]CCD data is missing for 1 study school.

*Statistically different at the .05 level.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

We investigated one student baseline characteristic—the baseline GRADE scores—further, because the levels observed were somewhat higher than what one might expect given the nature of the study sample. As shown in Table I.5, the average scores for study students were roughly 100, which is the average score for the nationally normed GRADE sample. One might expect average scores on the GRADE to be lower than 100 for our study sample, given the concentration of disadvantaged students in the study schools.

There are some reasonable potential explanations for why this pattern emerged, a few of which are listed here. First, like our study sample, the norming sample used for the GRADE included a larger percentage of disadvantaged students than are found in schools nationwide. In particular, based on data provided by the GRADE test developer, in 21.3 percent of schools in the GRADE norming sample, more than half of students were eligible for free or reduced-price lunch, compared to just 14.6 percent of schools nationwide. Second, students in our study sample took about 40 minutes on average to complete the passage comprehension subtest of the GRADE, while the estimated time to complete this subtest provided by the developers of the GRADE is 25 minutes (the extra time study students took to complete the assessments could have allowed them to achieve higher scores, which could help explain the comparability of their scores to those from the students in the norming sample). Finally, 45 percent of students in our study sample are higher scoring on average than one might expect. Forty-five percent of students in our sample attended schools with average reading proficiency levels above the state average.

The integrity of the study design was maintained as the study progressed. Two treatment schools did not end up using their assigned intervention, but follow-up student testing was conducted in both of these schools to ensure that the integrity of the study's treatment and control groups was maintained.[22] See Appendix B for diagrams showing the flow of schools and students through the study.

2. The Sample Design Ensured an 80 Percent Probability of Detecting Impacts of at Least 0.17 Standard Deviations

The study design called for a sample that enabled, with 80 percent probability, the detection of impacts whose effect size was as small as 0.25 standard deviations. This calculation was based on assumptions regarding the intraclass correlation, school- and student-level R^2 (described below), and an adjustment for multiple comparisons. To attain this target effect size with 80 percent probability, the design called for recruiting 100 schools in 10 districts with 7,800 participating students. After recruitment was completed, the study was able, with 80 percent probability, to detect impacts on student test scores of at least 0.17 standard deviations. The increase in statistical power was due to a greater benefit from covariate adjustment than anticipated. We originally assumed that there would be an intraclass correlation of 0.10, and school- and student-level R^2 of 0.50. The major factor contributing to the increased power was

[22]One school stopped implementing the intervention early in the school year when the only teacher who attended training discontinued using the program. The other school (in another district) never implemented the program after teachers were trained; the school noted that its schedule could not accommodate the required 45 minutes of instructional time.

that the school-level R^2 turned out to be 0.89. With respect to teacher practices, which are of interest for the descriptive, implementation analysis, the study had less power due to smaller sample sizes of teachers and larger intraclass correlations (in the range of 0.20 to 0.30). For example, the smallest difference on the Traditional Interaction scale of a single intervention that the study could detect with 80 percent probability was 0.75.[23]

To put this in perspective, the average gain in GRADE scores among students in the control group between baseline and followup was 0.44 standard deviations over a period of 245 calendar days. The full school year is about 270 calendar days. Assuming a constant rate of achievement gain over time, a 0.17 standard deviation gain would take about one-third of a school year (0.17/(0.44*270/245) = 0.35). The study's ability to detect impacts as low as 0.17 standard deviations can also be compared with the findings of a meta-analysis by Rosenshine and Meister (1994), which found an average effect size of 0.32 across nine studies of the impact of multiple reading comprehension strategy instruction on standardized test scores. (This meta-analysis focused on reciprocal teaching, which involves the use of guided practice and dialogue between students and teachers to teach students about four comprehension strategies including question generation, summarization, prediction, and clarification.) Another meta-analysis by Rosenshine, Meister, and Chapman (1996) found an average effect size of 0.36 across 13 studies examining the impact of question generation on standardized test scores.

E. DATA COLLECTION ON TEACHERS, SCHOOLS, AND STUDENTS

Addressing the reading comprehension evaluation questions required collecting information about the interventions and how they were implemented, the study participants, and students' performance outcomes. We used information about implementation of the interventions to examine the fidelity of implementation to curriculum designs, to describe teaching practices related to comprehension and vocabulary instruction, and to examine the resources required to implement the interventions. Data were collected on all three "levels" of participants—schools, teachers, and students—as a basis for describing their characteristics as they entered the study and the preparation teachers had for using the new interventions (Table I.6).[24] We measured subsequent student outcomes through reading comprehension test scores. (A second year followup of this first student cohort will provide outcome measures and longer-term impact estimates from the end of sixth grade.)

1. Information on Teaching and Intervention Implementation

Three data collection activities focused on teachers, teaching, and implementation of the four reading comprehension interventions. Two of these activities involved classroom

[23]The minimum detectable effects reported in this paragraph are the effects that the study could detect with 80 percent probability (the standard level of power for reporting minimum detectable effects). The study could detect smaller effects with lower probability, which is why some of the reported statistically significant impacts are smaller than the effect sizes stated here.

[24]Appendix J includes copies of all study instruments, with the exception of the proprietary fluency and reading comprehension assessments.

observation. "Fidelity observations" of classes taught by treatment group teachers were conducted to determine the extent to which teachers adhered to the curriculum content and procedures prescribed by each developer. "Quality of instruction" observations were carried out, in both treatment and control group teachers' classrooms, to record the frequency with which teachers engaged in behaviors that experts consider to be good teaching practices for vocabulary and comprehension instruction. The third data collection activity pertaining to implementation of the interventions was a survey of developers on the cost of their curricula.

TABLE I.6

SCHEDULE OF YEAR ONE DATA COLLECTION ACTIVITIES

Data Collection Activity	Month
Student Reading Tests—Baseline	August-October 2006
Teacher Survey	August-November 2006
Classroom Observations	January-April 2007
Student Reading Tests—Followup	April-June 2007
School Information Form	April-June 2007
Developer Survey	April-May 2007
Student Records	May-October 2007

Fidelity Observation Was Used to Assess Adherence to Each Intervention. To support interpretation of the impact estimates, fidelity observations were conducted to provide a picture of how thoroughly the reading comprehension interventions were delivered. A separate fidelity observation form was developed for each intervention to capture whether treatment group teachers demonstrated behaviors or performed specific instructional activities inherent to the intervention. To create the forms, the evaluation team drew from each intervention's curriculum content and materials and then had the developer review the form to confirm that it accurately reflected the teaching practices and behaviors the developer expected as part of the curriculum's implementation. Trained observers used the forms to record, primarily in yes/no format, the occurrence of 7 to 28 teaching practices, depending on the intervention.[25, 26]

The fidelity observation (one per teacher) was conducted only for teachers who reported using the curriculum. Treatment teachers were asked to schedule an observation in the spring at a time when they would be using the reading comprehension intervention (the observations were

[25]For one intervention, these yes/no items were supplemented by questions about the focus of comprehension, vocabulary, and writing instruction, the length of instructional rotations and the number of students in the rotation, and the type of program materials used.

[26]The fidelity forms provide data on whether teachers engaged in a behavior or not; they do not provide data on the number of times the teachers engaged in each behavior or the quality of the behaviors. See Appendix J for a copy of the fidelity forms.

conducted between January and April 2007). If teachers reported they had never or were no longer using the curriculum, the fidelity observation was not conducted (see Section II.C for information on the relatively minor extent to which this occurred). However, to create a full picture of the extent to which treatment teachers implemented the interventions, our analysis of implementation fidelity (presented in Chapter II) includes all teachers who were expected to implement each intervention (the analysis treats non-implementing teachers as not having engaged in the fidelity form behaviors). In particular, ones and zeros, respectively, were used in the data file to indicate whether a teacher engaged in or did not engage in a behavior listed on each curriculum's fidelity form. For teachers who reported they had never or were no longer using the curriculum, zeros were entered in the data file for all fidelity form behavior variables.

Observation of the Quality of Instruction Provided a Basis for Assessing Differences in Teacher Practice. Structured observation across both treatment and control classrooms was done to provide descriptive information on the teaching practices in use in study classrooms. This observation focused on behaviors that reading experts posit as contributing to reading comprehension, rather than on the procedures developed by each curriculum developer. The approach provides a snapshot of the reading instruction fifth-grade students received from teachers using expository texts. A team of experts in reading instruction and classroom observation developed an Expository Reading Comprehension Classroom Observation Instrument (referred to here as "the ERC") to measure how much teachers used each of the vocabulary and comprehension-related teaching practices this team identified.

The ERC was designed so study team observers could record tallies of the number of times teachers displayed the instructional behaviors.[27] This approach to rating the quality of instruction was favored over the alternative approach of requiring observers to make more global judgments of the extent to which each behavior was observed, because the former approach was more likely to yield an unbiased measure of performed behaviors.

The team of reading experts determined the critical behaviors to be recorded. Based on a review of prominent reading research, they identified the key behaviors associated with improved reading achievement, developed measures of those behaviors, and then refined the measures using trial observations of classroom teachers. Small experimental studies have suggested that "scaffolded" instruction involving the identified behaviors (in which teachers provide explicit instruction and then gradually withdraw the amount of assistance they offer to students) helps students develop foundational reading comprehension abilities (Palincsar and Brown 1984; see Rosenshine et al. 1996 for a review).

The behaviors identified for the ERC form (and the teacher practice scales based on those behaviors) were indeed related to student test score outcomes observed in this evaluation. Two of the three scales created (the Reading Strategy Guidance and Classroom Management scales)

[27]Tallies (or counts) of the number of times teachers engaged in these teaching practices were used to create scales summarizing teachers' practices. The process of creating these scales involved three main steps: (1) coding the tallies into ordinal categories, (2) conducting an exploratory factor analysis to determine conceptual groupings of items, and (3) estimating an IRT model using the categorical variables formed in the first step. These steps are explained in detail in Section II.D and Appendix F. Appendix I presents key descriptive statistics (such as means and standard deviations) for the full set of fidelity and ERC observation items.

were statistically significantly related to follow-up student test scores (see Appendix F for more information on how criterion validity was assessed).

The behaviors recorded on the ERC form comprised practices related to comprehension and vocabulary.[28] Observers documented occurrences of eight comprehension-related behaviors. Some of these behaviors occur before reading (for example, activating prior knowledge); others before, during, or after reading (for example, explicit instruction on how to use comprehension strategies); and still others during or after reading (for example, asking students to justify their responses). For each behavior, observers recorded the number of times the practice occurred in the form of (1) teacher modeling, (2) teacher explaining, reviewing, providing examples, or elaborating, or (3) student practice. Six behaviors related to vocabulary were tallied. Observers noted, for example, the number of times teachers provided an explanation or definition, or the number of times teachers provided examples, contrasting examples, multiple meanings, or elaborations on student responses.

Analysis of teacher behavior data was based on observations conducted on one day—when informational texts were used—for each treatment and control teacher. Observations were conducted in January through April 2007, so teachers had time over the first part of the school year to become familiar and practiced with the new curriculum. Study staff observed any class period in which teachers were using informational text, including reading/language arts, science, social studies, and test preparation. In departmentalized schools, all teachers who taught a given classroom of students for reading/language arts, science, or social studies were considered a teaching unit, and all were observed. Observers tallied the targeted behaviors in 10-minute intervals (recording up to 11 tallies within each interval) and observed as many intervals in which informational text was used as occurred (up to 10 intervals within each class period), to capture all instruction involving informational text. We conducted observations of 98 percent of the teachers.[29]

Observers participated in four days of training, and inter-rater reliability of at least 80 percent was achieved during the training. The training included detailed explanations of behavior items and practice observing videotaped classes. Each observer who achieved at least 80 percent reliability with a master trainer (defined as within one tally for each item in the time interval) was certified to conduct classroom observations for the study.

Assessments of inter-rater reliability continued during data collection to ensure that no erosion of consistency had occurred. Pairings of a master trainer with each observer at least once during the first two weeks of observation, coupled with randomly assigned pairings of regular observers throughout the field period, provided inter-rater reliability data on 25 percent of the teachers and classrooms observed.[30] A variety of measures were used to assess inter-rater reliability, including simple sums of tallies and mean tallies for each teacher across the 10-

[28]See Appendix J for a copy of the ERC form.

[29]Response rates for each arm of the study (four treatment groups and one control group) are provided in Appendix E.

[30]When a behavior was not observed during an interval, observers recorded a tally of zero. Reliability was computed both with and without these zeroes (the latter was done to guard against inflation of inter-rater reliability).

minute intervals. Later, we computed scales from the tallies (see Section II.D and Appendix F), and the inter-rater reliability for the three scales ranged from 0.94 to 0.98.

Developer Survey Provided Data on Costs of Implementing The Programs. Since treatment schools did not have to pay to receive the reading program assigned to them for the study, we asked developers about the costs that nonstudy schools would incur to implement their program in the 2006-2007 school year. Using an ingredients approach (Levin and McEwan 2001), we identified all the items schools would need to purchase to implement and obtain support for the interventions. We then asked developers to specify the unit charge for each item, and we calculated total costs per reading comprehension program based on the quantities needed of each unit. This approach allowed us to compare (1) the implementation and support services that developers provided to study districts, schools, and teachers with what they typically provided to others outside the study purchasing their services in the 2006-2007 school year, and (2) program costs and implementation and support services provided across developers.

2. Data to Describe Teachers, Schools, and Students

An essential part of documenting study results is describing the participants and assessing the similarity of the treatment and control groups. Data collection therefore included a Teacher Survey, School Information Form, student assessments, and Student Records Form.

Teacher Survey Obtained Data on Teacher Characteristics and Attitudes. Information about teachers was collected to strengthen the impact analysis. These data allow the study team to describe the teachers participating in the study, assess the similarity of treatment and control-group teacher characteristics, and examine the relationship between teacher characteristics and intervention impacts. The Teacher Survey included items about the teacher's background and experience (years of experience overall and at the current school), grade levels taught, educational credentials, gender, age, and race/ethnicity. The survey also included items from School Professional Culture and Teacher Efficacy scales (see below for details on these scales). For treatment teachers only, the survey contained questions about the training they received on the study curriculum. Treatment teachers were asked to rate the training on various dimensions and to indicate how well prepared to use the curriculum they felt as a result of the training.

The survey was conducted in August through November 2006 in treatment and control schools, as teachers began the first study year. In nondepartmentalized schools, the questionnaire was given to all fifth-grade teachers. In departmentalized schools, the survey was usually administered to reading/language arts teachers (in a few treatment schools it was given to science or social studies teachers instead because they had received the intervention training and the reading/language arts teachers had not). A response rate of 93 percent was achieved. Item responses were used to create two scales, a Teacher Efficacy scale and a School Professional Culture scale (see Appendix F for details):

- ***Teacher Efficacy.*** This scale was included on the Teacher Survey because it is correlated with teachers' ability to benefit from professional development (Sparks

1988).[31] It is based on 12 items from the Teacher Survey developed for this study (items used with permission from Hoy and Woolfolk, 1993). These items ask about teachers' attitudes about student engagement, instructional strategies, and classroom management. The reliability of the Teacher Efficacy scale was .90.

- ***School Professional Culture.*** This scale was designed to capture conditions in schools that affect quality of instruction (Consortium on Chicago School Research 1999; Carlisle 2003). It is based on 35 items from the Teacher Survey developed for this study and reflects teachers' perceptions of the culture in their school, including relationships with colleagues, access to professional development, experiences with changes being implemented in their school, and leadership support in their school. The reliability of the School Professional Culture scale was .87.

School Information Forms Captured Data on School Characteristics. Schools provided information that could help describe the study context, contribute school-level variables to the impact analysis, and permit the study team to examine the relationship between impacts and conditions in schools. At the end of the first study year (between May and October 2007), schools were asked to complete a form with information on their enrollment and their fifth grade, the percentage of students eligible for free or reduced-price lunches, the percentage classified as ELL, the percentage falling in standard racial/ethnic categories, and whether the school had participated in Reading First the previous year. Schools also provided information on the textbooks, basal reading series, and special programs or supplementary curricula they were using for reading instruction just before the study began. The form collected school-level averages on the most recent standardized test scores in reading and math for grades 4 and 5, the tests that were given, and the test administration dates. Finally, schools provided information about their participation in any magnet programs or comprehensive school reform. Data were collected from 94 percent of the schools.

Baseline Data on Students Were Collected from Tests and Records. Data on student achievement levels were used to characterize the student sample at baseline. Starting in the third week of school (after enrollment had settled and parental consent had been obtained), the study team administered two standardized tests to fifth graders. Table I.7 describes the norming samples and presents reliability and validity statistics for these two assessments (and a third administered at followup). Descriptions of the two baseline tests are as follows:

- ***The Passage Comprehension subtest of the Group Reading Assessment and Diagnostic Evaluation (GRADE).*** The GRADE (published by Pearson Learning Group) is a multiple-choice, paper-and-pencil, group-administered, untimed test that measures baseline skills and student improvement in critical reading areas (Williams 2001). The Passage Comprehension subtest measures the ability to comprehend extended text as a whole, using short passages in different genres and questions that "incorporate the metacognitive strategies of questioning, predicting, clarifying, and summarizing, as well as inclusion of a variety of sentence structures" (http://www.pearsonlearning.com). A response rate of 95 percent was achieved.

[31]The items included on the Teacher Survey are an abbreviated version of a teacher efficacy scale (Hoy and Woolfolk 1993; Gibson and Dembo 1984).

TABLE I.7

FEATURES OF TESTS USED IN THE STUDY

Characteristic	Group Reading Assessment and Diagnostic Evaluation (GRADE), Passage Comprehension Subtest	Test of Silent Contextual Reading Fluency (TOSCRF)	Educational Testing Service (ETS) Social Studies/Science Reading Comprehension Assessments
General Information	Commercially available norm-referenced, group-administered reading assessment. The Passage Comprehension subtest measures students' ability to comprehend extended text as a whole. Students read a passage and then answer multiple-choice questions about the passage. Two alternative forms are available.	Commercially available norm-referenced, group-administered assessment of silent reading fluency. The test measures the speed with which students can recognize the individual words in a series of printed passages that are printed in uppercase without punctuation or spaces between words.	Two tests developed specifically for the Evaluation of Reading Comprehension Interventions. The tests measure students' ability to comprehend expository text; one test emphasizes the reading of science-based passages while the other emphasizes the reading of social studies-based passages. Students read a passage and then answer multiple-choice questions about the passage.
Norm Sample	National norms for the full test are based on samples of students in 46 states—16,408 in spring 2000 and 17,024 in fall 2000. Norms for the fifth-grade Passage Comprehension subtest are based on 473 students in spring and 570 students in fall. The average student in the norm sample has a standard score of 100, and the standard deviation of standard scores is 15.	National norms are based on a sample of 1,898 students in 23 states tested in spring and fall of 2004. The average student in the norm sample has a standard score of 100, and the standard deviation of standard scores is 15.	Not nationally normed.
Reliability	Split-half reliability coefficients for the fifth-grade Passage Comprehension are .94 for Form A and .92 for Form B. Alternate form reliability for the fifth-grade test is .89. Test-retest reliability for the fifth-grade Form A is .77 (corrected for the effects of restriction of range).	Alternate form reliabilities range from .83 to .87. Test-retest reliabilities range from .85 to .88 (corrected for the effects of restriction of range).	Internal consistency reliability (Cronbach's Alpha) is .85 for the science test and .84 for the social studies test.
Validity	Evidence of content, criterion-related, and construct validity.	Evidence of content, criterion-related, and construct validity.	Not provided.
Grade Range	PK – 12	2 – 12	5
Age Range	Not provided.	7.0 – 18.11	Not provided.
Number of Test Items	Six passages, each with six questions.	Twelve printed passages that become progressively more difficult in their content, vocabulary, and grammar.	Five passages, each with six questions.
Average Passage Length	158 words	NA	Science test – 391 words Social studies test – 454 words
Readability Scores	Flesch-Kincaid grade levels range from 3.9 to 8.5. Mean=6.1. Lexile measures range from 510 to 1130. Mean=803.	NA	Science passages: Flesch-Kincaid grade levels range from 3.7 to 6.2. Mean=5.5. Lexile measures range from 590 to 930. Mean=850. Social studies passages: Flesch-Kincaid grade levels range from 4.6 to 5.6. Mean=5.2. Lexile measures range from 680 to 790. Mean=748.
Test Time	The subtest is untimed, but the estimated time for completion is 25 minutes.	3 minutes	The tests are untimed, but the estimated time for completion is 30 minutes.

Source:Hammill et al. (2006) Test of Silent Contextual Reading Fluency (TOSCRF), Examiner's Manual, Pro Ed, Austin, TX; Williams, K. T. (2001) Group Reading Assessment and Diagnostic Evaluation (GRADE) Technical Manual, American Guidance Service, Inc., Circle Pines, MN. Information about the science and social studies tests was provided in a technical report provided by ETS.

NA = not available.

- ***Test of Silent Contextual Reading Fluency (TOSCRF).*** This paper-and-pencil, group-administered, timed test measures skills such as word identification, word meaning, and sentence structure, all of which are important for reading comprehension. Commonly known as the "slasher test," this assessment presents words using uppercase letters without any spaces or punctuation and requires students to insert slashes between letters to distinguish words (http://www.proedinc.com). Since the test allows students only three minutes for completion, it was conducted on the same day as the baseline GRADE test. Ninety-four percent of students completed the TOSCRF test.

The study team also asked schools to provide data on each student. Although these data were collected at the end of fifth grade, some stable items that serve as baseline student characteristics were obtained. The data included date of birth, gender, race/ethnicity, ELL and disability status, and eligibility for free or reduced-price lunch. Districts abstracted most or all of these data from their databases, with some data gathered manually by school staff or local study team staff. Overall, we obtained records for 96 percent of students.

3. Data Used to Measure Student Outcomes

Data on student outcomes were collected from two sources at the end of the fifth-grade year (between April and June 2007). First, students were retested using the GRADE (Williams 2001) and an 88 percent completion rate was achieved. Second, students were tested for comprehension of social studies and science text, using assessments developed specially for the study.

The Educational Testing Service (ETS) developed tests to assess comprehension of informational text, drawing from its item bank and creating some new items (Educational Testing Service 2007a and 2007b). The multiple-choice, paper-and-pencil, group-administered, untimed assessments included either social studies or science passages. The questions asked about the passages' main idea, significant details, vocabulary, and author's purpose, and asked students to draw inferences. To reduce burden, half the students were randomly assigned to take the science test and half to take the social studies test. Generally, the tests were conducted within the same week (but not on the same day) in which the GRADE was administered. Eighty-seven percent of students completed the science or social studies test.

4. Year 2 Data Collection

A second-year extension of the study, with two main components, is also being conducted. The first component follows students from the study's first year for one more year, using the same follow-up outcome measures, to examine the extent to which impacts of the interventions are sustained over time. The second component essentially repeats the first year of the study for three of the four interventions with a new cohort of fifth graders to assess whether the interventions are more effective after schools and teachers have had one year of experience using them. Results from Year 2 of the study will be presented in a later report.

II. IMPLEMENTATION FINDINGS

Assessing program implementation is an important ingredient in impact studies of educational interventions. Early evaluations of federal educational programs often demonstrated minimal or null effects, but in some instances it was found that the programs being tested had not really been implemented (Charters and Jones 1973). This observation led to ambitious studies of the implementation of educational programs, such as Follow Through (Stallings 1975) and Title I (Cooley and Leinhardt 1980). In impact studies, understanding the extent and quality of implementation can help researchers interpret statistically significant impact results (or the absence of impacts), form hypotheses about whether and how subsequent implementation experiences might yield different impact results, and understand whether schools are able to implement the interventions in a way that is consistent with developer recommendations.

In this study, implementation refers to teacher practices and behaviors, which can be measured from two perspectives. The most common perspective focuses on assessing the extent to which teachers demonstrate adherence to procedures or practices deemed critical for implementing a particular curriculum or intervention design. Checklists of practices essential to proper implementation are specified by the curriculum developer or by others, based on the features of the particular curriculum. This approach is appealing because it corresponds to the common understanding of "program implementation," and the rating scales and checklists can be easy for observers to complete.

However, this method also has several drawbacks (Gersten et al. 2000). Developers often find it difficult to identify the critical elements of their intervention. There can be variation in the level of detail they specify, and corresponding variation in the specificity and detail of the guidance that curricula give teachers. Some developers' materials are detailed and exacting, while others allow teachers great latitude. These differences correspond to variation in the level of detail that observers can be asked to look for in the classroom. As a result, 80 percent implementation of Intervention A may not be equivalent to, or as difficult to achieve as, 80 percent implementation of Intervention B. Quality differences may also go unnoted; two teachers may achieve identical scores, one following procedures in rote fashion and the other in a dynamic, interactive, engaging fashion.

The alternative perspective involves a common observational system to assess teaching practices, regardless of the details of the curricula or interventions observed. For example, the Project Follow Through study of seven instructional models (Stallings 1975) used a common observational procedure to describe reading and mathematics instruction in classrooms operating under the seven intervention models as well as control group classrooms.

A common observational system has advantages related to the "common lens" trained on the classroom, whatever the name or stated philosophical underpinnings associated with the intervention being studied. Researchers have used this approach to examine the instructional practices associated with enhanced academic outcomes, using the same definition of practices, regardless of the intervention (for example, Cooley and Leinhardt 1980; Rosenshine and Stevens 1986; Dynarski et al. 2007; Glazerman et al. 2008). In a multi-treatment impact study, consistent

definitions of practices make it possible to use the measures of implementation to describe how the various treatments differ and how they differ from the control condition, and to use them as mediating variables in the impact analysis.

Both approaches were used in this evaluation. We developed and used a procedural fidelity form for each of the four interventions to gauge whether teachers did in the classroom what the curriculum developers prescribed. We also developed a common observational system for use in all intervention and control classrooms when students and teachers were working with informational text, to record the frequency of behaviors that earlier research suggested were associated with enhanced comprehension outcomes. In Sections A and B below, we summarize the features of the four interventions and the extent of preparation and training the teachers in the intervention classrooms received. Section C focuses on the results of the intervention-specific fidelity analysis, and Section D presents descriptive information on teacher practices, including comparisons of educational practices across treatment and control groups using three scales derived from the observational data.

A. INTERVENTION FEATURES

All four study interventions share a set of common comprehension strategies, instructional strategies, and student activities, but there are some differences in emphasis (Table II.1) and cost. All of the interventions focus on teaching students four core reading comprehension strategies (although they are not always labeled in the same way):

- ***Elements of text structure.*** This strategy involves identifying and using the structure and organization of text to help improve comprehension. Elements of text structure include headings, subheadings, visuals, and graphics; organizational elements include cause and effect, compare and contrast, problem and solution, and sequencing. Project CRISS calls this strategy "author's craft." ReadAbout refers to "reading skills," while Read for Real calls this practice "interacting with text" and Reading for Knowledge considers these elements to be part of the "predicting strategy."

- ***Self-questioning.*** This strategy involves asking oneself questions about the text before, during, and after reading as a way to improve comprehension. Project CRISS and Read for Real call this "setting a purpose," while ReadAbout and Reading for Knowledge call this "questioning."

- ***Clarifying understanding.*** This strategy involves methods for clarifying the meaning of words, sentences, or passages that a student does not understand. These behaviors are called "fix-up strategies" by Project CRISS, "monitoring, rereading, or repairing" by ReadAbout, "clarifying understanding" by Read for Real, and simply "clarifying" by Reading for Knowledge.

- ***Summarizing.*** The summarizing strategy involves identifying the main ideas and important details in a passage and listing them orally or in writing. ReadAbout and Reading for Knowledge call this summarizing, Project CRISS calls it "organizing strategies," and Read for Real labels it "recalling."

TABLE II.1

SUMMARY OF READING COMPREHENSION PROGRAMS

Program/ Developer	Program Focus	Teacher Training	Instructional Components[a]	Student Materials
Project CRISS/ CRISS	Focuses on five metacognitive Keys to Learning to help students become strategic learners: (1) background knowledge, (2) purpose setting, (3) author's craft (text structure), (4) active involvement (writing, discussion), and (5) organization (transforming information using writing and graphic organizers).	18 hours of initial training, 6 hours of follow-up training. Monthly trainer visits to each school to observe teachers and provide feedback. CRISS Cornerstones manual and DVD provide follow-up lessons for teacher learning community teams. Includes administrator and parent training components.	• Teacher's edition of *Learning How to Learn* provides detailed lesson plans for each chapter. Recommended use for 30-45 minutes per day. • Strategies are learned and practiced using *Tough Terminators*, a science trade book. • Uses variety of graphic organizers and note-taking, discussion, vocabulary, and writing strategies. • Students apply strategies to regular science and social studies texts.	Student book, *Learning How to Learn*, includes 19 chapters in a four-step format: (1) prepare, (2) be involved, (3) organize, and (4) apply. Each chapter focuses on two to four learning strategies.
ReadAbout/ Scholastic	Students are taught 10 comprehension skills: identifying author's purpose, identifying cause & effect, comparing & contrasting, drawing conclusions, distinguishing fact & opinion, locating main idea & details, making inferences, identifying problem & solution, sequencing events, and summarizing. Students also learn seven reading strategies: visualizing, setting a purpose, monitoring, rereading, summarizing, questioning, and repairing.	Six hours of initial training (plus access to the online course, *Improving Reading Comprehension)*, six hours of follow-up training in the fall, six hours of follow-up training in the spring.	• Adaptive computer software used three times per week for 20 minutes. Software teaches comprehension skills, vocabulary, and content knowledge. • Students use offline materials once per week for 20 minutes. Offline materials include whole-class or small-group lessons on comprehension skills, vocabulary strategies, text types, or writing skills. Students rotate among computer, teacher-led, and independent reading groups. • Teacher materials include suggestions for English Language Learners and differentiated instruction.	Three core components are (1) a software program, (2) SmartFile topic cards (supplemental print articles), and (3) a content library of science and social studies trade books. Reading passages are classified by three topics (science, social studies, and life), and five reading bands with Lexile ranges. Includes an assessment and writing topic at the end of each reading topic.

Table II.1 *(continued)*

Program/ Developer	Program Focus	Teacher Training	Instructional Components[a]	Student Materials
Read for Real/ Zaner-Bloser	Each unit focuses on (1) a Before Reading strategy (previewing, activating prior knowledge, or setting a purpose), (2) a During Reading strategy (making connections, interacting with text, or clarifying understanding), and (3) an After Reading strategy (recalling, evaluating, or responding).	12 hours of initial training, which includes an overview of research-based reading strategies as well as training on using the curriculum. Follow-up includes six hours of on-site training, plus telephone support and an online teacher support forum.	• Each unit has three reading selections for students to learn, practice, and apply a comprehension strategy. • Lessons take 30-45 minutes per day. • Teacher Guide includes a script for guiding reading and discussion of each story, activities for English Language Learners, writing activities, and comprehension tests.	*Read for Real* literacy series has six leveled books for Grades 3-8. Each book has six units, and each unit has three reading selections. New vocabulary words are defined in sidebars and a student "reading partner" in the text models thinking about each strategy. Vocabulary, writing, and fluency activities follow each reading selection. Includes unit tests and answer keys.
Reading for Knowledge/ Success for All (SFA)	Program focuses on four key comprehension strategies: (1) clarifying, (2) predicting, (3) summarizing, and (4) questioning. Includes vocabulary building strategies in each lesson.	12 hours of initial training, six hours of follow-up training, and quarterly teacher meetings with SFA trainer. Four professional development videos guide teacher learning community meetings.	• Detailed daily lesson plans for 17 units (eight days each) covering 136 lessons. Lessons take 45 minutes per day. • Lessons follow same process: Set the stage, Active instruction, Teamwork (paired reading, team talk), and Reflection (teams share with class). • The four key strategies are introduced to students using video-based lessons. • Major cooperative learning component in the program.	Reading comprehension strategies are taught using a Student Edition for each strategy, a Video Viewing Guide, a set of science and social studies trade books, Strategy Practice sheets, and Strategy Cue cards to encourage transfer of skills to other content reading. Includes unit tests and answer keys.

[a]The amount of time reported for lessons is based on programs' recommended usage, not on actual usage by teachers in the study.

Two of the curricula, however, go beyond these core strategies and provide students with additional comprehension tools (see box below for a summary of the intervention features discussed in this section). Project CRISS and Read for Real also teach students to think (before they start reading or while they are reading) about what they already know concerning the topic. They call this strategy variously "background knowledge," "activating prior knowledge," or "making connections."

All of these interventions also have certain instructional methods or student activities in common. For example, all of the curricula include teacher-directed instruction; such instruction can include explaining, modeling, and guided practice. Delivering the four interventions also involves student practice activities, such as having students read aloud or complete worksheets or graphic organizers.

SUMMARY OF INTERVENTION FEATURES

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge
Comprehension Strategies				
Identification of text structure	√	√	√	√
Self-questioning	√	√	√	√
Clarifying understanding	√	√	√	√
Summarizing	√	√	√	√
Activating prior knowledge	√		√	
Instructional Methods and Student Activities				
Teacher-directed instruction	√	√	√	√
Student practice	√	√	√	√
End-of-unit assessments		√	√	√
Practice skills using content-area trade book(s)	√	√		√
Technology used as teaching tool		√		√
Cooperative learning component				√

Other instructional methods figure in three of the four curricula. Three of the programs (Project CRISS, ReadAbout, and Reading for Knowledge) have students practice their reading skills and strategies as they read selected science and social studies trade books. All of the programs except Project CRISS provide assessments at the end of each unit. Two programs use technology as a teaching tool and for student practice—ReadAbout includes adaptive computer software and Reading for Knowledge includes four videotapes that introduce and model the program's four reading strategies. Reading for Knowledge also includes a cooperative learning component in which teachers track individual and team participation "points" to provide incentives for both individual and group effort.

Although the four curricula tested in the evaluation have much in common substantively, they are offered to educators under different pricing structures (Table II.2). One developer includes all curriculum components in one price, while the others list separate prices for various

TABLE II.2

PROGRAM COSTS

Costs	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge
Base Cost	Program components are purchased separately	Licenses:[a] $6,000/60 students and two classroom kits; $9,500 for 100 students and three kits; $19,500/360 students and 12 kits. Kits include teacher materials (Topic Planners [cards that preview the ReadAbout software passages and vocabulary]; Know About ReadAbout Guide; assessments, reports, and the Differentiated Instruction Guide; the ReadAbout Software Manual; the SAM software manual; and the SAM Reference Guide) and classroom materials for students (SmartFiles [cards that extend the software], a poster, and Bonus Card Stickers). Each school receives Professional Papers, ReadAbout Installation Kits, and an SRI Installation Kit. Licenses also cover initial teacher training.	Program is purchased by buying the program materials: $475.75/ classroom (25 students); $18.99/extra copy	Program cost not yet known (the curriculum was adapted from Success for All for the study during the pilot year)
Costs Not Included in Base Cost				
Initial Training	$45/person if district provides trainer; $55/person with national trainer, plus $800/day per trainer (for two to four days of training), plus travel expenses[b]	No additional cost for the one day of initial training	No additional cost if entire district is participating; otherwise, $1,000/day (two days) per trainer, plus travel expenses	No additional cost for the two days of initial training
Follow-up Training	$800/day trainer honorarium (for one to two days of training), plus the trainer's travel expenses[b]	$2,500/one-day training for up to about 20 teachers ($2,000/ 1/2-day seminar x two seminars = $4,000 x 37 percent discount for multiple seminars = $2,500; for 2 or more trainings, there is a 44 percent discount)	No follow-up training	No additional cost for the one day of follow-up training
Additional Services and Support	Parent workshop: Cost per booklet, $4 for 1-50 parents, $3 for 51-200 parents, and $2 for 201+ parents Email and telephone consultation were added for schools in the study	$2,500/school for technology installation[c] $2,800/school for premium technical support (web, telephone, emails)[d]	A website with an electronic bulletin board, a helpdesk, and email or telephone consultation were added for schools in the study	No additional cost for quarterly visits in which a trainer observes and then meets with each teacher to discuss goal setting, planning, and other feedback; or email and group teleconferencing
Materials	Optional: Classroom set, $550: one teacher's manual with Critterman DVD, 31 Tough Terminators (student book), and 30 student workbooks; extra student book, $10; extra student workbook, $8; video, $445 each; posters, $125/set of 30 posters; administrator materials, $55/each; Cornerstones (follow-up booklet and CD-ROM for teachers' independent use), $35/each	No additional materials	No additional materials	No additional materials

Source: Developer Interviews: Reading Program Costs and Services.

[a]Licenses are valid in perpetuity.

[b]Typically districts use their own trainers after the first year, but if insufficient capacity was built during the first year, districts can continue to pay for national trainers.

[c]Installation costs are a one-time fee.

[d]There is a premium technical support discount of 15 percent for 11 to 20 schools, 25 percent for 21 to 30 schools, 30 percent for 31 to 50 schools, 35 percent for 51 to 80 schools, and 40 percent for 81 or more schools.

curriculum components. For example, to implement Read for Real, districts would pay one price for all program materials (based on the number of participating classrooms), with teacher training and support included in that amount. To implement ReadAbout, districts would pay a per-classroom price that would encompass licenses, classroom kits, and initial training. For Project CRISS, on the other hand, districts would pay separate prices for training and for optional materials. The Reading for Knowledge developer was unable to provide a purchase price because the program was adapted from Success for All for the study and its pricing structure had not yet been determined.

Despite these differences in pricing arrangements, it is possible to discern how prices vary across curricula and for districts of different sizes. Costs for the intervention programs range from roughly $3,000 up to $187,000, depending on the size of the school district and certain standardizing assumptions (Table II.3). Costs that would have been incurred by non-study districts to purchase these programs in the 2006-2007 school year range from about $3,000 to almost $14,000 for a sample small district to about $34,000 to $187,000 for a sample large district, after various discounts for districts with many schools have been considered. The costs for all the programs would drop after the first year, when materials have been purchased, software has been installed, and experienced teachers within the district may be able to provide some or all of the training. Costs would fall most dramatically for ReadAbout, since its licenses (the most expensive component of the program) are valid in perpetuity.

B. TEACHER TRAINING AND SUPPORT

The training that prepares teachers to implement a new curriculum can be an important determinant of how well they deliver it, and thus whether and how it affects student outcomes. In this evaluation, developers trained teachers in the treatment group schools. Understanding this training and the extent to which teachers participated in it can inform our interpretation of the interventions' estimated impacts on student outcomes. This information also can contribute to our understanding of the observed differences in teacher practices between the treatment and control groups, since differences in practice could be expected to emerge only if a large percentage of teachers participated in the training (see Section D of this chapter for information on the comparison of treatment and control group teaching behaviors).

Implementing the interventions involved training and support for teachers (see Table II.4). On average, the developers' training plans called for providing treatment group teachers with two days or 12 hours of initial training on using the intervention curricula. The initial training prescribed for the interventions ranged from 6 hours for ReadAbout to 18 hours for Project CRISS. Two-thirds of initial intervention training sessions were held in the summer before the school year started.[32]

All of the curriculum developers' training plans called for providing follow-up training and support to maintain and continue building teacher skills in using the interventions. An average of 7.5 hours of follow-up training were prescribed by the developers of the interventions, ranging from 6 hours (Project CRISS, Read for Real, Reading for Knowledge) to 12 hours (ReadAbout).

[32]The timeline for the initial training is shown in Appendix D.

TABLE II.3

ESTIMATED PROGRAM COSTS FOR TYPICAL SMALL, MEDIUM, AND LARGE DISTRICTS

District Size	Project CRISS (in Dollars)[a]		ReadAbout (in Dollars)[b]		Read for Real (in Dollars)[c]		Reading for Knowledge
Small (districts with < 2,500 students); assumptions: • One elementary school • Two fifth-grade teachers • 50 students and parents	0	Base cost	6,000	Base cost	952	Base cost	Program cost not yet known (the curriculum was adapted from Success for All for the study during the pilot year).
	2,510	Initial training	0	Initial training	2,000	Initial training	
	800	Follow-up training	2,500	Follow-up training	0	Follow-up training	
	200	Additional support	5,300	Additional support	0	Additional support	
	1,100	Materials	0	Materials	0	Materials	
	4,610	**Total**	**13,800**	**Total**	**2,952**	**Total**	
Medium (districts with 2,500-9,999 students); assumptions: • Four elementary schools • 12 fifth-grade teachers • 300 students and parents	0	Base cost	19,500	Base cost	5,709	Base cost	Program cost not yet known (the curriculum was adapted from Success for All for the study during the pilot year).
	3,060	Initial training	0	Initial training	2,000	Initial training	
	800	Follow-up training	2,500	Follow-up training	0	Follow-up training	
	600	Additional support	21,200	Additional support	0	Additional support	
	6,600	Materials	0	Materials	0	Materials	
	11,060	**Total**	**43,200**	**Total**	**7,709**	**Total**	
Large (districts with ≥10,000 students); assumptions: • 17 elementary schools • 68 fifth-grade teachers • 1,700 students and parents	0	Base cost	97,500	Base cost	32,351	Base cost	Program cost not yet known (the curriculum was adapted from Success for All for the study during the pilot year).
	8,540	Initial training	0	Initial training	2,000	Initial training	
	1,600	Follow-up training	6,720	Follow-up training	0	Follow-up training	
	3,400	Additional support	82,960	Additional support	0	Additional support	
	37,400	Materials	0	Materials	0	Materials	
	50,940	**Total**	**187,180**	**Total**	**34,351**	**Total**	

[a]Assumptions: A national trainer is provided for three days of initial training and one day of follow-up training; one trainer would be used for the small and medium district; two trainers would be used for the large district; the trainers' travel expenses would be in addition to the amounts shown. The optional classroom set is purchased.

[b]Assumptions: Licenses come in packets at $6,000 for 60 students, $9,500 for 100 students, and $19,500 for 360 students. The small district requires a set of 60 licenses, the medium district a set of 360 licenses, and the large district five sets of 360 licenses. The small and medium districts receive a 37 percent discount on the follow-up training, and the large district (which requires three follow-up trainings to train the 68 teachers) receives a 44 percent discount. The large district also qualifies for a 15 percent discount on premium technical support since it has 17 schools.

[c]Assumptions: One trainer would be used for the small and medium district; two trainers would be used for the large district; the trainers' travel expenses would be in addition to the amounts shown.

TABLE II.4

SUMMARY OF TEACHER TRAINING

	Initial Training	Follow-Up Training and Ongoing Support
Project CRISS	18 hours of initial training, which includes 12 hours on using the strategies in the teacher's guide and 6 hours on using the student text and workbook. Teachers receive a training manual, teacher's guide, student text, and a wrap-around edition of the student workbook.	Six hours of follow-up training. Monthly trainer visits to each school to observe teachers and provide feedback. Developer encourages teachers to use bi-weekly study teams in which teachers review and discuss their use of CRISS strategies.
ReadAbout	Six hours of initial training covering program components (computer software, SmartFiles, Topic Planners), reading strategies, and test data interpretation.	12 hours of follow-up training (6 hours in the fall and 6 hours in the spring) to provide more in-depth understanding of program components and strategies and to provide instruction in using student data to make instructional decisions.
Read for Real	12 hours of initial training on connecting to prior knowledge, active reading strategies, vocabulary, text analysis, graphic organizers, Know-Want to Know-Learned (KWL), and using writing to assess comprehension.	Six hours of follow-up training. Telephone support and online teacher support forum.
Reading for Knowledge	12 hours of initial training, which includes an overview of the 4 critical comprehension strategies as well as instruction in cooperative learning and monitoring strategy use.	Six hours of follow-up training. Developer encourages teachers to meet once per month to discuss program implementation. Each quarter SFA trainer attends teacher meetings, provides support and feedback (on-site and by phone), and observes reading and content area classes.

In addition to the formal follow-up training, the plan for providing ongoing support to teachers using Project CRISS called for monthly visits to each school to observe teachers and offer feedback. The plan for providing ongoing support to teachers using Reading for Knowledge called for quarterly onsite visits. All developers' plans for providing ongoing support to teachers called for the provision of telephone support to answer teachers' questions during the implementation year.

Over 90 percent (91 to 100 percent) of the teachers in treatment group schools participated in the initial training sessions provided by the developers (see Table II.5). Teacher participation ranged from 91 percent (Read for Real) to 100 percent (Project CRISS and ReadAbout). Less than 6 percent (0 to 5 percent) of these teachers were trained by developers in makeup sessions after the initial training, because they were hired after the initial group training or had schedule conflicts at the time of the initial training. Statistical tests comparing the percentage of teachers trained in the four intervention groups showed no statistically significant differences between the groups (Table II.6).

TABLE II.5

TEACHER TRAINING PARTICIPATION AND PREPARATION
(Percentage)

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge
Percentage of Teachers Trained[a]	100	100	91	96
Percentage of Teachers Reporting that the Initial Training Prepared Them to Implement the Curriculum				
Not at all	0	0	0	0
Somewhat	31	28	20	44
Very well	69	72	80	56
Number of Teachers	**52**	**50**	**54**	**53**

Source: Teacher training stipend claim forms, Teacher Survey.

[a]Three developers (Project CRISS, ReadAbout, and Reading for Knowledge) provided nonstandard training for teachers who missed the original training sessions. The nonstandard training involved working with teachers individually to cover content they missed.

After training, all teachers reported feeling "somewhat" or "very well" prepared to use their assigned intervention. Approximately 70 to 80 percent of the Project CRISS, ReadAbout, and Read for Real teachers reported feeling "very well" prepared by the initial training to implement the intervention, while 56 percent of the Reading for Knowledge teachers reported feeling very well prepared (Table II.5).[33] None of the teachers reported feeling "not at all" prepared.

[33]Teacher Survey comments about the Reading for Knowledge training suggest a variety of reasons why 44 percent of the Reading for Knowledge teachers may have reported feeling only "somewhat prepared" after training. These comments include too much material being covered in two days of training, more practice time being needed during training, and too much time elapsing between the training and intervention implementation.

Statistical tests comparing the distribution of teachers' feelings of preparedness in the four intervention groups showed one statistically significant difference between the groups (Table II.6). Read for Real teachers were statistically significantly more likely than Reading for Knowledge teachers to report feeling very well prepared by the training to implement the curriculum (80 percent vs. 56 percent).

TABLE II.6

DIFFERENCES IN TRAINING PARTICIPATION AND PREPARATION BETWEEN TREATMENT TEACHERS
(Percentage)

	Differences in Means Between					
	Project CRISS and			ReadAbout and		Read for Real and
	ReadAbout	Read for Real	Reading for Knowledge	Read for Real	Reading for Knowledge	Reading for Knowledge
Percentage of Teachers Trained[a]	0 (.)	9 (.)	4 (.)	9 (.)	4 (.)	-5 (0.29)
Percentage of Teachers Reporting that the Initial Training Prepared Them to Implement the Curriculum						
Not at all	0 (0.80)	0 (0.20)	0 (0.28)	0 (0.38)	0 (0.22)	0* (0.01)
Somewhat	3 (0.80)	12 (0.20)	-12 (0.28)	9 (0.38)	-15 (0.22)	-24* (0.01)
Very well	-3 (0.80)	-12 (0.20)	12 (0.28)	-9 (0.38)	15 (0.22)	24* (0.01)

Source: Teacher training stipend claim forms, Teacher Survey.

Note: The *p-values* from tests of differences in treatment-group means are presented in parentheses. These tests account for clustering of teachers within schools. *P-values* could not be obtained when most of the teachers in a treatment group were trained. This is indicated by a (.).

[a]Three developers (Project CRISS, ReadAbout, and Reading for Knowledge) provided non-standard training for teachers who missed the original training sessions. The non-standard training involved working with teachers individually to cover content they missed.

*Statistically different at the .05 level.

In addition to examining the extent to which treatment group teachers reported participating in the specific training sessions on using the study interventions, the study also collected information on participation of all teachers (both treatment and control) in more broadly defined professional development activities in the 12 months prior to data collection. Because the Teacher Survey in which this data was collected was conducted in fall 2006, the 12 months prior to the survey included the period during which the initial training on the use of the study interventions was conducted. Because the professional development reported by teachers could include any training, including the study intervention training received by treatment group teachers, one might hypothesize that the study would observe higher rates of professional development in reading instruction for treatment group teachers than for control group teachers. Comparisons of the treatment and control group teachers confirm this hypothesis, showing a difference in teachers' participation in professional development in reading instruction across the treatment and control groups. Statistical tests were used to compare treatment and control group teachers' participation in professional development in reading instruction. This comparison showed that treatment group teachers reported participating in reading instruction professional development in the past 12 months at a statistically significantly higher rate than control group teachers (Table II.7). Across all treatment groups, 92 percent of teachers reported having participated in professional development in reading instruction during the previous 12 months, compared to 78 percent of control group teachers. ReadAbout teachers were also statistically significantly more likely to report participating in reading instruction professional development than control group teachers (94 percent vs. 78 percent).

Statistical tests showed statistically significantly more reported hours of reading instruction professional development for combined treatment group teachers than control group teachers. (The categories for number of hours of professional development shown in Table II.7 correspond to the categories teachers used to record their responses on the study's Teacher Survey.) For example, 26 percent of the combined treatment group teachers reported 17 to 32 hours of reading instruction professional development, compared with 14 percent of control group teachers. Reported hours were also statistically significantly higher for ReadAbout and Reading for Knowledge teachers than control group teachers. For example, 27 percent of ReadAbout teachers and 25 percent of Reading for Knowledge teachers reported 17 to 32 hours of reading instruction professional development, compared with 14 percent of control group teachers.

No statistically significant differences between three of the four individual treatment groups (Project CRISS, Read for Real, or Reading for Knowledge) and the control group were observed in teachers' reported participation in reading instruction professional development, but observed differences are all in the expected direction (Table II.7). Statistical comparisons of teachers' reported participation in (and hours of) reading instruction professional development *between* the treatment groups were also statistically insignificant (Table II.8), reflecting the roughly comparable extent of training offered by the developers (see Table II.4).

C. OBSERVED FIDELITY OF IMPLEMENTATION

Interpreting impacts requires knowing the extent to which the interventions were implemented as intended. Fidelity observations were conducted in spring of the 2006-2007 school year (see Chapter I) to assess whether treatment group teachers were implementing the procedures of the intervention assigned to their school. Fidelity observations were conducted in

TABLE II.7

PARTICIPATION OF TREATMENT AND CONTROL TEACHERS IN READING INSTRUCTION PROFESSIONAL DEVELOPMENT

	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Percentage of Teachers Who Participated in Reading Instruction Professional Development in the Last 12 Months[a]	78	90 (0.07)	94* (0.02)	92 (0.09)	90 (0.16)	92* (0.01)
Percentage of Teachers Who Reported the Following Hours of Reading Instruction Professional Development						
0	22	10 (0.14)	6* (0.03)	8 (0.34)	10* (0.04)	8* (0.01)
1 to 8	32	31 (0.14)	37* (0.03)	29 (0.34)	16* (0.04)	28* (0.01)
9 to 16	16	16 (0.14)	24* (0.03)	24 (0.34)	37* (0.04)	25* (0.01)
17 to 32	14	29 (0.14)	27* (0.03)	24 (0.34)	25* (0.04)	26* (0.01)
33 or More	16	14 (0.14)	6* (0.03)	16 (0.34)	12* (0.04)	12* (0.01)
Number of Teachers[b]	**59**	**52**	**50**	**54**	**53**	**209**

Source: Teacher Survey.

Note: The *p-values* from statistical tests of differences in treatment and control group means are presented in parentheses. These tests account for clustering of teachers within schools.

[a]The Teacher Survey was conducted in the fall. Professional development could include any training, including study intervention training for treatment groups.

[b]The number of teachers presented in this row is the number of teachers participating in the study. Response rates for the calculations presented in the table vary from 94 percent to 95 percent, and the median response rate is 94 percent.

*Statistically different from the control group at the .05 level.

TABLE II.8

DIFFERENCES IN PARTICIPATION IN READING INSTRUCTION PROFESSIONAL DEVELOPMENT ACROSS TREATMENT GROUPS

	Differences in Means Between					
	Project CRISS and			ReadAbout and		Read for Real and
	ReadAbout	Read for Real	Reading for Knowledge	Read for Real	Reading for Knowledge	Reading for Knowledge
Percentage of Teachers Who Participated in Reading Instruction Professional Development in the Last 12 Months[a]	–4 (0.47)	–2 (0.73)	0 (1.00)	2 (0.77)	4 (0.54)	2 (0.76)
Percentage of Teachers Who Reported the Following Hours of Reading Instruction Professional Development						
0	4 (0.52)	2 (0.84)	0 (0.14)	–2 (0.45)	–4 (0.21)	–2 (0.45)
1 to 8	–5 (0.52)	2 (0.84)	16 (0.14)	7 (0.45)	21 (0.21)	14 (0.45)
9 to 16	–9 (0.52)	–8 (0.84)	–22 (0.14)	1 (0.45)	–13 (0.21)	–14 (0.45)
17 to 32	3 (0.52)	6 (0.84)	4 (0.14)	3 (0.45)	1 (0.21)	–2 (0.45)
33 or More	8 (0.52)	–2 (0.84)	2 (0.14)	–10 (0.45)	–6 (0.21)	4 (0.45)

Source: Teacher Survey.

Note: The *p-values* from statistical tests of differences in means are presented in parentheses. These tests account for clustering of teachers within schools.

[a]The Teacher Survey was conducted in the fall. Professional development could include any training, including study interventions for treatment groups.

all treatment classrooms in which the teachers reported using the interventions. We did not observe the handful of teachers in each intervention group (5 to 11 teachers per group) who reported not using the interventions.[34] Fidelity observations were not conducted for these teachers because the goal of the fidelity analysis was to measure teachers' adherence to the specific set of procedures deemed important by developers for implementing each intervention model. Therefore, teachers who reported not implementing the interventions would not be adhering to the curriculum model if they happened to implement practices suggested by the curriculum model. (Data are not available to assess whether these teachers unintentionally implemented practices suggested by the curricula models.) When analyzing the fidelity observation data, we assumed that these teachers did not implement any of the procedures listed on their assigned treatment group's fidelity form. This procedure was followed to ensure that the fidelity data reflect the full sample of teachers assigned to each intervention.

Over 80 percent (81 to 90 percent) of teachers reported using the intervention assigned to their school. The percentage of teachers reporting use of the interventions ranged from 81 percent (Read for Real) to 91 percent (Project CRISS) (Tables II.9 through II.13).

Below, we present information on the extent to which treatment group teachers were observed to be implementing the procedures of the intervention assigned to their school. We present this information separately for each intervention because each intervention had a set of intervention-specific practices that the developer deemed important for implementation.

Project CRISS. On average, Project CRISS teachers were observed engaging in 78 percent of the teaching practices considered important to implementation of the intervention (Table II.9). Project CRISS teachers were assessed based on eight items. Project CRISS teachers engaged most frequently in asking students to read a written text (81 percent), leading students in transforming informational activities (80 percent), including informal or formal writing in transforming informational activities (74 percent), and using transforming activities to teach the content of the lesson (74 percent). Sixty-one to 65 percent of teachers engaged in the warm up/background knowledge activities, and 44 percent of teachers engaged in metacognitive awareness activities.

Read for Real. The Read for Real intervention involved two types of instructional days, both of which were observed for the study. On Read for Real "Learn" days (days on which teachers modeled the comprehension strategies for students), Read for Real teachers were assessed based on 25 items. On Read for Real "Practice" days (days on which the teachers worked with students as they practiced the comprehension strategies), Read for Real teachers were assessed based on a similar protocol with 17 items.

On average, on the "Learn" days, Read for Real teachers were observed engaging in 71 percent of the teaching practices deemed important by developers for implementing Read for Real (Table II.10). Read for Real teachers observed on the "Learn" days had the highest rates of implementation on "During Reading" activities (55 to 64 percent). For example, the highest level of implementation was for the item related to reading the selected passage (64 percent), and

[34]The more general observations of teaching practices relating to vocabulary and comprehension instruction were conducted for these teachers.

TABLE II.9

FIDELITY OF IMPLEMENTATION FOR THE PROJECT CRISS CURRICULUM
(Percentage)

Percentage of Teachers Who Reported Using Project CRISS	90.74
Percentage of Teachers Who Were Observed to Have Done the Following During the Time When Their Classes Were Observed:[a]	
Provide instruction or lead activities to generate background knowledge about a topic or concept before students read about it	64.81
Help students set goals and determine a purpose before beginning to read	61.11
Have students read a written text	81.48
Lead students during and/or after reading in transforming information activities (for example, graphic organizer, guided discussion)	79.63
Include informal or formal writing in the transforming activities (including note-taking)	74.07
Use the transforming activities to teach the content of the lesson	74.07
Discuss or reflect on students' metacognitive processes during the transforming activities	44.44
Lead the whole class in a reflection discussion at the end of the lesson using questions such as:	—[b]
(A) Metacognition: How did you evaluate your comprehension?	
(B) Background knowledge: Did I assist you in thinking about what you already knew?	
(C) Purpose setting: Did you have clear purposes?	
(D) Active involvement: How were you actively engaged?	
(E) Discussion: How did discussion clarify your thinking?	
(F) Writing: How did you use writing to help you learn?	
(G) Transformation: What were the different ways you transformed information? How did this help you?	
(H) Teacher modeling: Did I do enough modeling?	
Percentage of Teachers Who Were Observed Implementing:[a]	
80 to 100 percent of the fidelity form behaviors listed above	59.26
40 to 79 percent of the fidelity form behaviors listed above	29.63
0 to 39 percent of the fidelity form behaviors listed above	11.11
Mean Percentage of the Fidelity Form Behaviors Listed Above that Teachers Were Observed Implementing	77.76
Sample Size	**54**

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

[b]Value suppressed to protect teacher confidentiality.

TABLE II.10

FIDELITY OF IMPLEMENTATION FOR THE READ FOR REAL CURRICULUM
(Percentage)

	Learn Observation Days	Practice Observation Days
Percentage of Teachers Who Reported Using Read for Real	80.70	80.70
Percentage of Teachers Who Were Observed to Have Done the Following During the Time When Their Classes Were Observed:[a]		
Before Reading		
Reads or asks a student to read the explanation of the Before Reading focus strategy	50.00	51.42
Discusses the strategy with students	40.91	51.42
Reads or asks a student to read the information in the My Thinking box	50.00	n.a.
Asks students to apply the strategy	40.91	54.29
Discusses students' comments	n.a.	45.71
During Reading		
Reads or asks a student to read the explanation of the During Reading focus strategy	54.55	45.71
Discusses the strategy with the students	59.09	n.a.
Reads or asks a student to read the information in the My Thinking box (notes from the reading partner)	54.55	40.00
Asks students to share their thinking about the strategy	54.55	n.a.
Reminds students to write notes about the strategy	n.a.	34.29
Stops and addresses the My Thinking notes at the "red strategy buttons"	59.09	65.71
Reads and/or asks students to read the selection	63.64	65.71
After Reading[b]		
Reads or asks a student to read the After Reading focus strategy	31.82	22.86
Discusses or asks questions about the strategy	22.73	20.00
Reads or asks a student to read the information in the My Thinking box	18.18	n.a.
Gives a written assignment highlighting the After Reading focus strategy	n.a.	14.29
Calls on students to implement the After Reading focus strategy	13.64	n.a.
Comprehension		
Administers the open book comprehension test	—[c]	—[c]
Corrects tests with the class	—[c]	—[c]
Discusses responses	—[c]	—[c]
Organizing Information		
Reads or asks a student to read the information from the reading partner	18.18	n.a.
Discusses the graphic organizer	27.27	n.a.
Asks students to complete graphic organizer	n.a.	11.43
Writing for Comprehension		
Reads or asks a student to read the information from the reading partner	13.64	n.a.
Reads or asks a student to read the summary	18.18	n.a.
Asks students to write a summary based on their completed graphic organizer	n.a.	—[c]
Identifies how the paragraphs and sentences in the summary correspond to the information on the graphic organizer	13.64	n.a.
Discusses the three parts of a summary		
Introduction	18.18	n.a.
Body	18.18	n.a.
Conclusion	18.18	n.a.
Percentage of Teachers Who Were Observed Implementing:[a]		
80 to 100 percent of the fidelity form behaviors listed above	63.64	40.00
40 to 79 percent of the fidelity form behaviors listed above	18.18	22.86
0 to 39 percent of the fidelity form behaviors listed above	18.18	37.14
Mean Percentage of the Fidelity Form Behaviors Listed Above that Teachers Were Observed Implementing	71.45	54.90
Sample Size	**22**	**35**

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

[b]The vocabulary and fluency items have been left out of the table because developers noted they were not essential for implementation of the Read for Real intervention.

[c]Value suppressed to protect teacher confidentiality.

n.a. = not applicable.

55 to 59 percent of teachers were observed reading about and discussing the comprehension strategy for that day, reading the *My Thinking* boxes and notes,[35] and asking students to share their thoughts on the strategy. Fourteen to 50 percent of teachers implemented "Before Reading" (41 to 50 percent) and "After Reading" activities (14 to 32 percent).

On average, on the Read for Real "Practice" days, teachers were observed engaging in 55 percent of the practices deemed important by developers for implementing the intervention (Table II.10). The highest rates of implementation on the Read for Real "Practice" days were for items related to "During Reading" activities, such as reading the selected text and addressing the *My Thinking* notes while reading (66 percent for each). Forty-six to 54 percent of teachers were observed implementing the "Before Reading" preparatory activities, and 14 to 23 percent of teachers were observed implementing "After Reading" activities.

ReadAbout. On average, ReadAbout teachers were observed engaging in 71 percent of the teaching practices considered important to the implementation of ReadAbout (Table II.11). The highest rates of implementation were observed for teachers using the ReadAbout materials and implementing the computer workstation activities (79 percent), providing direct instruction on comprehension or vocabulary skills (74 percent), and providing students with opportunities to apply comprehension or vocabulary skills (77 percent). Fifty-one percent of teachers were observed using Independent Workstations; however, the developer did not consider using them essential for implementing the ReadAbout curriculum with fidelity. The two 6+1 Writing Trait activities were never observed, because teachers were not trained to use them until the last day of the follow-up training (which is typically not conducted until April, after the classroom observations were conducted).[36]

Reading for Knowledge. Like Read for Real, the Reading for Knowledge intervention involved two types of instructional days, both observed for the study. Fidelity on days 1 and 3, which involved teacher-directed instruction, was assessed based on 9 items. Fidelity on days 2 and 4, which involved students working in cooperative groups, was based on 13 items.[37]

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[35]*My Thinking* boxes are found in the "Learn" sections of the student textbook. They contain "think alouds," which provide a model of the thinking process the reading partner used to implement the strategy. Either the teacher or the student reads the think aloud in the *My Thinking* box as they progress through the "Learn" lesson. "Practice" day lessons include *Interact with Text* boxes, which prompt students to write notes on how they used the focus strategy.

[36]Like Read for Real, ReadAbout instruction involved both "Learn" and "Practice" selections. In ReadAbout's Learn selections (which focus primarily on teaching students the strategies), the 6+1 Writing Trait activities involve providing students with an outline or graphic organizer containing information addressed in the text. Students are also provided with a model of a summary based on the outline/graphic organizer. In ReadAbout's Practice selections (which focus primarily on students practicing the strategies), the 6+1 Writing Trait activities involve the teacher guiding students in finishing a partially completed outline or graphic organizer, which students use to write a summary of the selection.

[37]On days 1 and 3, teachers were observed to assess whether they built background knowledge, explained a strategy, read text aloud, and helped students think of or apply a strategy. On days 2 and 4, teachers were observed to assess whether they used whole group and partner activities, provided feedback and prompts to partner pairs, charted student progress, reviewed routines, read questions aloud, circulated around the classroom, and asked teams to share with the class.

TABLE II.11

FIDELITY OF IMPLEMENTATION FOR THE READABOUT CURRICULUM
(Percentage)

Percentage of Teachers Who Reported Using ReadAbout	86.79
Percentage of Teachers Who Were Observed to Have Done the Following During the Time When Their Classes Were Observed:[a]	
Used the ReadAbout materials	79.25
Computer workstation used	79.25
Independent workstation used	50.94
Provided direction instruction (explain and/or model) on the comprehension or vocabulary strategy or skill	73.58
Provided opportunities for students to apply the comprehension or vocabulary skill (guided practice)	77.36
Provided students instruction on the selected 6+1 Writing Trait	0.00
Provided opportunities to apply the 6+1 Writing Trait Model	0.00
Percentage of Teachers Who Were Observed Implementing:[a]	
80 to 100 percent of the fidelity form behaviors listed above	62.26
40 to 79 percent of the fidelity form behaviors listed above	18.87
0 to 39 percent of the fidelity form behaviors listed above	18.87
Mean Percentage of the Fidelity Form Behaviors Listed Above that Teachers Were Observed Implementing	71.42
Sample Size	**53**

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

On average, on teacher-directed instruction days, Reading for Knowledge teachers were observed implementing 58 percent of the teaching practices deemed important by developers for Reading for Knowledge implementation (Tables II.12). On the teacher-directed instruction days, Reading for Knowledge teachers had the highest rates of implementation (67 to 71 percent) on activities related to building background knowledge about the topic of the text or about a skill or strategy and explaining or reviewing the skill/strategy. Fifty-two to 57 percent of teachers were observed presenting the reading goal, awarding cooperation/improvement points, and following the recommended pacing.

On days 2 and 4, when students were working in cooperative groups, Reading for Knowledge teachers were observed implementing, on average, 65 percent of the teaching practices that developers considered important to the implementation of the intervention (Table II.13). On days 2 and 4, Reading for Knowledge teachers had the highest rates of implementation on activities related to presenting the reading goal, discussing key points about the day's skill/strategy, providing feedback and prompts to student pairs during partner reading, circulating in the classroom and monitoring team discussions, and asking team members to share with the class (76 to 88 percent). The lowest rates of implementation for Reading for Knowledge

TABLE II.12

FIDELITY OF IMPLEMENTATION FOR THE READING FOR KNOWLEDGE CURRICULUM, DIRECT INSTRUCTION OBSERVATION DAYS
(Percentage)

Percentage of Teachers Who Reported Using Reading for Knowledge	83.33
Percentage of Teachers Who Were Observed to Have Done the Following During the Time When Their Classes Were Observed:[a]	
Post the reading goal	38.09
Present the reading goal	57.14
Present the cooperative learning goal	38.09
Ask students to review vocabulary or provide practice and instruction (Exception: This is not done on the first day of a new unit.)	__[b]
Build background knowledge about the topic of text or about a skill/strategy	66.67
Explain a skill/strategy or remind students of a skills/strategy recently learned	71.42
Read the text aloud and (1) think aloud or model a skill/strategy or (2) ask the students to apply a skill/strategy	52.38
Follow the recommended pacing for the lesson	57.14
Award cooperation and/or improvement points during lesson	52.38
Percentage of Teachers Who Were Observed Implementing:[a]	
80 to 100 percent of the fidelity form behaviors listed above	38.10
40 to 79 percent of the fidelity form behaviors listed above	38.10
0 to 39 percent of the fidelity form behaviors listed above	23.81
Mean Percentage of the Fidelity Form Behaviors Listed Above that Teachers Were Observed Implementing	57.90
Sample Size	**21**

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

[b]Value suppressed to protect teacher confidentiality.

TABLE II.13

FIDELITY OF IMPLEMENTATION FOR THE READING FOR KNOWLEDGE CURRICULUM, COOPERATIVE GROUPS OBSERVATION DAYS
(Percentage)

Percentage of Teachers Who Reported Using Reading for Knowledge	83.33
Percentage of Teachers Who Were Observed to Have Done the Following During the Time When Their Classes Were Observed:[a]	
Post the reading goal	60.61
Present the reading goal	87.88
Present the cooperative learning goal	66.67
Ask students to review vocabulary or provide practice and instruction (Exception: This is not done on the first day of a new unit.)	54.55
Use a whole group or partner activity to discuss key points about the day's skill/strategy	81.82
Provide feedback and prompts to partner pairs during partner reading	81.82
Chart individual students' progress on the setting goals and charting progress forms during partner reading	27.27
Review routines for Team Talk discussion	51.52
Read aloud Team Talk questions	60.61
Circulate through the classroom and monitor team discussions and provide prompts	78.79
Ask team members to share with the class their responses and reasoning to Team Talk questions	75.76
Follow the recommended pacing for the lesson	54.55
Award cooperation and/or improvement points during lesson	60.61
Percentage of Teachers Who Were Observed Implementing:[a]	
80 to 100 percent of the fidelity form behaviors listed above	33.33
40 to 79 percent of the fidelity form behaviors listed above	45.45
0 to 39 percent of the fidelity form behaviors listed above	21.21
Mean Percentage of the Fidelity Form Behaviors Listed Above that Teachers Were Observed Implementing	65.24
Sample Size	**33**

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

teachers on days 2 and 4 were found on practices related to charting individual students' progress on the goal-setting and progress-charting forms during partner reading (27 percent).

D. READING COMPREHENSION INSTRUCTIONAL PRACTICES

In this section, we turn to an examination of data from the ERC observation form, which (as described in Chapter I) was designed to gather information on the number of times treatment and control group teachers engaged in a set of general (non-intervention-specific) teaching practices related to reading comprehension and vocabulary instruction. This is in contrast to the fidelity observation forms just discussed, which focused on teaching practices *specific to each intervention*. The ERC form instead focused on a set of more general teaching practices that teachers might use when instructing students on reading comprehension and vocabulary.

Constructing Teacher Practice Scales. Consistent data from both treatment and control group classrooms make it possible to describe and compare teachers' instructional practices. The ERC observation form allowed the study team to tally the number of times treatment and control group teachers engaged in specific teaching behaviors. There were up to 294 opportunities to record observed teaching practices (28 practices assessed in each of up to 10 intervals, plus a set of 14 items assessed once during an observation). The study team thus needed to condense this data into a manageable number of variables for analysis in order to obtain a coherent, summary picture of teachers' behavior. To condense the data on teachers' instructional practices, we developed summary scales using the following three steps:

1. ***Coding tallies for each item into ordinal categories***. To support subsequent psychometric analyses—particularly the implementation of Item Response Theory (IRT) scaling discussed in step 3 below—ordinal categories were created for the distributions of both sums and averages of tallies (or number of times teachers engaged in a specific teaching practice) across the 10-minute intervals for each item. These categories were based on an investigation of the distributions of the sums and averages of tallies for each item. These ordered categories represented the extent to which each teacher practice was observed, where higher categories represented teachers engaging in the particular practice more frequently. For example, if the average number of tallies for all teachers across intervals ranged from 0 to 10 for a particular item, the average tally for a particular teacher might have been assigned to one of three categories (0-3, 4-6, and 7-10) depending on the average number of times across intervals the teacher was observed engaging in that behavior.[38]

2. ***Conducting an exploratory factor analysis.*** Exploratory factor analysis (EFA) was conducted to identify the underlying variables that best explain the ERC data. Factor extraction was conducted using unweighted least squares estimation; oblique rotation was used because it was expected that the underlying variables would be correlated

[38]The ordered categories were then assigned numerical values. For each item, a value of zero was assigned to the lowest category. Values for subsequent categories were assigned by increasing the number of the previous category by one until the highest category was reached. In the example provided in the text, teachers in the 0-3 category were assigned a value of 0, teachers in the 4-6 category were assigned a value of 1, and teachers in the 7-10 category were assigned a value of 2.

(our analysis ultimately confirmed this expectation). This analysis enabled us to develop conceptual groupings of items that appeared related to the same underlying concept or theme. Items that contributed little to the coherence of these groupings were discarded.[39]

3. ***Estimating an Item Response Theory (IRT) model using the categorical variables formed in step 1.*** IRT scaling was performed to obtain an estimated score for each teacher. The Multidimensional Random Coefficients Multinomial Logit Model (Adams et al. 1997) was used because: (1) it allowed us to properly model the cross-loadings of items as indicated by the EFA (six items cross-loaded on two of the scales) using a within-item multidimensionality modeling approach,[40] which permitted us to properly address the ways in which the ERC items were interrelated; (2) it maximized the amount of data we were able to use to construct the scales compared to using a unidimensional IRT model; and (3) it enabled us to properly account for the fact that some of our items have shared question stems. The IRT scaling also permitted a rigorous assessment of the psychometric properties of the items of the ERC form, as well as the unbiased estimation of scores and level of reliability for each teacher's score and for the distribution of scores overall. Scale scores ranged from 405 to 562 (see Table F.3 for the range for each scale).[41]

This process resulted in three scales that were used in the study's analyses.[42] The ERC items were distributed across these scales, and, as noted above, some items contribute to more than one scale. The results from the factor analysis show that items contribute to the scales with different degrees of weight, depending on the degree to which the items are related to the underlying concepts measured by the scales. (See Table II.14 for a listing of the ERC items contained in each scale.) Names were assigned to these scales based on the items they include and the weight that specific items take on in each scale based on the results from the factor analysis. The distinct items in each scale and the overlap between them were as follows:

[39]The EFA methods just described were used for items on Part I of the ERC. For Part II ERC items, EFA was not necessary because there were clear groupings of items that shared similar content themes.

[40]Adams et al. (1997) explain that the Multidimensional Random Coefficients Multinomial Logit Model can address two kinds of multidimensionality of assessment data: between-item multidimensionality and within-item multidimensionality. Between-item multidimensionality occurs when particular items load only on a single scale, but there are multiple scales due to the presence of multiple underlying dimensions. Within-item multidimensionality occurs when particular items load on more than one scale due to cross-loadings. The ERC data on this study exhibit both between-item and within-item multidimensionality.

[41]A description of the IRT approach used to develop instructional practices summary scales is also provided in Appendix F.

[42]Two additional scales that were created in this process were not used in the study's analyses due to concerns over their reliability or inter-rater reliability. For one of these scales, reliability was the concern (with values of .43 for the version of the scale based on averages of teacher practice tallies and .58 for the version of the scale based on sums of tallies). For the other scale, inter-rater reliability was the concern (with values of .69 for the version of the scale based on averages of tallies and .73 for the version based on sums of tallies).

TABLE II.14

ERC ITEMS CONTAINED IN STUDY SCALES

	Scales		
Item	Traditional Interaction	Reading Strategy Guidance	Classroom Management and Student Engagement
Comprehension Items			
Teacher Explains Text Structure		√	
Students Practice Use of Text Structure		√	
Teacher Models Comprehension Strategies		√	
Teacher Explains Comprehension Strategies		√	
Students Practice Comprehension Strategies		√	
Teacher Explains How to Generate Questions	√	√	
Students Practice Generating Questions	√	√	
Teacher Explains Text Features	√	√	
Students Practice Using Text Features	√	√	
Teacher Asks Students to Justify Responses	√	√	
Teacher Asks Questions Based on Material in Text Beyond a Literal Level	√		
Teacher Elaborates Concepts During and After Reading	√		
Vocabulary Items			
Teacher Provides Definition or Explanation	√		
Teacher Provides Examples / Multiple Meanings	√		
Teacher Uses Visuals / Pictures	√		
Teacher Teaches Word-Learning Strategies	√	√	
Students Asked to Do Something Requiring Word Knowledge	√		
Student Given Chance to Apply Word-Learning Strategies	√		
Other Items			
Teacher Maximized Instruction Time			√
Teacher Managed Student Behavior			√
Student Engagement – First Half of Observation			√
Student Engagement – Second Half of Observation			√

- ***Traditional Interaction.*** This scale, which captures interactive teaching practices that have been in use for many decades in American schools (Durkin 1978-1979; Brophy and Evertson 1976), is based on 13 teaching behaviors and the interactions with students that they involve (6 practices related to vocabulary and 7 to comprehension instruction). The unique items on this scale include practices related to teachers asking questions based on material in text beyond a literal level; elaborating concepts during and after reading; providing definitions, examples, and examples of multiple meanings; using visuals and pictures; asking students to work on tasks requiring word knowledge; and giving students the opportunity to apply word learning strategies.

- ***Reading Strategy Guidance.*** This scale, which reflects more heavily practices involving explicit comprehension strategies, includes 11 items. The unique items on this scale include practices related to teachers explaining and modeling (and students practicing) comprehension strategies and text structure (for example, cause-effect or compare-contrast) to improve comprehension.

- ***Classroom Management and Student Engagement.*** This scale includes one item related to how teachers manage student behavior, one item related to maximizing instructional time, and two items related to students' engagement during class.

- ***Overlapping Items.*** Six items are contained in both the Traditional Interaction scale and the Reading Strategy Guidance scale because the results from the exploratory factor analysis (conducted to identify groupings of items related to the same underlying concept) showed that the items loaded on both scales. These items include practices related to teachers (1) explaining (and having students practice) the use of question generation and text features (for example, captions or subheadings) to improve comprehension, (2) asking students to justify their responses, and (3) teaching word-learning strategies.

The reliability of each of the three scales was assessed. The reliability of the Traditional Interaction scale was .70, the reliability of the Reading Strategy Guidance scale was .72, and the reliability of the Classroom Management scale was .83.[43]

Findings. For two of the three scales (Classroom Management and Reading Strategy Guidance), there were no statistically significant differences in teaching practices between the treatment and control groups (Table II.15). However, we did find a statistically significant difference on the Traditional Interaction scale, with teachers in the combined treatment group

[43]See Appendix F for additional information on the reliability, inter-rater reliability, and validity of the observation scales. Appendix F also provides figures showing how the scale score values can be interpreted and linked back to the items contained in the scales.

TABLE II.15

DIFFERENCES IN SPRING CLASSROOM PRACTICES BETWEEN TREATMENT AND CONTROL GROUP TEACHERS

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Traditional Interaction Scale						
Difference	502.83	–4.34*	–4.04	–3.27	–3.08	–3.68*
Effect Size		–0.61	–0.57	–0.46	–0.44	–0.52
p-value		0.04	0.26	0.23	0.32	0.02
Reading Strategy Guidance Scale						
Difference	498.24	1.98	2.46	1.45	1.86	1.97
Effect Size		0.26	0.33	0.19	0.25	0.26
p-value		0.88	0.88	0.98	0.91	0.44
Classroom Management Scale						
Difference	502.54	–1.24	–14.92	–2.89	–5.83	–6.85
Effect Size		–0.04	–0.42	–0.08	–0.17	–0.19
p-value		1.00	0.07	1.00	0.95	0.38
Number of Teachers[a]	**59**	**52**	**50**	**54**	**53**	**209**

Source: Classroom observations.

Note: The scales presented in this table were constructed to capture the frequency of the behaviors in each instructional practice domain shown above. For each scale, the number reported in the column labeled "Control Group Mean" is the actual average value of the scale for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the difference in means between treatment and control group, (2) the effect size, and (3) the *p-value* of the difference. Regression-adjusted differences were calculated taking into account the clustering of teachers within schools. Variables in this model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators. Smaller scale values represent lower levels of behaviors in the instructional practice domain, while larger values represent higher values of the behaviors. See Appendix F for more information on interpreting the scale score values.

[a]The number of teachers presented in this row is the number participating in the study. Some teachers taught more than one class. The calculations presented in the table are based on the number of classrooms observations for which scale scores were calculated. The response rates for these calculations vary from 91 percent for CRISS classrooms to 100 percent for Read for Real classrooms.

*Statistically different from the control group at the .05 level.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

having lower levels than control group teachers on the scale (effect size: -0.52).[44] The pattern of treatment-control differences on this scale was consistent for the four individual treatment groups, but the difference was statistically significant only for teachers in one of the interventions, Project CRISS (effect size: -0.61). No statistically significant differences in teaching practices were observed across the treatment groups (see Table II.16).

Sensitivity Tests to Assess the Robustness of the Findings. Similar results were found with a different approach to summarizing the behavior tallies. The results presented above in this section are based on teacher instructional practices scales constructed using *averages* of tallies across classroom observation intervals for each teacher and item. To test the robustness of these findings, we conducted a sensitivity analysis in which scales were constructed using *sums* of tallies across intervals. The analysis based on sums was conducted in all other respects using the same method as the analysis based on averages. Differences between treatment and control group teachers on these scales were similar to those presented above (see Appendix Table H.6). In particular, we found two statistically significant differences on the Traditional Interaction scale: (1) teachers in the combined treatment group had lower levels than control group teachers (effect size: -0.51) and (2) Project CRISS teachers had lower levels than control group teachers (effect size: -0.70).

As an additional sensitivity analysis, we considered a different set of teacher instructional practices scales. These scales were constructed by grouping all items pertaining to teaching comprehension to create a Teaching Comprehension scale, and all items regarding teaching vocabulary to create a Teaching Vocabulary scale. (The reliability of these scales was .56 and .68, respectively.) These scales were also created in two ways: using sums and using averages of tallies from the classroom observations. On the Teaching Comprehension scale, treatment group teachers' scores were lower than those of control group teachers, but differences were not statistically significant (Appendix Table H.7). Differences on the Teaching Vocabulary scale were in the same direction and statistically significant, suggesting that teachers in the treatment group were less likely than teachers in the control group to engage in vocabulary-related teaching practices. In particular, teachers in the combined treatment group had statistically significantly lower Teaching Vocabulary scale scores compared with control group teachers (effect sizes of -0.50 and -0.55 for scales based on averages and sums, respectively). In addition, Project CRISS teachers had statistically significantly lower Teaching Vocabulary scale scores compared with control group teachers (effect sizes of -0.72 and -0.89 for scales based on averages and sums, respectively).

To further examine the statistically significant differences observed on the Traditional Interaction scale, we examined treatment/control differences on the 13 ERC items on which this

[44]To help interpret the treatment-control difference observed on the Traditional Interaction scale, it is useful to link the difference in scale scores to the corresponding differences in the *frequency categories* used to characterize teachers' engagement in the individual behaviors underlying each scale. Figures F.1.A and F.1.B in Appendix F relate this difference based on the scales to the underlying frequencies of the specific behaviors making up the scale. For both the treatment and control groups, the mean scale scores resulted from behaviors whose mean frequency fell within the lowest category for each of the items underlying the scale. The appendix figures show that teachers in both groups, on average, were engaging in these behaviors fewer than once during each 10-minute interval they were observed, which means that the difference between the treatment and control groups amounted to less than one time during the typical 10-minute interval.

TABLE II.16

DIFFERENCES IN SPRING CLASSROOM PRACTICES ACROSS TREATMENT GROUP TEACHERS

	Difference Between					
	Project CRISS and			ReadAbout and		Read for Real and
	ReadAbout	Read for Real	Reading for Knowledge	Read for Real	Reading for Knowledge	Reading for Knowledge
Traditional Interaction Scale						
Difference	–0.30	–1.07	–1.26	–0.77	–0.96	–0.19
Effect Size	–0.04	–0.15	–0.18	–0.11	–0.14	–0.03
p–value	1.00	1.00	0.99	1.00	1.00	1.00
Reading Strategy Guidance Scale						
Difference	–0.48	0.52	0.12	1.01	0.60	–0.40
Effect Size	–0.06	0.07	0.02	0.13	0.08	–0.05
p–value	1.00	1.00	1.00	1.00	1.00	1.00
Classroom Management Scale						
Difference	13.68	1.65	4.59	–12.03	–9.08	2.94
Effect Size	0.39	0.05	0.13	–0.34	–0.26	0.08
p–value	0.18	1.00	0.99	0.31	0.57	1.00

Source: Classroom observations.

Note: The scales presented in this table were constructed to capture the frequency of the behaviors in each instructional practice domain shown above. For each scale, the numbers reported are, by row, (1) the difference in means of the two relevant curricula, (2) the effect size, and (3) the *p-value* of the difference. Variables in this model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators. Smaller scale values represent lower levels of behaviors in the instructional practice domain, while larger values represent higher values of the behaviors. See Appendix F for more information on interpreting the scale score values.

*Statistically different at the .05 level.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

scale is based, both for each treatment group separately and for the combined treatment group. Examining these individual items can provide a better understanding of the differences in specific teaching practices. To ensure that the p-values from this analysis are comparable to the p-values reported for the Traditional Interaction scale in Table II.15 (where p-values were adjusted for three outcomes), each p-value from this sensitivity test was computed taking into account three outcomes. Comparability in the approach to adjusting p-values is important because the purpose of this analysis is to better understand which specific components of the Traditional Interaction scale are driving the overall differences between the treatment and control groups, and using a different standard of significance in this analysis would make that comparison more difficult.[45] In addition to adjusting the p-values for the number of outcomes, it is necessary to adjust the p-values to account for the number of comparisons between groups that are being conducted. In particular, for the comparisons of each treatment group and the control group, the results are adjusted for 12 comparisons because models are being estimated for each of the four intervention groups for each of the three outcomes. For the combined treatment group, the results are adjusted for three comparisons (because there is a single group being compared to the control group for each of the three outcomes).

These analyses show that the differences observed on the Traditional Interaction scale were driven mainly by differences in teaching practices related to vocabulary instruction. In particular, 30 percent (9 of 30) of the differences estimated on teaching practices related to *vocabulary* instruction were statistically significant (with lower levels for the treatment group than the control group), compared to just 11 percent (4 of 35) of the differences estimated on teaching practices related to *comprehension* instruction (Table II.17). Statistically significant differences were found for the following *vocabulary*-related teaching practices (in all cases, treatment group teachers engaged in these practices less than did control group teachers):

- Teachers providing definitions or explanations, which was statistically significant for Project CRISS, Reading for Knowledge, and the combined treatment group (effect sizes: -0.70, -0.52, and -0.45, respectively)
- Teachers providing examples, contrasting examples, multiple meanings, and elaborations on student responses, which was statistically significant for the combined treatment group (effect size: -0.46)
- Teachers using visuals, pictures, gestures related to word meaning, facial expressions, or demonstrations to discuss word meaning, which was statistically significant for Project CRISS (effect size: -0.37)
- Teachers teaching word learning strategies, which was statistically significant for Project CRISS, Read for Real, and the combined treatment group (effect sizes: -0.58, -0.56, and -0.32, respectively)

[45]The three outcomes are: (1) the Reading Strategy Guidance scale (see table II.15), (2) the Classroom Management scale (see table II.15), and (3) one of the specific items contained in the Traditional Interaction scale. For example, for the first row in Table II.17, p-values are adjusted for (1) the Reading Strategy Guidance scale, (2) the Classroom Management scale, and (3) the classroom observation item listed in that row (the extent to which teachers explain how to generate questions).

TABLE II.17

DIFFERENCES IN SPRING CLASSROOM PRACTICES BETWEEN TREATMENT AND CONTROL GROUP TEACHERS FOR ITEMS CONTAINED IN THE TRADITIONAL INTERACTION SCALE

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Comprehension Items						
Teacher Explains How to Generate Questions (Item 4b)						
Difference	0.29	0.03	–0.07	–0.16	–0.08	–0.07
Effect Size		0.06	–0.18	–0.42	–0.19	–0.18
p-value		1.00	0.97	0.18	0.96	0.43
Students Practice Generating Questions (Item 4c)						
Difference	0.49	0.06	–0.08	–0.22	–0.08	–0.08
Effect Size		0.10	–0.13	–0.35	–0.13	–0.13
p-value		1.00	1.00	0.68	1.00	0.83
Teacher Explains Text Features (Item 5b)						
Difference	0.18	–0.08	0.03	0.06	0.01	0.01
Effect Size		–0.32	0.11	0.21	0.06	0.02
p-value		0.69	1.00	0.97	1.00	1.00
Students Practice Using Text Features (Item 5c)						
Difference	0.20	–0.13	0.07	0.10	0.15	0.06
Effect Size		–0.32	0.17	0.24	0.37	0.14
p-value		0.27	0.91	0.68	0.61	0.62
Teacher Asks Students to Justify Responses (Item 6c)						
Difference	0.22	0.02	–0.03	–0.05	0.06	–0.00
Effect Size		0.05	–0.09	–0.15	0.18	–0.00
p-value		1.00	1.00	0.99	0.98	1.00
Teacher Asks Questions Based on Material in Text Beyond a Literal Level (Item 7c)						
Difference	1.40	–0.69	–0.68	–0.51	–0.62	–0.63*
Effect Size		–0.45	–0.44	–0.33	–0.40	–0.41
p-value		0.06	0.21	0.30	0.10	0.02
Teacher Elaborates Concepts During and After Reading (Item 8)						
Difference	1.71	–0.70*	–0.72	–0.37	–0.77*	–0.65*
Effect Size		–0.45	–0.46	–0.24	–0.49	–0.42
p-value		0.03	0.09	0.85	0.02	0.01
Vocabulary Items						
Teacher Provides Definition or Explanation (Item 1)						
Difference	0.95	–0.55*	–0.24	–0.23	–0.40*	–0.35*
Effect Size		–0.70	–0.31	–0.29	–0.52	–0.45
p-value		0.00	0.54	0.46	0.02	0.01
Teacher Provides Examples / Multiple Meanings (Item 2)						
Difference	1.44	–0.75	–0.73	–0.71	–0.73	–0.73*
Effect Size		–0.47	–0.46	–0.45	–0.46	–0.46
p-value		0.08	0.33	0.10	0.18	0.05

Table II.17 *(continued)*

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Teacher Uses Visuals / Pictures (Item 3)						
Difference	0.55	–0.37*	–0.38	–0.35	–0.33	–0.36
Effect Size		–0.37	–0.38	–0.35	–0.33	–0.36
p-value		0.04	0.29	0.08	0.35	0.06
Teacher Teaches Word-Learning Strategies (Item 4)						
Difference	0.13	–0.13*	–0.04	–0.13*	–0.02	–0.07*
Effect Size		–0.58	–0.19	–0.56	–0.07	–0.32
p-value		0.00	0.85	0.00	1.00	0.03
Students Asked to Do Something Requiring Word Knowledge (Item 5)						
Difference	2.15	–1.09	–1.10	–0.89	–0.86	–0.99*
Effect Size		–0.49	–0.49	–0.40	–0.38	–0.44
p-value		0.05	0.21	0.21	0.30	0.05
Student Given Chance to Apply Word-Learning Strategies (Item 6)						
Difference	0.12	–0.08	0.12	–0.05	0.09	0.03
Effect Size		–0.22	0.34	–0.15	0.26	0.09
p-value		0.90	0.99	1.00	0.90	0.93
Number of Teachers[a]	**59**	**52**	**50**	**54**	**53**	**209**

Source: Classroom Observations.

Note: Each item presented in this table captures the average number of times within a 10-minute interval that the behavior listed was observed throughout the observations conducted in a classroom. For each item, the number reported in the column labeled "Control Group Mean" is the actual average value of the item for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the difference in means between treatment and control group, (2) the effect size, and (3) the *p-value* of the difference. Regression adjusted differences were calculated taking into account the clustering of teachers within schools. To ensure that the *p-values* from this table are comparable to the *p-values* reported for the difference on the Traditional Interaction scale in Table II.15 (where *p-values* were adjusted for three outcomes), each *p-value* from this table was computed taking into account differences on three outcomes. (Comparability in the approach to adjusting *p-values* is desired because the purpose of the analysis shown in this table is to better understand which specific components of the Traditional Interaction scale are driving the overall difference, and using a different standard of significance in this table would make that comparison more difficult.) The three outcomes are: (1) the Reading Strategy Guidance scale (see table II.15), (2) the Classroom Management scale (see table II.15), and one of the specific items contained in the Traditional Interaction scale. For example, for the first row in this table, *p-values* are adjusted for (1) the Reading Strategy Guidance scale, (2) the Classroom Management scale, and (3) the classroom observation item listed in that row (the extent to which teachers explain how to generate questions). In addition to adjusting the *p-values* for the number of outcomes, it is necessary to adjust the *p-values* to account for the number of comparisons between groups that are being conducted. In particular, for the comparisons of each treatment group and the control group, the results are adjusted for 12 comparisons because differences are estimated for each of the 4 intervention groups for each of the 3 outcomes. For the combined treatment group, the results are adjusted for 3 comparisons (since there is a single group being compared to the control group for each of the 3 outcomes).Variables in this model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The number of teachers presented in this row is the number participating in the study. Some teachers taught more than one class. The calculations presented in the table are based on the number of classrooms observations for which scale scores were calculated. The response rates for these calculations vary from 91 percent for CRISS classrooms to 100 percent for Read for Real classrooms.

- Students being asked to do something requiring word knowledge, which was statistically significant for the combined treatment group (effect size: -0.44)

Statistically significant differences were also found for the following *comprehension*-related teaching practices (in all cases, treatment group teachers engaged in these practices less than did control group teachers):

- Teachers elaborating on concepts during and after reading, which was statistically significant for Project CRISS, Reading for Knowledge, and the combined treatment group (effect sizes: -0.45, -0.49, and -0.42, respectively)
- Teachers asking questions based on material in text that go beyond a literal level, which was statistically significant for the combined treatment group (effect size: -0.41)

III. IMPACT FINDINGS

The analysis of impacts was designed to answer confirmatory (primary) questions about whether the reading comprehension interventions "work," and exploratory (secondary) questions about for whom and under what conditions they might work. Answers to the confirmatory questions are expected to be of greatest interest to policymakers, since they indicate whether the interventions have the intended effect of improving reading comprehension. Addressing exploratory questions can help interpret answers to the basic questions and guide future research on reading comprehension interventions. Selecting a set of core confirmatory questions on intervention effectiveness from the many questions of interest in this study is a way to limit proliferation of impact tests that could, if all were treated as core evaluation issues, just by chance yield some impacts that meet statistical standards for significance (see Schochet 2008 for a detailed discussion of multiple testing). Focusing on these core questions reduces the number of confirmatory impact tests, and maintains statistical precision even when we apply corrections for the multiple comparisons that are being made in this study.

This chapter first examines the comparability of the treatment and control groups (Section A). Sections B and C then focus on confirmatory questions of intervention effectiveness and Sections D and E focus on the exploratory questions referenced above. In particular, Section B presents impacts on student test scores, focusing on results for two questions: (1) What is the overall intervention impact, as measured by differences between the combined treatment groups and the control group? and (2) What is the impact of each intervention relative to a control group? Section C presents results on the question of whether there were any differences between the impacts of the interventions. Section D presents exploratory impacts for subgroups of students, defined based on characteristics of the students and their teachers, and conditions in their schools. In Section E, we examine the exploratory question of whether (and, if so, how) impacts are related to differences in teachers' classroom practices.

The impacts presented in this chapter are based on our "benchmark" approach. This benchmark approach reflects decisions the study team made regarding the methodological approaches that were determined to be most appropriate for this study. In particular, the study team decided on an approach that involved accounting for clustering of students within schools (to account for the correlation between students in the same schools) and adjusting the results from statistical tests (p-values) for multiple comparisons (because there are multiple outcomes and multiple treatment groups being compared to a single control group).

Our benchmark approach adjusts p-values *within* several domains of multiple tests (but not *across* domains). The first domain consists of 12 tests—the impact of each of four interventions (CRISS, ReadAbout, Read for Real, and Reading for Knowledge) on each of three outcome scores (GRADE, science comprehension, and social studies comprehension). The second domain consists of four tests—the effect of each intervention on a composite outcome. The third domain consists of three tests—the effect of the combined treatment group on each of three outcome measures. The last domain consists of a single test—the effect of the combined treatment group on the composite outcome. All of these domains are included in each impact table. Adjustments for multiple tests are made for each domain for students overall and within

each subgroup that we analyze. The adjustment for students overall does not take into account the multiple subgroup tests and adjustments made within each subgroup analysis do not take into account the multiple tests conducted for other subgroups. Stated differently, the p-values shown in any given table are adjusted for comparisons made within that table, but not for additional comparisons made in other tables.

To increase the statistical precision of the study's impact estimates, the benchmark approach included estimating impact models that controlled for student, teacher, and school characteristics. These included students' baseline GRADE and TOSCRF scores, ELL status, race, and ethnicity; teachers' race; and school location. Our benchmark approach also included district fixed effects to further increase statistical precision and weights that account for nonresponse and the probability of random assignment (Appendix G also contains information on the benchmark approach just described).

Two types of impacts are presented. First, impacts are presented for each intervention (for example, outcomes of students in ReadAbout schools are compared with outcomes of students in the control group). These impacts provide information on the effectiveness of each intervention, which may be helpful to readers considering implementing one of the interventions included in the study. The impact of an individual intervention on student outcomes is given by the regression-adjusted difference in outcomes between students in that intervention group and students in the control group. Second, impacts are presented for the combined treatment group, based on outcomes of students in all four intervention groups and outcomes of students in the control group. These impacts provide information on the effectiveness of reading comprehension interventions more broadly (not the specific impacts of any one intervention). Impacts for the combined treatment group are presented for two main reasons. First, although the details of each intervention differ, the four interventions share a set of common strategies for improving reading comprehension. As a result, examining the interventions as a group is a reasonable approach to address the question of whether the use of these types of interventions, in general, improves comprehension. Second, examining the combined treatment group gives the study more power than looking at an individual treatment group. The impact of the curricula as a whole on student outcomes is given by the regression-adjusted difference in outcomes between students in the combined treatment group and students in the control group.

Our findings are generally robust to variations in how the benchmark approach is implemented. For sensitivity analysis purposes, we conducted the impact analysis in other ways, including by: (1) dropping covariate adjustment, (2) using different weighting strategies, (3) examining the variation of impacts by district, and (4) using different approaches to multiple comparisons adjustment. Results from these sensitivity tests are presented in Appendix H.

A. TREATMENT AND CONTROL GROUPS WERE SIMILAR AT BASELINE

Random assignment of schools yielded treatment and control groups that were similar at baseline. We compared treatment and control group schools, teachers, and students on 27 baseline characteristics (including the core and supplemental reading curricula being used in

study schools just prior to the start of the study).[46] We found one difference: teachers in the treatment group were on average four years younger than teachers in the control group (see Tables III.1, III.2, III.3, and III.4).[47]

While we would expect some chance differences between the treatment and control groups given the large number of variables examined, we investigated the difference in teacher age to address the potential concern that it might indicate some systematic difference between the treatment and control groups. Specifically, we wanted to explore whether this difference might have arisen because older teachers refused to remain in the study after discovering that they were assigned to the treatment group. To address this concern, we examined the percentage of teachers who agreed to participate in the study and whether the difference in that percentage across the arms of the study was statistically significant. We found that 94 percent of the fifth-grade teachers in study schools agreed to participate and the difference in this percentage across the four treatment groups and the control group was not statistically significant.

B. NO STATISTICALLY SIGNIFICANT POSITIVE IMPACTS ON STUDENT TEST SCORES

Table III.5 presents impact estimates for each intervention group separately as well as for the combined treatment group. For example, in the "Project CRISS" column, the estimates shown represent the regression-adjusted difference between scores of students in schools assigned to Project CRISS and scores of students assigned to the control group, while the "Combined Treatment Group" column shows the regression-adjusted difference between scores of students in schools assigned to any of the four intervention groups and scores of students assigned to the control group. When control group means are shown in report tables, they are the *actual* control group means (they are not regression-adjusted means).

All of the analyses presented in this report focus on the *levels* of the outcome variables at followup. The study team did not focus on *gain*s in the outcome variables from baseline to followup because baseline versions of the assessments were not administered for two of the study's three follow-up assessments.

Findings. Overall, we did not find any statistically significant, positive impact of the interventions on any of the three student test score outcomes (Table III.5). There were no positive effects on the GRADE, the science reading comprehension assessment, or the social studies reading comprehension assessment. This lack of statistically significant, positive effects was found in comparisons of students in each intervention group with the control group and comparisons of the combined treatment group with the control group for the full sample of students.

[46]To be conservative in this analysis, we did *not* adjust p-values for multiple comparisons. Not adjusting for multiple comparisons is conservative in this case because an adjustment for multiple comparisons would reduce the probability of finding differences between the treatment and control groups.

[47]In addition to testing differences in school, teacher, and student characteristics, we tested whether the mean number of days between the baseline and follow-up tests differed between treatment and control groups. We did not find any statistically significant difference between the groups.

TABLE III.1

READING CURRICULA IN USE JUST PRIOR TO 2006-2007 SCHOOL YEAR

	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Percentage of Schools That Report Using the Following Core Curriculum:[a]						
Textbook						
Most Commonly Reported Curricula[b] Fantastic Voyage[c], Houghton Mifflin Reading[d], Scott Foresman Reading 2000[e], and Harcourt Trophies[f]	43	53 (0.54)	41 (0.92)	44 (0.96)	65 (0.19)	51 (0.53)
Other and None Reported[b]	57	47 (0.54)	59 (0.92)	56 (0.96)	35 (0.19)	49 (0.53)
Basal Reader Series						
Most Commonly Reported Curricula[b] Fantastic Voyage[c], Houghton Mifflin Reading[d], Scott Foresman Reading 2000[e], and Harcourt Trophies[f]	38	71 (0.05)	47 (0.58)	50 (0.48)	59 (0.21)	57 -0.14
Other and None Reported[b]	62	29 (0.05)	53 (0.58)	50 (0.48)	41 (0.21)	43 (0.14)
Special Program						
Most Commonly Reported Curricula[b] Accelerated Reader[g] and Reading Mastery[h]	24	24 (0.98)	24 (0.98)	31 (0.62)	41 (0.26)	30 (0.60)
Other	19	24 (0.74)	24 (0.74)	38 (0.22)	24 (0.74)	27 (0.48)
None Reported	57	53 (0.80)	53 (0.80)	31 (0.13)	35 (0.19)	43 (0.27)
Percentage of Schools That Report Using Supplemental Curricula in the Following Topic Areas:[i]						
Comprehension and Fluency[b]	—[j]	35 (0.07)	35 (0.07)	31 (0.12)	24 (0.26)	31 (0.06)
Vocabulary	14	29 (0.27)	24 (0.47)	25 (0.42)	29 (0.27)	27 (0.25)
Other and None Reported[b]	86	65 (0.15)	65 (0.15)	63 (0.12)	65 (0.15)	64 (0.07)
Number of Schools[k]	**21**	**17**	**17**	**16**	**18**	**68**

Source: Preliminary School Information Form.

Note: The *p-values* from statistical tests of differences in treatment and control group means are presented in parentheses. This data was collected during May-July 2006. The survey question that is the basis for this table asked principals to report what resources their school uses for its 5th-grade reading curriculum.

Table III.1 *(continued)*

[a]Columns may not sum to 100 percent due to rounding.

[b]Categories collapsed to protect school confidentiality.

[c]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: http://www.pearsonschool.com/index.cfm?locator=PSZ1B7.

[d]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: http://www.schooldirect.com.

[e]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: <http://www.pearsonschool.com.

[f]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: <https://jstore.harcourtschool.com.

[g]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: <http://www.renlearn.com/ar/>.

[h]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: <http://www.mcgraw-hill.co.uk/sra/readingmastery.htm>.

[i]Columns may not sum to 100 percent because schools could report using more than one supplemental curriculum.

[j]Value suppressed to protect school confidentiality.

[k]The number of schools presented in this row is the number participating in the study. One of the study schools did not fill out a Preliminary School Information Form.

TABLE III.2

BASELINE SCHOOL CHARACTERISTICS, BY TREATMENT AND CONTROL STATUS

Baseline Characteristics	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Number of Students Enrolled in School	555.6	574.2 (0.82)	575.7 (0.75)	518.3 (0.53)	562.2 (0.92)	557.8 (0.97)
Number of Students Enrolled in Fifth Grade	75.3	88.0 (0.34)	76.3 (0.91)	71.3 (0.65)	80.5 (0.62)	78.8 (0.70)
Ethnicity/Race (Percentage)						
Hispanic	34	29 (0.78)	34 (0.91)	21 (0.63)	29 (0.82)	28 (0.59)
White	26	31 (0.78)	28 (0.91)	33 (0.63)	35 (0.82)	32 (0.59)
Black	37	37 (0.78)	35 (0.91)	43 (0.63)	34 (0.82)	37 (0.59)
Asian	—[a]	—[a]	—[a]	—[a]	—[a]	—[a]
Native American	—[a]	—[a]	—[a]	—[a]	—[a]	—[a]
Percentage of Students in School Eligible for Free or Reduced-Price Lunch	69	75 (0.37)	66 (0.77)	73 (0.62)	63 (0.48)	69 (0.91)
Percentage of Students in School Classified as English Language Learners	14	15 (0.82)	15 (0.85)	11 (0.53)	9 (0.35)	13 (0.80)
Percentage of Schools that Participated in Reading First in the 2005-2006 School Year	24	47 (0.13)	29 (0.70)	31 (0.61)	29 (0.70)	34 (0.36)
Percentage of Schools in the Following Locations:						
Urban	62	71 (0.68)	76 (0.57)	73 (0.70)	67 (0.85)	72 (0.71)
Urban fringe	24	24 (0.68)	12 (0.57)	20 (0.70)	17 (0.85)	18 (0.71)
Rural area	14	6 (0.68)	12 (0.57)	7 (0.70)	17 (0.85)	10 (0.71)
Percentage of Schools Eligible for Title I	95	100 (.)	100 (.)	94 (0.84)	89 (0.46)	96 (0.95)
Number of Schools[b]	**21**	**17**	**17**	**16**	**18**	**68**

Source: Preliminary School Information Form, 2004-2005 *Common Core of Data,* School Information Form.

Note: The *p-values* from statistical tests of differences in treatment and control group means are presented in parentheses. *P-values* could not be obtained when all of the schools in one of the groups exhibited a given characteristic. This is indicated by a (.).

[a]Value suppressed to protect respondent confidentiality.

[b]The number of schools presented in this row is the number participating in the study. The response rates for the calculations presented in the table vary from 67 percent to 100 percent, and the median response rate is 98 percent. The response rates vary in the calculations because some schools did not report information on some of the items of the Preliminary School Information Form and the School Information Form, and one of the study schools was not included in the 2004-2005 *Common Core of Data.*

TABLE III.3

BASELINE TEACHER CHARACTERISTICS, BY TREATMENT AND CONTROL STATUS

Baseline Characteristics	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Female (Percentage)	90	88 (0.75)	73 (0.06)	89 (0.80)	84 (0.38)	84 (0.30)
Age (Average)	45.4	41.1 (0.07)	39.7* (0.02)	40.3 (0.06)	41.5 (0.13)	40.7* (0.01)
Hispanic (Percentage)	19	16 (0.71)	15 (0.62)	17 (0.83)	14 (0.61)	16 (0.60)
Race (Percentage)						
White	82	65 (0.28)	84 (0.79)	69 (0.26)	76 (0.56)	74 (0.37)
Black	18	33 (0.28)	16 (0.79)	24 (0.26)	22 (0.56)	24 (0.37)
Asian	—[a]	—[a]	—[a]	—[a]	—[a]	—[a]
Native American/Pacific Islander	—[a]	—[a]	—[a]	—[a]	—[a]	—[a]
Teachers with a Master's Degree or Higher Degree (Percentage)	48	43 (0.65)	47 (0.92)	36 (0.28)	47 (0.92)	43 (0.58)
Years Teaching Experience (Average)	14.3	12.9 (0.52)	11.0 (0.10)	11.6 (0.28)	12.2 (0.29)	11.9 (0.12)
Number of Teachers[b]	**59**	**52**	**50**	**54**	**53**	**209**

Source: Teacher Survey.

Note: The *p-values* from statistical tests of differences in treatment and control group means are presented in parentheses. These tests account for clustering of teachers within schools.

[a]Value suppressed to protect teacher confidentiality.

[b]The number of teachers presented in this row is the number participating in the study. The response rates for the calculations presented in the table vary from 83 percent to 97 percent, and the median response rate is 91 percent. The response rates vary because some teachers did not report information on some items from the Teacher Survey.

*Statistically different from the control group at the .05 level.

TABLE III.4

BASELINE STUDENT CHARACTERISTICS, BY TREATMENT AND CONTROL STATUS

	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Female (Percentage)	48	52 (0.05)	51 (0.19)	49 (0.70)	48 (0.97)	50 (0.23)
Age (Average)	10.7	10.7 (0.39)	10.7 (0.71)	10.8 (0.26)	10.7 (0.54)	10.7 (0.35)
Overage[a] (Percentage)	21	23 (0.54)	23 (0.64)	25 (0.34)	23 (0.60)	23 (0.39)
Number of Days Absent in Prior School Year (Average)	12.9	9.9 (0.49)	11.0 (0.65)	14.4 (0.80)	10.8 (0.63)	11.5 (0.67)
Eligible for Free or Reduced-Price Lunch (Percentage)	58	60 (0.80)	63 (0.58)	58 (0.98)	57 (0.87)	60 (0.84)
Classified as English Language Learner (Percentage)	29	24 (0.73)	31 (0.86)	32 (0.87)	23 (0.68)	28 (0.92)
Identified as Having a Disability[b] (Percentage)	10	9 (0.84)	11 (0.61)	12 (0.40)	12 (0.44)	11 (0.53)
GRADE Score (Average)	99.8	100.8 (0.55)	99.6 (0.88)	99.2 (0.67)	101.2 (0.45)	100.2 (0.73)
TOSCRF Score (Average)	88.3	89.1 (0.49)	87.8 (0.65)	87.8 (0.63)	89.8 (0.23)	88.6 (0.66)
Number of Students[c]	**1,367**	**1,319**	**1,246**	**1,227**	**1,191**	**4,983**

Source: Student Records Form. Baseline GRADE and TOSCRF tests administered by study team.

Note: The *p-values* from statistical tests of differences in treatment and control group means are presented in parentheses. These tests account for clustering of students within schools.

[a]We considered a fifth grader to be overage for grade if he or she is 11 or older as of September 1, 2006.

[b]A student was identified as having a disability if any of the following categories were indicated on the student records form: autism, deaf-blindness developmental delay, emotional disturbance, hearing impairment, learning disability, mental retardation, orthopedic impairment, other health impairment, speech or language impairment, traumatic brain injury, visual impairment, and other disability not included in this list.

[c]The number of students presented in this row is the number participating in the study. The overall response rates for data items presented in the table vary from 74 percent to 95 percent, and the median response rate is 89 percent.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.5

DIFFERENCES IN SPRING TEST SCORES BETWEEN TREATMENT AND CONTROL GROUPS

	Control Group Mean	Difference Between Each of the Following and the Control Group: Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]						
Impact	0.02	–0.02	–0.05	–0.07	–0.12*	–0.07*
Effect Size		–0.02	–0.06	–0.08	–0.14	–0.08
p-value		0.98	0.69	0.45	0.02	0.01
GRADE Score						
Impact	100.81	–0.57	–0.98	–0.89	–1.56	–1.12*
Effect Size		–0.04	–0.07	–0.06	–0.11	–0.08
p-value		0.99	0.85	0.80	0.12	0.02
Social Studies Reading Comprehension Assessment Score						
Impact	501.67	–0.89	–0.51	–1.86	–2.24	–1.44
Effect Size		–0.03	–0.02	–0.06	–0.08	–0.05
p-value		1.00	1.00	0.96	0.79	0.49
Science Reading Comprehension Assessment Score						
Impact	501.51	0.66	–0.96	–1.38	–5.78*	–2.32
Effect Size		0.02	–0.03	–0.05	–0.21	–0.08
p-value		1.00	1.00	1.00	0.02	0.20
Number of Students[b]	**1,367**	**1,319**	**1,246**	**1,227**	**1,191**	**4,983**

Source: Reading comprehension tests administered by study team.

Note: For each outcome, the number reported in the column labeled "Control Group Mean" is the actual average outcome for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. The social studies and science reading comprehension assessments were developed by ETS. Regression-adjusted impacts were calculated taking into account the clustering of students within schools. Variables in this model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]The number of students presented in this row is the number participating in the study. The proportion of students in each experimental condition with follow-up test scores is reported in Appendix Table G.2.

*Statistically different from the control group at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

In addition, some measures of student test scores were actually negatively affected by the interventions for the full sample of students. (Impacts are reported as "effect sizes" to facilitate comparisons of impacts on different outcomes. The effect size is the impact divided by the standard deviation of the outcome for students in the control group. For example, an impact of 4 units on an outcome with a standard deviation of 20 would be reported as an effect size of 0.20.) Students in the combined treatment group across all interventions scored statistically significantly lower than control group students on the composite test (effect size: -0.08) and GRADE assessments (effect size: -0.08).[48] Students in the Reading for Knowledge group scored statistically significantly lower than control group students on the composite test (effect size: -0.14) and science reading comprehension assessments (effect size: -0.21).[49]

Sensitivity Tests to Assess the Robustness of the Impact Findings. To confirm that the lack of positive impacts is not due to unusually large gains in the control group, we examined how the gains of students in the control group from fall to spring compare to the gains of students nationally. In this analysis, we focus on the GRADE test because it is the only test for which it is possible to compare the control group gains to the gains of the national norm sample. (Because the ETS assessments were not administered at baseline, and do not have a national norming sample, it is not possible to conduct this analysis for the two ETS assessments.)

Statistical tests suggest that the control group is experiencing gains that are comparable to the fifth grade national norm sample. The gain for the control group (effect size: 0.40) and the gain for the fifth grade national norm sample (effect size: 0.36) were not statistically significantly different from one another (p-value: 0.56). While this analysis is purely descriptive, it provides important information for interpreting impact estimates, as it rules out unusual test score gains in the control group as a possible explanation for the lack of positive impact findings.

The lack of positive findings on these core impact analyses is robust to an array of sensitivity tests including the following (see Appendix G for more information on the following sensitivity tests):

- ***Different types of multiple comparisons adjustments.*** The findings did not change when different adjustment methods, such as Benjamini-Hochberg and Bonferroni, were applied (Hsu 1996; Benjamini and Hochberg 1995).

[48]The impact of 0.08 effect size units is smaller than the MDE of 0.17 effect size units reported earlier, for two reasons. First, the MDE of 0.17 included a multiple comparison adjustment. The impact of the combined treatment group on the composite outcome does not require a multiple comparison adjustment. Without the multiple comparison adjustment, the MDE is 0.11. The second reason that this effect is smaller than the MDE is that the MDE is the smallest effect that can be detected *with high probability* (specifically, 80 percent). The likelihood of detecting an effect of 0.08 standard deviations is 55 percent.

[49]These results are robust to a sensitivity test in which we imputed to the minimum score in the sample the spring (follow-up) test scores of 32 students with scores missing due to language barriers. Robustness of this test indicates that excluding students who could not take the tests because of language barriers does not bias the results from the impact analysis.

- ***Exclusion of covariates.*** The results did not change when impacts were estimated with a model that does not include covariates.[50]

- ***Various weighting approaches.*** The results did not change when we applied alternative weighting strategies, such as estimating models with weights that control only for probability of random assignment.

The negative impacts observed for Reading for Knowledge are robust. They are unchanged by sensitivity tests, including applying the Bonferroni multiple comparisons correction and using different weighting approaches such as weights that only control for probability of random assignment. The negative impacts observed for Reading for Knowledge are also robust to the inclusion of covariates, although findings lose statistical significance when we do not regression adjust for baseline test scores. Baseline covariates are included in our benchmark impact models because they dramatically increase statistical precision. The most important of these covariates are the baseline GRADE and TOSCRF scores. Despite the reduction in precision associated with removing these covariates, the sign of the impacts on the composite test score and the science reading comprehension assessment scores remains negative.[51] Details of sensitivity analyses are presented in Appendix H.

The negative impact of Reading for Knowledge is also robust to dropping individual districts from the impact regression, although statistical significance is lost when we drop the largest district in the study (but not when any other district is dropped). The loss of statistical significance is not surprising, given that the study loses power when large numbers of students are dropped from the analysis sample. Since we did not have enough schools per treatment condition in each district to estimate district-specific impacts, we estimated impacts by excluding one district at a time. In all cases except for the one noted above, the impacts estimated were negative and statistically significant.

C. ONE OF 24 DIFFERENCES IN TREATMENT GROUP IMPACTS IS STATISTICALLY SIGNIFICANT

Consistent with the findings presented in Section A on the similarity of the treatment and control groups at the start of the study, the experimental design yielded treatment groups that were similar to each other at baseline. To assess the similarity of the treatment groups to each other, we compared the four treatment groups to each other on a large number of baseline school, teacher, and student characteristics. In these comparisons, we found no statistically significant differences between the groups (see Tables III.6 through III.9).

[50]We also estimated a model that included additional covariates to those included in the "benchmark" model. Including teacher age and years of experience as covariates did not change the statistical significance of the estimated impacts.

[51]We also examined whether covariates other than baseline test score are necessary to achieve statistical significance. No other covariate contributes as much to the explanatory power of the regression model.

TABLE III.6

DIFFERENCES IN READING CURRICULA IN USE JUST PRIOR TO 2006-2007 SCHOOL YEAR

	Differences in Means Between					
	Project CRISS and			ReadAbout and		Read for Real and
	ReadAbout	Read for Real	Reading for Knowledge	Read for Real	Reading for Knowledge	Reading for Knowledge
Percentage of Schools That Report Using the Following Core Curriculum:						
Textbook						
Most Commonly Reported Curricula[a] Fantastic Voyage[b], Houghton Mifflin Reading[c], Scott Foresman Reading 2000[d], and Harcourt Trophies[e]	12 (0.50)	9 (0.60)	-12 (0.49)	-3 (0.88)	-24 (0.18)	-21 (0.24)
Other and None Reported[a]	-12 (0.50)	-9 (0.60)	12 (0.49)	3 (0.88)	24 (0.18)	21 (0.24)
Basal Reader Series						
Most Commonly Reported Curricula[a] Fantastic Voyage[b], Houghton Mifflin Reading[c], Scott Foresman Reading 2000[d], and Harcourt Trophies[e]	0.24 (0.17)	0.21 (0.24)	0.12 (0.48)	-0.03 (0.87)	-0.12 (0.50)	-0.09 (0.62)
Other and None Reported[a]	-0.24 (0.17)	-0.21 (0.24)	-0.12 (0.48)	0.03 (0.87)	0.12 (0.50)	0.09 (0.62)
Special Program						
Most Commonly Reported Curricula[a] Accelerated Reader[f] and Reading Mastery[g]	0 (1.00)	-0.08 (0.62)	-0.18 (0.28)	-0.08 (0.62)	-0.18 (0.28)	-0.10 (0.56)
Other	0 (1.00)	-0.14 (0.39)	0 (1.00)	-0.14 (0.39)	0 (1.00)	0.14 (0.39)
None Reported	0 (1.00)	0.22 (0.22)	0.18 (0.31)	0.22 (0.22)	0.18 (0.31)	-0.04 (0.81)
Percentage of Schools That Report Using Supplemental Curricula in the Following Topic Areas:						
Comprehension and Fluency[a]	0 (1.00)	0.04 (0.81)	0.12 (0.46)	0.04 (0.81)	0.12 (0.46)	0.08 (0.62)
Vocabulary	0.06 (0.70)	0.04 (0.78)	0 (1.00)	-0.01 (0.92)	-0.06 (0.70)	-0.04 (0.78)
Other and None Reported[a]	0 (1.00)	0.02 (0.90)	0 (1.00)	0.02 (0.90)	0 (1.00)	-0.02 (0.90)

Source: Preliminary School Information Form.

Table III.6 *(continued)*

Note: The *p-values* from statistical tests of differences in treatment-group means are presented in parentheses.

[a]Categories collapsed to protect school confidentiality.

[b]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: http://www.pearsonschool.com/index.cfm?locator=PSZ1B7.

[c]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: http://www.schooldirect.com.

[d]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: <http://www.pearsonschool.com.

[e]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: <https://jstore.harcourtschool.com.

[f]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: <http://www.renlearn.com/ar/>.

[g]Schools reported using this curriculum on the study's Preliminary School Information Form. For those interested in additional information on this curriculum, please see the developer's website: <http://www.mcgraw-hill.co.uk/sra/readingmastery.htm>.

TABLE III.7

DIFFERENCES IN BASELINE CHARACTERISTICS BETWEEN TREATMENT SCHOOLS

	Differences in Means Between					
	Project CRISS and			ReadAbout and		Read for Real and
	ReadAbout	Read for Real	Reading for Knowledge	Read for Real	Reading for Knowledge	Reading for Knowledge
Number of Students Enrolled in School	–1.5	55.9	12.0	57.4	13.5	–44.0
	(0.99)	(0.48)	(0.89)	(0.29)	(0.83)	(0.46)
Number of Students Enrolled in Fifth Grade	11.7	16.7	7.6	5.0	–4.1	–9.1
	(0.43)	(0.25)	(0.64)	(0.62)	(0.73)	(0.43)
Ethnicity/Race (Percentage)						
Hispanic	–4	8	1	13	5	–8
	(0.95)	(0.96)	(0.78)	(0.76)	(0.87)	(0.73)
White	4	–2	–4	–6	–7	–2
	(0.95)	(0.96)	(0.78)	(0.76)	(0.87)	(0.73)
Black	1	–7	3	–8	2	10
	(0.95)	(0.96)	(0.78)	(0.76)	(0.87)	(0.73)
Asian	—[a]	—[a]	—[a]	—[a]	—[a]	—[a]
Native American	—[a]	—[a]	—[a]	—[a]	—[a]	—[a]
Percentage of Students in School Eligible for Free or Reduced-Price Lunch	8	2	11	6	3	9
	(0.25)	(0.76)	(0.11)	(0.46)	(0.70)	(0.26)
Percentage of Students in School Classified as English Language Learners	0	4	6	4	6	2
	(0.96)	(0.49)	(0.35)	(0.46)	(0.31)	(0.72)
Percentage of Schools that Participated in Reading First in the 2005-2006 School Year	18	16	18	–2	0	2
	(0.29)	(0.35)	(0.29)	(0.91)	(1.00)	(0.91)
Percentage of Schools in the Following Locations:						
Urban	–6	–3	4	3	10	7
	(0.59)	(0.97)	(0.56)	(0.75)	(0.81)	(0.66)
Urban fringe	12	4	7	–8	–5	3
	(0.59)	(0.97)	(0.56)	(0.75)	(0.81)	(0.66)
Rural area	–6	–1	–11	5	–5	–10
	(0.59)	(0.97)	(0.56)	(0.75)	(0.81)	(0.66)
Percentage of Schools Eligible for Title I	0	6	11	6	11	5
	(.)	(.)	(.)	(.)	(.)	(0.61)

Source: Preliminary School Information Form, 2004-2005 *Common Core of Data*, School Information Form.

Note: The *p-values* from statistical tests of differences in treatment-group means are presented in parentheses. *P-values* could not be obtained when most (or none) of the schools exhibited a given characteristic. This is indicated by a (.).

[a]Value suppressed to protect respondent confidentiality.

TABLE III.8

DIFFERENCES IN BASELINE CHARACTERISTICS BETWEEN TREATMENT TEACHERS

	Differences in Means Between					
	Project CRISS and			ReadAbout and		Read for Real and
	ReadAbout	Read for Real	Reading for Knowledge	Read for Real	Reading for Knowledge	Reading for Knowledge
Female (Percentage)	15 (0.07)	0 (0.95)	4 (0.53)	–15 (0.07)	–11 (0.14)	4 (0.50)
Age (Average)	1.4 (0.52)	0.8 (0.73)	–0.4 (0.86)	–0.6 (0.80)	–1.8 (0.46)	–1.2 (0.64)
Hispanic (Percentage)	1 (0.88)	–1 (0.87)	2 (0.81)	–2 (0.76)	1 (0.90)	4 (0.72)
Race (Percentage)						
White	–19 (0.16)	–4 (0.88)	–10 (0.45)	16 (0.30)	9 (0.48)	–7 (0.83)
Black	17 (0.16)	8 (0.88)	10 (0.45)	–9 (0.30)	–7 (0.48)	2 (0.83)
Asian	—[a]	—[a]	—[a]	—[a]	—[a]	—[a]
Native American/Pacific Islander	—[a]	—[a]	—[a]	—[a]	—[a]	—[a]
Teachers with a Master's Degree or Higher Degree (Percentage)	–4 (0.76)	7 (0.50)	–4 (0.71)	11 (0.38)	0 (0.99)	–11 (0.31)
Years Teaching Experience (Average)	1.9 (0.36)	1.3 (0.61)	0.7 (0.75)	–0.7 (0.76)	–1.2 (0.53)	–0.6 (0.81)

Source: Teacher Survey.

Note: The *p-values* from statistical tests of differences in treatment-group means are presented in parentheses. These tests account for clustering of teachers within schools.

[a]Value suppressed to protect teacher confidentiality.

TABLE III.9

DIFFERENCES IN BASELINE CHARACTERISTICS BETWEEN TREATMENT STUDENTS

	Differences in Means Between					
	Project CRISS and			ReadAbout and		Read for Real and
	ReadAbout	Read for Real	Reading for Knowledge	Read for Real	Reading for Knowledge	Reading for Knowledge
Female (Percentage)	2	3	4	2	3	1
	(0.48)	(0.18)	(0.08)	(0.45)	(0.23)	(0.70)
Age (Years)	0.03	–0.03	0.02	–0.05	–0.01	0.04
	(0.65)	(0.71)	(0.79)	(0.45)	(0.84)	(0.55)
Overage[a] (Percentage)	0	–2	0	–2	0	2
	(0.94)	(0.64)	(0.96)	(0.63)	(0.98)	(0.63)
Number of Days Absent in Prior School Year (Average)	–1.0	–4.4	–0.9	–3.4	0.1	3.6
	(0.79)	(0.43)	(0.81)	(0.55)	(0.97)	(0.53)
Eligible for Free or Reduced-Price Lunch (Percentage)	–3	2	3	5	6	1
	(0.71)	(0.80)	(0.66)	(0.60)	(0.47)	(0.90)
Classified as English Language Learner (Percentage)	–7	–7	1	0	8	9
	(0.62)	(0.68)	(0.91)	(0.98)	(0.58)	(0.64)
Identified as Having a Disability[b] (Percentage)	–2	–3	–3	–1	–1	0
	(0.53)	(0.35)	(0.39)	(0.80)	(0.83)	(0.97)
GRADE Score (Average)	1.3	1.6	–0.3	0.4	–1.6	–1.9
	(0.50)	(0.36)	(0.87)	(0.82)	(0.42)	(0.30)
TOSCRF Score (Average)	1.2	1.3	–0.7	0.1	–1.9	–2.0
	(0.27)	(0.27)	(0.62)	(0.96)	(0.11)	(0.11)

Source: Student Records Form. Baseline GRADE and TOSCRF tests administered by study team.

Note: The *p-values* from statistical tests of differences in treatment-group means are presented in parentheses. These tests account for clustering of students within schools.

[a]We consider a fifth grader to be overage for grade if he or she is 11 or older as of September 1, 2006.

[b]A student was identified as having a disability if any of the following categories were indicated on the student records form: autism, deaf-blindness developmental delay, emotional disturbance, hearing impairment, learning disability, mental retardation, orthopedic impairment, other health impairment, speech or language impairment, traumatic brain injury, visual impairment, and other disability not included in this list.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

Overall, the impacts of the interventions were not statistically different from each other, with the exception of one difference. As shown in Table III.10, the impact of Project CRISS on the science reading comprehension assessment test scores is statistically significantly different from the impact of Reading for Knowledge on the science reading comprehension assessment test scores (effect size: 0.23).

D. FIFTEEN OF 1,080 SUBGROUP IMPACTS ARE STATISTICALLY SIGNIFICANT

The study team also conducted a series of exploratory subgroup analyses to investigate whether effects of the interventions might vary for students with different characteristics. Most of these subgroups are formed using characteristics observed at the beginning of the study's implementation year, so the analyses preserve the properties of random assignment because the intervention could not have influenced these characteristics and thus there should be no systematic differences in unobserved characteristics of students in these subgroups between the treatment and control groups. Consequently, most of these findings allow for causal conclusions to be drawn about the impact of the interventions for these subgroups. The three exceptions are the subgroups defined by teachers' self-reported past professional development, teaching efficacy, and school professional culture (all of which are based on data collected through the Teacher Survey, which was administered by the study team in August through November 2006, at the start of the study's first year of data collection). Both the number and composition of teachers in the treatment group who reported receiving past professional development and who reported a given level of teacher efficacy or school professional culture could have been affected by the product-specific training received in the summer before the implementation year (in particular, teachers may have reported the training as professional development, and the training may have affected teachers' responses to survey questions on their teaching efficacy and the professional culture in their schools). Because this potential shift in the size and composition of these subgroups affected only the treatment group but not the control group, analyses of these subgroups do *not* maintain the properties of random assignment and, therefore, do *not* allow for causal conclusions to be drawn about the impact of the interventions for these subgroups.

We believe these subgroup findings could help contribute to an understanding of the results from the main impact analyses, including the negative impact of Reading for Knowledge. Our main approach to creating subgroups was to split the student sample into two groups of roughly equal size at the median level of each relevant characteristic *for the study sample*. For the subgroups based on baseline student test scores, we used a different approach, in which the two subgroups were created in five different ways (1) by splitting the sample at the average score on the GRADE and TOSCRF tests *for the norm sample,* (2) by splitting the sample at the median score on the GRADE and TOSCRF tests *for the study sample,* (3) by comparing students in the top and bottom thirds of the GRADE and TOSCRF distributions, (4) by comparing students in the middle and bottom thirds of the GRADE and TOSCRF distributions, and (5) by comparing students in the top and middle thirds of the GRADE and TOSCRF distributions.[52] For the subgroups based on teacher experience, we used an approach in which the two subgroups were

[52]For both the GRADE and TOSCRF, the average score for the norm sample was 100. The median values *for our study sample* were 100.5 for the GRADE and 89 for the TOSCRF.

TABLE III.10

DIFFERENCES IN SPRING TEST SCORES BETWEEN TREATMENT GROUPS

	Difference Between					
	Project CRISS and			ReadAbout and		Read for Real and
	ReadAbout	Read for Real	Reading for Knowledge	Read for Real	Reading for Knowledge	Reading for Knowledge
Composite Test Score[a]						
Impact	0.03	0.05	0.10	0.02	0.07	0.05
Effect Size	0.03	0.05	0.11	0.02	0.08	0.06
p-value	0.94	0.82	0.19	0.98	0.43	0.75
GRADE Score						
Impact	0.41	0.31	0.99	–0.09	0.58	0.67
Effect Size	0.03	0.02	0.07	–0.01	0.04	0.05
p-value	1.00	1.00	0.88	1.00	1.00	0.99
Social Studies Reading Comprehension Assessment Score						
Impact	–0.39	0.97	1.35	1.35	1.73	0.38
Effect Size	–0.01	0.03	0.05	0.05	0.06	0.01
p-value	1.00	1.00	1.00	1.00	0.98	1.00
Science Reading Comprehension Assessment Score						
Impact	1.62	2.04	6.44*	0.42	4.82	4.40
Effect Size	0.06	0.07	0.23	0.02	0.17	0.16
p-value	0.96	0.99	0.00	1.00	0.07	0.61

Source: Reading comprehension tests administered by study team.

Note: For each outcome, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. The social studies and science reading comprehension assessments were developed by ETS. Regression-adjusted impacts were calculated taking into account the clustering of students within schools. Variables in this model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

created in two ways: (1) by splitting the sample at the sample median (10 years) and (2) by splitting the sample at 5 years.[53] Three types of student subgroups were created, as follows:

1. ***Subgroups of students based on characteristics of the students themselves:*** fluency (baseline TOSCRF), comprehension (baseline GRADE), and English language learner (ELL) status. These subgroups were selected because they may be observed by teachers and could be used as the basis for targeting the interventions to specific students (for example, if it is found that students with below-average fluency levels respond better to a particular intervention).

2. ***Subgroups of students based on characteristics of their teachers:*** teachers' years of experience, hours of professional development in past 12 months, and self-reported efficacy. These subgroups were selected because they are characteristics that might be used by teachers and principals to target interventions to specific circumstances (for example, certain interventions might be more effective for teachers with below-average years of experience).

3. ***Subgroups of students based on conditions of the schools they attend:*** professional culture in the school, concentration of students eligible for free or reduced-price lunch, and concentration of ELL students in the school. These subgroups were selected because they are conditions that might be used by principals to target interventions to specific settings (for example, certain interventions might be more effective in schools with above-average concentrations of English language learners).

Tables III.11 through III.28 present the study's subgroup findings. Each table presents impact estimates for one set of subgroups. For example, Table III.11 shows the impact estimates for students with above-average and below-average TOSCRF scores, and Table III.17 shows impact estimates for students with above-average and below-average baseline GRADE scores. In these tables, impacts are shown for each intervention group separately as well as for the combined treatment group for the two subgroups. In addition to showing the impact for each subgroup, the table also shows whether the impacts for the two subgroups are statistically significantly different from one another. For example, in the "Combined Treatment Group" column of Table III.11, the estimates indicate that students in the combined treatment group with above-average TOSCRF scores have statistically significantly lower social studies comprehension assessment scores than students in the control group with above-average TOSCRF scores. No statistically significant impacts were observed for students with below-average TOSCRF scores, and these two impacts were not statistically significantly different from one another.

[53]We examined a five-year teacher experience cut-point (in addition to using the sample median as a cut-point), because Ingersoll (2002) found that as many as 39 percent of teachers leave teaching altogether in the first five years of their careers.

TABLE III.11

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS WITH BASELINE FLUENCY LEVELS ABOVE AND BELOW THE NATIONAL NORM SAMPLE AVERAGE

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline TOSCRF standard score *lower* than 100 (average for the national norm sample)					
Impact	–0.01	–0.05	–0.07	–0.09	–0.07
Effect Size	–0.01	–0.05	–0.07	–0.11	–0.07
p-value	1.00	0.97	0.85	0.38	0.09
(2) Students with baseline TOSCRF standard score equal to or *higher* than 100 (average for the national norm sample)					
Impact	–0.07	–0.09	–0.00	–0.07	–0.07
Effect Size	–0.08	–0.10	–0.00	–0.08	–0.08
p-value	0.85	0.60	1.00	0.97	0.30
Difference between (1) and (2)					
Difference in Impact	0.07	0.05	–0.06	–0.03	0.00
Difference in Effect Size	0.08	0.05	–0.07	–0.03	0.00
p-value for the Difference	0.87	0.99	0.86	1.00	1.00
GRADE Score					
(1) Students with baseline TOSCRF standard score *lower* than 100 (average for the national norm sample)					
Impact	–0.35	–1.02	–0.66	–1.54	–1.05
Effect Size	–0.03	–0.07	–0.05	–0.11	–0.08
p-value	1.00	0.99	1.00	0.36	0.10
(2) Students with baseline TOSCRF standard score equal to or *higher* than 100 (average for the national norm sample)					
Impact	–0.81	–0.67	–0.09	0.29	–0.41
Effect Size	–0.06	–0.05	–0.01	0.02	–0.03
p-value	1.00	1.00	1.00	1.00	0.99
Difference between (1) and (2)					
Difference in Impact	0.46	–0.35	–0.57	–1.84	–0.64
Difference in Effect Size	0.03	–0.03	–0.04	–0.13	–0.05
p-value for the Difference	1.00	1.00	1.00	0.91	0.96
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score *lower* than 100 (average for the national norm sample)					
Impact	–0.22	0.28	–1.03	–1.07	–0.56
Effect Size	–0.01	0.01	–0.03	–0.04	–0.02
p-value	1.00	1.00	1.00	1.00	1.00
(2) Students with baseline TOSCRF standard score equal to or *higher* than 100 (average for the national norm sample)					
Impact	–8.09	–6.18	–2.09	–8.53	–6.74*
Effect Size	–0.27	–0.21	–0.07	–0.29	–0.23
p-value	0.10	0.45	1.00	0.39	0.03
Difference between (1) and (2)					
Difference in Impact	7.87	6.46	1.06	7.47	6.18
Difference in Effect Size	0.27	0.22	0.04	0.25	0.21
p-value for the Difference	0.13	0.54	1.00	0.77	0.10

Table III.11 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score *lower* than 100 (average for the national norm sample)					
Impact	0.54	–1.02	–1.79	–5.26	–2.29
Effect Size	0.02	–0.04	–0.06	–0.19	–0.08
p-value	1.00	1.00	1.00	0.32	0.51
(2) Students with baseline TOSCRF standard score equal to or *higher* than 100 (average for the national norm sample)					
Impact	1.61	–2.61	3.48	–2.93	–0.82
Effect Size	0.06	–0.09	0.13	–0.11	–0.03
p-value	1.00	1.00	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Impact	–1.07	1.59	–5.28	–2.33	–1.47
Difference in Effect Size	–0.04	0.06	–0.19	–0.08	–0.05
p-value for the Difference	1.00	1.00	0.99	1.00	1.00
Number of Students with Baseline TOSCRF Standard Score *Lower* than 100[b]	**1,034**	**1,044**	**1,011**	**944**	**4,033**
Number of Students with Baseline TOSCRF Standard Score *Higher* than 100	**189**	**143**	**136**	**193**	**661**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE score, baseline TOSCRF score, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline TOSCRF score.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.12

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS WITH BASELINE FLUENCY LEVELS ABOVE AND BELOW THE SAMPLE MEDIAN

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline TOSCRF standard score *lower* than 89 (sample median)					
Impact	0.00	–0.02	–0.06	–0.07	–0.06
Effect Size	0.01	–0.03	–0.06	–0.08	–0.06
p-value	1.00	1.00	0.93	0.86	0.25
(2) Students with baseline TOSCRF standard score equal to or *higher* than 89 (sample median)					
Impact	–0.04	–0.08	–0.06	–0.11	–0.08
Effect Size	–0.04	–0.09	–0.06	–0.13	–0.08
p-value	1.00	0.56	0.95	0.23	0.05
Difference between (1) and (2)					
Difference in Impact	0.04	0.06	0.00	0.05	0.02
Difference in Effect Size	0.05	0.07	0.00	0.05	0.02
p-value for the Difference	1.00	0.85	1.00	0.99	0.87
GRADE Score					
(1) Students with baseline TOSCRF standard score *lower* than 89 (sample median)					
Impact	–0.13	–0.71	–0.81	–1.43	–1.03
Effect Size	–0.01	–0.05	–0.06	–0.10	–0.08
p-value	1.00	1.00	1.00	0.79	0.31
(2) Students with baseline TOSCRF standard score equal to or *higher* than 89 (sample median)					
Impact	–0.76	–1.25	–0.40	–1.16	–0.95
Effect Size	–0.06	–0.09	–0.03	–0.08	–0.07
p-value	1.00	0.96	1.00	0.95	0.41
Difference between (1) and (2)					
Difference in Impact	0.63	0.55	–0.40	–0.27	–0.08
Difference in Effect Size	0.05	0.04	–0.03	–0.02	–0.01
p-value for the Difference	1.00	1.00	1.00	1.00	1.00
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score *lower* than 89 (sample median)					
Impact	1.50	3.31	1.36	0.81	1.60
Effect Size	0.05	0.11	0.05	0.03	0.05
p-value	1.00	0.95	1.00	1.00	0.90
(2) Students with baseline TOSCRF standard score equal to or *higher* than 89 (sample median)					
Impact	–4.15	–4.20	–3.67	–4.87	–4.19*
Effect Size	–0.14	–0.14	–0.12	–0.16	–0.14
p-value	0.85	0.61	0.90	0.30	0.01
Difference between (1) and (2)					
Difference in Impact	5.65	7.51	5.04	5.69	5.80*
Difference in Effect Size	0.19	0.25	0.17	0.19	0.20
p-value for the Difference	0.73	0.22	0.63	0.79	0.03

Table III.12 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score *lower* than 89 (sample median)					
Impact	–0.31	–1.98	–2.37	–4.80	–2.77
Effect Size	–0.01	–0.07	–0.09	–0.17	–0.10
p-value	1.00	1.00	1.00	0.92	0.70
(2) Students with baseline TOSCRF standard score equal to or *higher* than 89 (sample median)					
Impact	1.52	–0.22	0.15	–4.98	–1.46
Effect Size	0.06	–0.01	0.01	–0.18	–0.05
p-value	1.00	1.00	1.00	0.30	0.92
Difference between (1) and (2)					
Difference in Impact	–1.83	–1.76	–2.52	0.18	–1.31
Difference in Effect Size	–0.07	–0.06	–0.09	0.01	–0.05
p-value for the Difference	1.00	1.00	1.00	1.00	1.00
Number of Students with Baseline TOSCRF Standard Score *Lower* than 89[b]	**571**	**598**	**577**	**513**	**2,259**
Number of Students with Baseline TOSCRF Standard Score Equal to or *Higher* than 89	**652**	**589**	**570**	**624**	**2,435**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline TOSCRF score.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.13

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS IN THE TOP AND BOTTOM THIRDS OF THE BASELINE FLUENCY DISTRIBUTION

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline TOSCRF standard score equal to or *lower* than 84 (bottom third of students)					
Impact	0.02	–0.03	–0.05	–0.07	–0.05
Effect Size	0.02	–0.03	–0.05	–0.08	–0.06
p-value	1.00	1.00	0.97	0.93	0.36
(2) Students with baseline TOSCRF standard score *higher* than 92 (top third of students)					
Impact	–0.03	–0.07	–0.06	–0.11	–0.08
Effect Size	–0.04	–0.08	–0.07	–0.12	–0.08
p-value	1.00	0.66	0.95	0.22	0.07
Difference between (1) and (2)					
Difference in Impact	0.06	0.05	0.01	0.04	0.02
Difference in Effect Size	0.06	0.05	0.01	0.04	0.02
p-value for the Difference	0.99	0.98	1.00	1.00	0.90
GRADE Score					
(1) Students with baseline TOSCRF standard score equal to or *lower* than 84 (bottom third of students)					
Impact	0.32	–0.23	–0.19	–1.09	–0.63
Effect Size	0.02	–0.02	–0.01	–0.08	–0.05
p-value	1.00	1.00	1.00	1.00	0.87
(2) Students with baseline TOSCRF standard score *higher* than 92 (top third of students)					
Impact	–0.86	–1.45	–0.86	–1.42	–1.21
Effect Size	–0.06	–0.11	–0.06	–0.10	–0.09
p-value	1.00	0.87	1.00	0.62	0.13
Difference between (1) and (2)					
Difference in Impact	1.18	1.22	0.68	0.34	0.59
Difference in Effect Size	0.09	0.09	0.05	0.02	0.04
p-value for the Difference	1.00	0.99	1.00	1.00	0.97
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score equal to or *lower* than 84 (bottom third of students)					
Impact	1.17	2.92	–0.19	1.07	0.82
Effect Size	0.04	0.10	–0.01	0.04	0.03
p-value	1.00	1.00	1.00	1.00	1.00
(2) Students with baseline TOSCRF standard score *higher* than 92 (top third of students)					
Impact	–2.68	–2.26	–1.57	–3.59	–2.50
Effect Size	–0.09	–0.08	–0.05	–0.12	–0.08
p-value	0.99	0.99	1.00	0.83	0.33
Difference between (1) and (2)					
Difference in Impact	3.85	5.19	1.38	4.67	3.32
Difference in Effect Size	0.13	0.17	0.05	0.16	0.11
p-value for the Difference	0.99	0.86	1.00	0.99	0.65

Table III.13 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score equal to or *lower* than 84 (bottom third of students)					
Impact	1.11	–2.88	–2.55	–5.91	–2.87
Effect Size	0.04	–0.10	–0.09	–0.21	–0.10
p-value	1.00	1.00	1.00	0.82	0.77
(2) Students with baseline TOSCRF standard score *higher* than 92 (top third of students)					
Impact	0.56	–0.62	–0.61	–4.59	–1.85
Effect Size	0.02	–0.02	–0.02	–0.17	–0.07
p-value	1.00	1.00	1.00	0.26	0.71
Difference between (1) and (2)					
Difference in Impact	0.55	–2.26	–1.94	–1.32	–1.01
Difference in Effect Size	0.02	–0.08	–0.07	–0.05	–0.04
p-value for the Difference	1.00	1.00	1.00	1.00	1.00
Number of Students with Baseline TOSCRF Standard Score Equal to or *Lower* than 84[b]	**395**	**409**	**403**	**340**	**1,547**
Number of Students with Baseline TOSCRF Standard Score *Higher* than 92	**483**	**401**	**390**	**443**	**1,717**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline TOSCRF score.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.14

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS IN THE MIDDLE AND BOTTOM THIRDS OF THE BASELINE FLUENCY DISTRIBUTION

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline TOSCRF standard score *higher* than 84 and equal to or *lower* than 92 (middle third of students)					
Impact	–0.02	–0.10	–0.06	–0.14	–0.09
Effect Size	–0.02	–0.11	–0.07	–0.16	–0.10
p-value	1.00	0.62	0.96	0.15	0.09
(2) Students with baseline TOSCRF standard score equal to or *lower* than 84 (bottom third of students)					
Impact	–0.01	–0.04	–0.05	–0.06	–0.05
Effect Size	–0.01	–0.04	–0.06	–0.07	–0.06
p-value	1.00	0.99	0.91	0.85	0.19
Difference between (1) and (2)					
Difference in Impact	–0.01	–0.06	–0.01	–0.08	–0.04
Difference in Effect Size	–0.01	–0.07	–0.01	–0.09	–0.05
p-value for the Difference	1.00	0.79	1.00	0.80	0.57
GRADE Score					
(1) Students with baseline TOSCRF standard score *higher* than 84 and equal to or *lower* than 92 (middle third of students)					
Impact	–0.45	–2.07	–1.22	–2.30	–1.60
Effect Size	–0.03	–0.15	–0.09	–0.17	–0.12
p-value	1.00	0.65	1.00	0.08	0.09
(2) Students with baseline TOSCRF standard score equal to or *lower* than 84 (bottom third of students)					
Impact	–0.44	–0.52	–0.36	–0.85	–0.74
Effect Size	–0.03	–0.04	–0.03	–0.06	–0.05
p-value	1.00	1.00	1.00	1.00	0.42
Difference between (1) and (2)					
Difference in Impact	–0.01	–1.56	–0.86	–1.44	–0.86
Difference in Effect Size	–0.00	–0.11	–0.06	–0.11	–0.06
p-value for the Difference	1.00	0.58	1.00	0.84	0.69
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score *higher* than 84 and equal to or *lower* than 92 (middle third of students)					
Impact	0.97	–1.03	1.01	–1.57	–0.04
Effect Size	0.03	–0.03	0.03	–0.05	–0.00
p-value	1.00	1.00	1.00	1.00	1.00
(2) Students with baseline TOSCRF standard score equal to or *lower* than 84 (bottom third of students)					
Impact	–2.14	–0.17	–1.99	–2.28	–1.97
Effect Size	–0.07	–0.01	–0.07	–0.08	–0.07
p-value	1.00	1.00	1.00	0.98	0.50
Difference between (1) and (2)					
Difference in Impact	3.11	–0.85	3.00	0.71	1.93
Difference in Effect Size	0.10	–0.03	0.10	0.02	0.07
p-value for the Difference	1.00	1.00	1.00	1.00	0.96

Table III.14 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score *higher* than 84 and equal to or *lower* than 92 (middle third of students)					
Impact	–2.96	–2.74	–3.07	–7.41	–4.51
Effect Size	–0.11	–0.10	–0.11	–0.27	–0.16
p-value	0.99	1.00	1.00	0.09	0.12
(2) Students with baseline TOSCRF standard score equal to or *lower* than 84 (bottom third of students)					
Impact	2.05	–0.74	–0.38	–4.05	–1.20
Effect Size	0.07	–0.03	–0.01	–0.15	–0.04
p-value	0.99	1.00	1.00	0.66	0.94
Difference between (1) and (2)					
Difference in Impact	–5.00	–2.00	–2.69	–3.36	–3.32
Difference in Effect Size	–0.18	–0.07	–0.10	–0.12	–0.12
p-value for the Difference	0.63	1.00	1.00	0.94	0.32
Number of Students with Baseline TOSCRF Standard Score *Higher* than 84 and Equal to or *Lower* than 92[b]	**345**	**377**	**354**	**354**	**1,430**
Number of Students with Baseline TOSCRF Standard Score Equal to or *Lower* than 84	**395**	**409**	**403**	**340**	**1,547**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline TOSCRF score.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.15

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS IN THE MIDDLE AND TOP THIRDS OF THE BASELINE FLUENCY DISTRIBUTION

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline TOSCRF standard score *higher* than 92 (top third of students)					
Impact	–0.05	–0.04	–0.05	–0.08	–0.06
Effect Size	–0.06	–0.05	–0.06	–0.09	–0.06
p-value	0.97	0.96	0.97	0.81	0.25
(2) Students with baseline TOSCRF standard score *higher* than 84 and equal to or *lower* than 92 (middle third of students)					
Impact	0.01	–0.05	–0.06	–0.09	–0.07
Effect Size	0.01	–0.06	–0.06	–0.11	–0.08
p-value	1.00	0.96	0.92	0.43	0.11
Difference between (1) and (2)					
Difference in Impact	–0.06	0.01	0.00	0.02	0.01
Difference in Effect Size	–0.07	0.01	0.00	0.02	0.01
p-value for the Difference	0.94	1.00	1.00	1.00	0.96
GRADE Score					
(1) Students with baseline TOSCRF standard score *higher* than 92 (top third of students)					
Impact	–1.13	–0.80	–0.55	–0.69	–0.87
Effect Size	–0.08	–0.06	–0.04	–0.05	–0.06
p-value	0.99	1.00	1.00	1.00	0.68
(2) Students with baseline TOSCRF standard score *higher* than 84 and equal to or *lower* than 92 (middle third of students)					
Impact	–0.00	–1.08	–0.65	–1.65	–1.06
Effect Size	–0.00	–0.08	–0.05	–0.12	–0.08
p-value	1.00	0.98	1.00	0.34	0.16
Difference between (1) and (2)					
Difference in Impact	–1.13	0.28	0.10	0.95	0.20
Difference in Effect Size	–0.08	0.02	0.01	0.07	0.01
p-value for the Difference	0.99	1.00	1.00	1.00	1.00
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score *higher* than 92 (top third of students)					
Impact	–5.52	–3.28	–3.63	–5.38	–4.50*
Effect Size	–0.19	–0.11	–0.12	–0.18	–0.15
p-value	0.49	0.90	0.94	0.29	0.02
(2) Students with baseline TOSCRF standard score *higher* than 84 and equal to or *lower* than 92 (middle third of students)					
Impact	1.25	0.95	0.17	–0.28	0.36
Effect Size	0.04	0.03	0.01	–0.01	0.01
p-value	1.00	1.00	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Impact	–6.77	–4.23	–3.81	–5.10	–4.86
Difference in Effect Size	–0.23	–0.14	–0.13	–0.17	–0.16
p-value for the Difference	0.18	0.88	0.97	0.88	0.09

Table III.15 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline TOSCRF standard score *higher* than 92 (top third of students)					
Impact	3.42	1.42	1.61	–2.11	0.46
Effect Size	0.12	0.05	0.06	–0.08	0.02
p-value	0.96	1.00	1.00	1.00	1.00
(2) Students with baseline TOSCRF standard score *higher* than 84 and equal to or *lower* than 92 (middle third of students)					
Impact	–1.02	–2.65	–2.72	–6.68	–3.62
Effect Size	–0.04	–0.10	–0.10	–0.24	–0.13
p-value	1.00	0.99	1.00	0.23	0.26
Difference between (1) and (2)					
Difference in Impact	4.44	4.07	4.34	4.57	4.08
Difference in Effect Size	0.16	0.15	0.16	0.17	0.15
p-value for the Difference	0.93	0.98	0.98	0.95	0.40
Number of Students with Baseline TOSCRF Standard Score *Higher* than 92 [b]	**483**	**401**	**390**	**443**	**1,717**
Number of Students with Baseline TOSCRF Standard Score *Higher* than 84 and Equal to or *Lower* than 92	**345**	**377**	**354**	**354**	**1,430**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline TOSCRF score.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.16

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS WITH BASELINE COMPREHENSION LEVELS ABOVE AND BELOW THE NATIONAL NORM SAMPLE AVERAGE

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline GRADE standard score *lower* than 100 (average for the national norm sample)					
Impact	–0.02	–0.03	–0.08	–0.08	–0.07
Effect Size	–0.02	–0.04	–0.10	–0.09	–0.08
p-value	1.00	1.00	0.79	0.67	0.13
(2) Students with baseline GRADE standard score equal to or *higher* than 100 (average for the national norm sample)					
Impact	–0.03	–0.07	–0.01	–0.12	–0.07
Effect Size	–0.04	–0.08	–0.02	–0.13	–0.08
p-value	1.00	0.70	1.00	0.23	0.10
Difference between (1) and (2)					
Difference in Impact	0.01	0.04	–0.07	0.04	0.00
Difference in Effect Size	0.02	0.04	–0.08	0.04	0.00
p-value for the Difference	1.00	0.99	0.79	1.00	1.00
GRADE Score					
(1) Students with baseline GRADE standard score *lower* than 100 (average for the national norm sample)					
Impact	–0.73	–0.96	–1.11	–1.40	–1.24
Effect Size	–0.05	–0.07	–0.08	–0.10	–0.09
p-value	1.00	1.00	0.99	0.80	0.15
(2) Students with baseline GRADE standard score equal to or *higher* than 100 (average for the national norm sample)					
Impact	–0.39	–1.06	–0.13	–1.09	–0.83
Effect Size	–0.03	–0.08	–0.01	–0.08	–0.06
p-value	1.00	0.98	1.00	0.92	0.48
Difference between (1) and (2)					
Difference in Impact	–0.35	0.10	–0.98	–0.32	–0.41
Difference in Effect Size	–0.03	0.01	–0.07	–0.02	–0.03
p-value for the Difference	1.00	1.00	1.00	1.00	0.99
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score *lower* than 100 (average for the national norm sample)					
Impact	–1.09	0.89	–1.94	–1.63	–1.20
Effect Size	–0.04	0.03	–0.07	–0.06	–0.04
p-value	1.00	1.00	1.00	1.00	0.97
(2) Students with baseline GRADE standard score equal to or *higher* than 100 (average for the national norm sample)					
Impact	–1.83	–1.85	–0.51	–2.47	–1.67
Effect Size	–0.06	–0.06	–0.02	–0.08	–0.06
p-value	1.00	1.00	1.00	1.00	0.71
Difference between (1) and (2)					
Difference in Impact	0.73	2.74	–1.42	0.83	0.48
Difference in Effect Size	0.02	0.09	–0.05	0.03	0.02
p-value for the Difference	1.00	1.00	1.00	1.00	1.00

Table III.16 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score *lower* than 100 (average for the national norm sample)					
Impact	1.57	–1.21	–1.92	–2.97	–1.82
Effect Size	0.06	–0.04	–0.07	–0.11	–0.07
p-value	1.00	1.00	1.00	1.00	0.93
(2) Students with baseline GRADE standard score equal to or *higher* than 100 (average for the national norm sample)					
Impact	–0.51	–0.97	–0.02	–6.73	–2.54
Effect Size	–0.02	–0.04	–0.00	–0.24	–0.09
p-value	1.00	1.00	1.00	0.11	0.55
Difference between (1) and (2)					
Difference in Impact	2.08	–0.24	–1.90	3.75	0.72
Difference in Effect Size	0.08	–0.01	–0.07	0.14	0.03
p-value for the Difference	1.00	1.00	1.00	1.00	1.00
Number of Students with Baseline GRADE Standard Score *Lower* than 100[b]	**564**	**604**	**606**	**524**	**2,298**
Number of Students with Baseline GRADE Standard Score *Higher* than 100	**667**	**586**	**545**	**615**	**2,413**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE score, baseline TOSCRF score, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline GRADE score.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.17

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS WITH BASELINE COMPREHENSION LEVELS ABOVE AND BELOW THE SAMPLE MEDIAN

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline GRADE standard score *lower* than 100.5 (sample median)					
Impact	–0.02	–0.03	–0.08	–0.08	–0.07
Effect Size	–0.02	–0.04	–0.10	–0.09	–0.08
p-value	1.00	1.00	0.79	0.67	0.13
(2) Students with baseline GRADE standard score equal to or *higher* than 100.5 (sample median)					
Impact	–0.03	–0.07	–0.01	–0.12	–0.07
Effect Size	–0.04	–0.08	–0.02	–0.13	–0.08
p-value	1.00	0.70	1.00	0.23	0.10
Difference between (1) and (2)					
Difference in Impact	0.01	0.04	–0.07	0.04	0.00
Difference in Effect Size	0.02	0.04	–0.08	0.04	0.00
p-value for the Difference	1.00	0.99	0.79	1.00	1.00
GRADE Score					
(1) Students with baseline GRADE standard score *lower* than 100.5 (sample median)					
Impact	–0.73	–0.96	–1.11	–1.40	–1.24
Effect Size	–0.05	–0.07	–0.08	–0.10	–0.09
p-value	1.00	1.00	0.99	0.80	0.15
(2) Students with baseline GRADE standard score equal to or *higher* than 100.5 (sample median)					
Impact	–0.39	–1.06	–0.13	–1.09	–0.83
Effect Size	–0.03	–0.08	–0.01	–0.08	–0.06
p-value	1.00	0.98	1.00	0.92	0.48
Difference between (1) and (2)					
Difference in Impact	–0.35	0.10	–0.98	–0.32	–0.41
Difference in Effect Size	–0.03	0.01	–0.07	–0.02	–0.03
p-value for the Difference	1.00	1.00	1.00	1.00	0.99
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score *lower* than 100.5 (sample median)					
Impact	–1.09	0.89	–1.94	–1.63	–1.20
Effect Size	–0.04	0.03	–0.07	–0.06	–0.04
p-value	1.00	1.00	1.00	1.00	0.97
(2) Students with baseline GRADE standard score equal to or *higher* than 100.5 (sample median)					
Impact	–1.83	–1.85	–0.51	–2.47	–1.67
Effect Size	–0.06	–0.06	–0.02	–0.08	–0.06
p-value	1.00	1.00	1.00	1.00	0.71
Difference between (1) and (2)					
Difference in Impact	0.73	2.74	–1.42	0.83	0.48
Difference in Effect Size	0.02	0.09	–0.05	0.03	0.02
p-value for the Difference	1.00	1.00	1.00	1.00	1.00

Table III.17 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score *lower* than 100.5 (sample median)					
Impact	1.57	–1.21	–1.92	–2.97	–1.82
Effect Size	0.06	–0.04	–0.07	–0.11	–0.07
p-value	1.00	1.00	1.00	1.00	0.93
(2) Students with baseline GRADE standard score equal to or *higher* than 100.5 (sample median)					
Impact	–0.51	–0.97	–0.02	–6.73	–2.54
Effect Size	–0.02	–0.04	–0.00	–0.24	–0.09
p-value	1.00	1.00	1.00	0.11	0.55
Difference between (1) and (2)					
Difference in Impact	2.08	–0.24	–1.90	3.75	0.72
Difference in Effect Size	0.08	–0.01	–0.07	0.14	0.03
p-value for the Difference	1.00	1.00	1.00	1.00	1.00
Number of Students with Baseline GRADE Standard Score *Lower* than 100.5[b]	**564**	**604**	**606**	**524**	**2,298**
Number of Students with Baseline GRADE Standard Score Equal to or *Higher* than 100.5	**667**	**586**	**545**	**615**	**2,413**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline GRADE score.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.18

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS IN THE TOP AND BOTTOM THIRDS OF THE BASELINE COMPREHENSION DISTRIBUTION

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline GRADE standard score equal to or *lower* than 93 (bottom third of students)					
Impact	–0.07	–0.07	–0.13	–0.12	–0.12*
Effect Size	–0.08	–0.08	–0.14	–0.14	–0.14
p-value	0.95	0.83	0.37	0.30	0.01
(2) Students with baseline GRADE standard score *higher* than 103 (top third of students)					
Impact	–0.00	–0.04	–0.02	–0.09	–0.04
Effect Size	–0.00	–0.05	–0.02	–0.10	–0.05
p-value	1.00	0.99	1.00	0.52	0.35
Difference between (1) and (2)					
Difference in Impact	–0.07	–0.03	–0.11	–0.03	–0.08
Difference in Effect Size	–0.07	–0.04	–0.13	–0.04	–0.09
p-value for the Difference	0.99	1.00	0.37	1.00	0.26
GRADE Score					
(1) Students with baseline GRADE standard score equal to or *lower* than 93 (bottom third of students)					
Impact	–1.80	–1.69	–1.44	–2.34	–2.06*
Effect Size	–0.13	–0.12	–0.10	–0.17	–0.15
p-value	0.93	0.72	0.84	0.05	0.00
(2) Students with baseline GRADE standard score *higher* than 103 (top third of students)					
Impact	0.04	–0.66	–0.32	–0.74	–0.53
Effect Size	0.00	–0.05	–0.02	–0.05	–0.04
p-value	1.00	1.00	1.00	1.00	0.87
Difference between (1) and (2)					
Difference in Impact	–1.84	–1.03	–1.11	–1.59	–1.53
Difference in Effect Size	–0.13	–0.08	–0.08	–0.12	–0.11
p-value for the Difference	0.98	1.00	0.97	0.52	0.14
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score equal to or *lower* than 93 (bottom third of students)					
Impact	0.62	2.28	–0.68	–0.32	0.07
Effect Size	0.02	0.08	–0.02	–0.01	0.00
p-value	1.00	1.00	1.00	1.00	1.00
(2) Students with baseline GRADE standard score *higher* than 103 (top third of students)					
Impact	–2.32	–1.76	–1.51	–2.82	–2.11
Effect Size	–0.08	–0.06	–0.05	–0.10	–0.07
p-value	1.00	1.00	1.00	0.96	0.39
Difference between (1) and (2)					
Difference in Impact	2.94	4.04	0.82	2.50	2.19
Difference in Effect Size	0.10	0.14	0.03	0.08	0.07
p-value for the Difference	1.00	0.96	1.00	1.00	0.92

Table III.18 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score equal to or *lower* than 93 (bottom third of students)					
Impact	–1.12	–4.43	–6.01	–5.45	–5.25
Effect Size	–0.04	–0.16	–0.22	–0.20	–0.19
p-value	1.00	0.87	0.84	0.95	0.16
(2) Students with baseline GRADE standard score *higher* than 103 (top third of students)					
Impact	1.32	0.51	1.33	–4.59	–0.74
Effect Size	0.05	0.02	0.05	–0.17	–0.03
p-value	1.00	1.00	1.00	0.41	1.00
Difference between (1) and (2)					
Difference in Impact	–2.44	–4.94	–7.34	–0.85	–4.50
Difference in Effect Size	–0.09	–0.18	–0.27	–0.03	–0.16
p-value for the Difference	1.00	0.91	0.70	1.00	0.46
Number of Students with Baseline GRADE Standard Score Equal to or *Lower* than 93[b]	**378**	**384**	**405**	**323**	**1,490**
Number of Students with Baseline GRADE Standard Score *Higher* than 103	**525**	**441**	**434**	**484**	**1,884**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline GRADE score.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.19

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS IN THE MIDDLE AND BOTTOM THIRDS OF THE BASELINE COMPREHENSION DISTRIBUTION

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline GRADE standard score *higher* than 93 and equal to or *lower* than 103 (middle third of students)					
Impact	0.01	–0.03	–0.02	–0.05	–0.03
Effect Size	0.01	–0.04	–0.03	–0.06	–0.03
p-value	1.00	1.00	1.00	0.97	0.80
(2) Students with baseline GRADE standard score equal to or *lower* than 93 (bottom third of students)					
Impact	–0.02	–0.06	–0.07	–0.10	–0.08*
Effect Size	–0.03	–0.07	–0.08	–0.11	–0.09
p-value	1.00	0.68	0.68	0.28	0.02
Difference between (1) and (2)					
Difference in Impact	0.03	0.03	0.05	0.04	0.05
Difference in Effect Size	0.04	0.03	0.05	0.05	0.06
p-value for the Difference	1.00	1.00	0.92	0.99	0.48
GRADE Score					
(1) Students with baseline GRADE standard score *higher* than 93 and equal to or *lower* than 103 (middle third of students)					
Impact	0.18	–0.89	–0.80	–1.03	–0.67
Effect Size	0.01	–0.07	–0.06	–0.08	–0.05
p-value	1.00	1.00	1.00	1.00	0.94
(2) Students with baseline GRADE standard score equal to or *lower* than 93 (bottom third of students)					
Impact	–0.76	–1.06	–0.63	–1.33	–1.16*
Effect Size	–0.06	–0.08	–0.05	–0.10	–0.08
p-value	0.99	0.84	1.00	0.40	0.02
Difference between (1) and (2)					
Difference in Impact	0.95	0.16	–0.17	0.30	0.49
Difference in Effect Size	0.07	0.01	–0.01	0.02	0.04
p-value for the Difference	1.00	1.00	1.00	1.00	0.98
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score *higher* than 93 and equal to or *lower* than 103 (middle third of students)					
Impact	–3.84	–2.17	–2.21	–2.82	–2.77
Effect Size	–0.13	–0.07	–0.07	–0.10	–0.09
p-value	0.98	1.00	1.00	1.00	0.54
(2) Students with baseline GRADE standard score equal to or *lower* than 93 (bottom third of students)					
Impact	–0.48	0.26	–0.86	–1.72	–0.90
Effect Size	–0.02	0.01	–0.03	–0.06	–0.03
p-value	1.00	1.00	1.00	1.00	0.99
Difference between (1) and (2)					
Difference in Impact	–3.37	–2.44	–1.35	–1.10	–1.87
Difference in Effect Size	–0.11	–0.08	–0.05	–0.04	–0.06
p-value for the Difference	0.99	1.00	1.00	1.00	0.95

Table III.19 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score *higher* than 93 and equal to or *lower* than 103 (middle third of students)					
Impact	2.23	2.18	2.91	–1.44	1.32
Effect Size	0.08	0.08	0.11	–0.05	0.05
p-value	1.00	1.00	1.00	1.00	0.99
(2) Students with baseline GRADE standard score equal to or *lower* than 93 (bottom third of students)					
Impact	–0.14	–2.49	–2.74	–6.44	–3.55
Effect Size	–0.01	–0.09	–0.10	–0.23	–0.13
p-value	1.00	0.93	1.00	0.12	0.08
Difference between (1) and (2)					
Difference in Impact	2.37	4.66	5.65	4.99	4.87
Difference in Effect Size	0.09	0.17	0.20	0.18	0.18
p-value for the Difference	1.00	0.87	0.43	0.74	0.12
Number of Students with Baseline GRADE Standard Score *Higher* than 93 and Equal to or *Lower* than 103[b]	**328**	**365**	**312**	**332**	**1,337**
Number of Students with Baseline GRADE Standard Score Equal to or *Lower* than 93	**378**	**384**	**405**	**323**	**1,490**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline GRADE score.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.20

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS IN THE MIDDLE AND TOP THIRDS OF THE BASELINE COMPREHENSION DISTRIBUTION

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students with baseline GRADE standard score *higher* than 103 (top third of students)					
Impact	0.00	–0.04	0.00	–0.08	–0.04
Effect Size	0.00	–0.04	0.00	–0.09	–0.05
p-value	1.00	0.99	1.00	0.76	0.55
(2) Students with baseline GRADE standard score *higher* than 93 and equal to or *lower* than 103 (middle third of students)					
Impact	–0.03	–0.07	–0.10	–0.09	–0.08
Effect Size	–0.03	–0.07	–0.11	–0.10	–0.09
p-value	1.00	0.90	0.60	0.60	0.08
Difference between (1) and (2)					
Difference in Impact	0.03	0.03	0.10	0.01	0.04
Difference in Effect Size	0.03	0.03	0.11	0.01	0.05
p-value for the Difference	1.00	1.00	0.56	1.00	0.70
GRADE Score					
(1) Students with baseline GRADE standard score *higher* than 103 (top third of students)					
Impact	–0.04	–0.49	0.07	–0.53	–0.43
Effect Size	–0.00	–0.04	0.01	–0.04	–0.03
p-value	1.00	1.00	1.00	1.00	0.98
(2) Students with baseline GRADE standard score *higher* than 93 and equal to or *lower* than 103 (middle third of students)					
Impact	–0.87	–1.32	–1.19	–1.73	–1.42
Effect Size	–0.06	–0.10	–0.09	–0.13	–0.10
p-value	1.00	0.98	0.98	0.57	0.09
Difference between (1) and (2)					
Difference in Impact	0.83	0.82	1.27	1.21	0.99
Difference in Effect Size	0.06	0.06	0.09	0.09	0.07
p-value for the Difference	1.00	1.00	0.99	0.99	0.80
Social Studies Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score *higher* than 103 (top third of students)					
Impact	–1.07	–0.98	–0.38	–2.44	–1.41
Effect Size	–0.04	–0.03	–0.01	–0.08	–0.05
p-value	1.00	1.00	1.00	1.00	0.91
(2) Students with baseline GRADE standard score *higher* than 93 and equal to or *lower* than 103 (middle third of students)					
Impact	–1.79	–0.16	–2.00	–1.80	–1.48
Effect Size	–0.06	–0.01	–0.07	–0.06	–0.05
p-value	1.00	1.00	1.00	1.00	0.86
Difference between (1) and (2)					
Difference in Impact	0.72	–0.82	1.62	–0.64	0.06
Difference in Effect Size	0.02	–0.03	0.05	–0.02	0.00
p-value for the Difference	1.00	1.00	1.00	1.00	1.00

Table III.20 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students with baseline GRADE standard score *higher* than 103 (top third of students)					
Impact	–0.08	–1.18	–0.20	–7.43	–2.70
Effect Size	–0.00	–0.04	–0.01	–0.27	–0.10
p-value	1.00	1.00	1.00	0.13	0.57
(2) Students with baseline GRADE standard score *higher* than 93 and equal to or *lower* than 103 (middle third of students)					
Impact	0.80	–1.13	–1.68	–3.28	–1.78
Effect Size	0.03	–0.04	–0.06	–0.12	–0.06
p-value	1.00	1.00	1.00	0.98	0.89
Difference between (1) and (2)					
Difference in Impact	–0.88	–0.05	1.48	–4.15	–0.92
Difference in Effect Size	–0.03	–0.00	0.05	–0.15	–0.03
p-value for the Difference	1.00	1.00	1.00	0.99	1.00
Number of Students with Baseline GRADE Standard Score *Higher* than 93 and Equal to or *Lower* than 103[b]	**328**	**365**	**312**	**332**	**1,337**
Number of Students with Baseline GRADE Standard Score *Higher* than 103	**525**	**441**	**434**	**484**	**1,884**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a valid baseline GRADE score.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.21

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY ENGLISH LANGUAGE LEARNER STATUS

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students classified as English language learners					
Impact	–0.06	0.08	0.15	0.08	0.07
Effect Size	–0.07	0.09	0.16	0.09	0.08
p-value	1.00	0.82	0.84	0.84	0.42
(2) Students not classified as English language learners					
Impact	0.03	–0.04	–0.06	–0.06	–0.05
Effect Size	0.03	–0.04	–0.07	–0.07	–0.05
p-value	0.99	0.99	0.97	0.84	0.33
Difference between (1) and (2)					
Difference in Impact	–0.09	0.12	0.20	0.14	0.12
Difference in Effect Size	–0.10	0.14	0.23	0.16	0.13
p-value for the Difference	1.00	0.52	0.60	0.45	0.15
GRADE Score					
(1) Students classified as English language learners					
Impact	–0.83	1.16	1.26	0.38	0.85
Effect Size	–0.06	0.08	0.09	0.03	0.06
p-value	1.00	1.00	1.00	1.00	0.95
(2) Students not classified as English language learners					
Impact	0.43	–0.97	–0.64	–0.86	–0.65
Effect Size	0.03	–0.07	–0.05	–0.06	–0.05
p-value	1.00	1.00	1.00	1.00	0.64
Difference between (1) and (2)					
Difference in Impact	–1.26	2.13	1.89	1.25	1.50
Difference in Effect Size	–0.09	0.16	0.14	0.09	0.11
p-value for the Difference	1.00	0.70	1.00	1.00	0.62
Social Studies Reading Comprehension Assessment Score					
(1) Students classified as English language learners					
Impact	–2.02	3.38	4.96	6.83	3.32
Effect Size	–0.07	0.11	0.17	0.23	0.11
p-value	1.00	1.00	1.00	0.22	0.89
(2) Students not classified as English language learners					
Impact	0.66	–1.00	–2.31	–1.39	–1.33
Effect Size	0.02	–0.03	–0.08	–0.05	–0.04
p-value	1.00	1.00	1.00	1.00	0.94
Difference between (1) and (2)					
Difference in Impact	–2.68	4.38	7.27	8.21	4.65
Difference in Effect Size	–0.09	0.15	0.24	0.28	0.16
p-value for the Difference	1.00	1.00	1.00	0.39	0.68

Table III.21 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students classified as English language learners					
Impact	–1.37	0.46	4.43	1.12	0.87
Effect Size	–0.05	0.02	0.16	0.04	0.03
p-value	1.00	1.00	1.00	1.00	1.00
(2) Students not classified as English language learners					
Impact	1.25	0.41	–0.75	–3.25	–0.39
Effect Size	0.05	0.02	–0.03	–0.12	–0.01
p-value	1.00	1.00	1.00	0.98	1.00
Difference between (1) and (2)					
Difference in Impact	–2.62	0.05	5.18	4.37	1.26
Difference in Effect Size	–0.09	0.00	0.19	0.16	0.05
p-value for the Difference	1.00	1.00	1.00	1.00	1.00
Number of Students Classified as English Language Learners[b]	**222**	**298**	**292**	**188**	**1,000**
Number of Students Not Classified as English Language Learners	**690**	**662**	**634**	**634**	**2,620**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with a nonmissing English language learner classification.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.22

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS WITH TEACHERS ABOVE AND BELOW THE MEDIAN TEACHER EXPERIENCE IN THE STUDY SAMPLE

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students of teachers with *less* than 10 years of teaching experience (median for study sample)					
Impact	0.02	–0.04	–0.07	–0.07	–0.07
Effect Size	0.03	–0.04	–0.08	–0.08	–0.08
p-value	1.00	1.00	0.99	0.98	0.41
(2) Students of teachers with 10 or *more* years of teaching experience (median for study sample)					
Impact	–0.04	–0.03	–0.06	–0.12	–0.06
Effect Size	–0.04	–0.04	–0.07	–0.14	–0.07
p-value	1.00	1.00	0.96	0.59	0.30
Difference between (1) and (2)					
Difference in Impact	0.06	–0.01	–0.01	0.05	–0.01
Difference in Effect Size	0.07	–0.01	–0.01	0.06	–0.01
p-value for the Difference	1.00	1.00	1.00	1.00	0.99
GRADE Score					
(1) Students of teachers with *less* than 10 years of teaching experience (median for study sample)					
Impact	0.26	–0.79	–0.79	–2.23	–1.08
Effect Size	0.02	–0.06	–0.06	–0.16	–0.08
p-value	1.00	1.00	1.00	0.88	0.68
(2) Students of teachers with 10 or *more* years of teaching experience (median for study sample)					
Impact	–0.77	–0.50	–0.53	–0.32	–0.76
Effect Size	–0.06	–0.04	–0.04	–0.02	–0.06
p-value	1.00	1.00	1.00	1.00	0.64
Difference between (1) and (2)					
Difference in Impact	1.03	–0.29	–0.26	–1.91	–0.32
Difference in Effect Size	0.07	–0.02	–0.02	–0.14	–0.02
p-value for the Difference	1.00	1.00	1.00	1.00	1.00
Social Studies Reading Comprehension Assessment Score					
(1) Students of teachers with *less* than 10 years of teaching experience (median for study sample)					
Impact	3.23	–1.22	–1.77	1.43	–0.08
Effect Size	0.11	–0.04	–0.06	0.05	–0.00
p-value	1.00	1.00	1.00	1.00	1.00
(2) Students of teachers with 10 or *more* years of teaching experience (median for study sample)					
Impact	–3.87	1.25	–1.97	–3.03	–2.09
Effect Size	–0.13	0.04	–0.07	–0.10	–0.07
p-value	1.00	1.00	1.00	1.00	0.88
Difference between (1) and (2)					
Difference in Impact	7.10	–2.47	0.20	4.46	2.01
Difference in Effect Size	0.24	–0.08	0.01	0.15	0.07
p-value for the Difference	1.00	1.00	1.00	1.00	1.00

Table III.22 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students of teachers with *less* than 10 years of teaching experience (median for study sample)					
Impact	0.08	0.34	0.93	–0.94	–0.60
Effect Size	0.00	0.01	0.03	–0.03	–0.02
p-value	1.00	1.00	1.00	1.00	1.00
(2) Students of teachers with 10 or *more* years of teaching experience (median for study sample)					
Impact	0.99	–2.39	–3.73	–10.00*	–3.85
Effect Size	0.04	–0.09	–0.14	–0.36	–0.14
p-value	1.00	1.00	1.00	0.04	0.41
Difference between (1) and (2)					
Difference in Impact	–0.91	2.74	4.66	9.06	3.25
Difference in Effect Size	–0.03	0.10	0.17	0.33	0.12
p-value for the Difference	1.00	1.00	1.00	0.96	0.94
Number of Students in Classes with Teachers with *Less* than 10 Years of Teaching Experience[b]	**663**	**555**	**542**	**517**	**2,277**
Number of Students in Classes with Teachers with 10 or *More* Years of Teaching Experience	**625**	**595**	**518**	**565**	**2,303**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students that have teachers with nonmissing experience data.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.23

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, COMPARING STUDENTS WITH TEACHERS WITH LESS THAN OR MORE THAN 5 YEARS TEACHING EXPERIENCE

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students of teachers with *less* than 5 years of teaching experience					
Impact	0.06	–0.06	0.14	–0.16	–0.04
Effect Size	0.07	–0.07	0.16	–0.18	–0.05
p-value	1.00	1.00	1.00	0.97	0.88
(2) Students of teachers with 5 or *more* years of teaching experience					
Impact	–0.04	–0.03	–0.12	–0.09	–0.08*
Effect Size	–0.05	–0.04	–0.14	–0.10	–0.09
p-value	0.99	1.00	0.34	0.67	0.05
Difference between (1) and (2)					
Difference in Impact	0.11	–0.03	0.26	–0.07	0.04
Difference in Effect Size	0.12	–0.03	0.30	–0.08	0.04
p-value for the Difference	1.00	1.00	0.94	1.00	0.93
GRADE Score					
(1) Students of teachers with *less* than 5 years of teaching experience					
Impact	0.96	–1.62	–1.07	–2.64	–0.17
Effect Size	0.07	–0.12	–0.08	–0.19	–0.01
p-value	1.00	1.00	1.00	0.88	1.00
(2) Students of teachers with 5 or *more* years of teaching experience					
Impact	–1.10	–0.68	–0.88	–1.16	–1.25
Effect Size	–0.08	–0.05	–0.06	–0.08	–0.09
p-value	0.99	1.00	0.99	0.96	0.09
Difference between (1) and (2)					
Difference in Impact	2.06	–0.94	–0.19	–1.47	1.08
Difference in Effect Size	0.15	–0.07	–0.01	–0.11	0.08
p-value for the Difference	1.00	1.00	1.00	1.00	0.98
Social Studies Reading Comprehension Assessment Score					
(1) Students of teachers with *less* than 5 years of teaching experience					
Impact	2.16	0.59	2.24	–1.27	3.42
Effect Size	0.07	0.02	0.08	–0.04	0.12
p-value	1.00	1.00	1.00	1.00	0.96
(2) Students of teachers with 5 or *more* years of teaching experience					
Impact	–1.30	0.01	–2.92	–2.07	–2.11
Effect Size	–0.04	0.00	–0.10	–0.07	–0.07
p-value	1.00	1.00	0.89	1.00	0.63
Difference between (1) and (2)					
Difference in Impact	3.47	0.58	5.15	0.80	5.54
Difference in Effect Size	0.12	0.02	0.17	0.03	0.19
p-value for the Difference	1.00	1.00	1.00	1.00	0.84

Table III.23 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students of teachers with *less* than 5 years of teaching experience					
Impact	–1.73	1.00	4.83	–3.78	–4.78
Effect Size	–0.06	0.04	0.17	–0.14	–0.17
p-value	1.00	1.00	1.00	1.00	0.78
(2) Students of teachers with 5 or *more* years of teaching experience					
Impact	2.04	–1.21	–3.27	–6.10	–2.31
Effect Size	0.07	–0.04	–0.12	–0.22	–0.08
p-value	0.99	1.00	0.98	0.07	0.66
Difference between (1) and (2)					
Difference in Impact	–3.78	2.21	8.09	2.33	–2.48
Difference in Effect Size	–0.14	0.08	0.29	0.08	–0.09
p-value for the Difference	1.00	1.00	0.91	1.00	0.99
Number of Students in Classes Taught by Teachers with *Less* than 5 Years of Teaching Experience[b]	**337**	**386**	**261**	**248**	**1,232**
Number of Students in Classes Taught by Teachers with 5 or *More* Years of Teaching Experience	**951**	**764**	**799**	**834**	**3,348**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]Counts reflect the number of students with non-missing teacher experience data.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.24

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY TEACHER PAST PROFESSIONAL DEVELOPMENT

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students of teachers with *less* than 1.5 hours reading instruction professional development in past 12 months[b]					
Impact	0.24	0.03	–0.02	0.03	–0.02
Effect Size	0.26	0.03	–0.02	0.03	–0.02
p-value	0.10	1.00	1.00	1.00	0.96
(2) Students of teachers with 1.5 or *more* hours reading instruction professional development in past 12 months					
Impact	–0.15	–0.10	–0.11	–0.16	–0.09
Effect Size	–0.17	–0.11	–0.13	–0.18	–0.11
p-value	0.35	0.90	0.61	0.17	0.15
Difference between (1) and (2)					
Difference in Impact	0.38	0.12	0.09	0.19	0.08
Difference in Effect Size	0.43	0.14	0.10	0.22	0.09
p-value for the Difference	0.09	0.98	0.99	0.69	0.71
GRADE Score					
(1) Students of teachers with *less* than 1.5 hours reading instruction professional development in past 12 months[b]					
Impact	2.38	0.10	0.55	0.83	–0.04
Effect Size	0.17	0.01	0.04	0.06	–0.00
p-value	0.76	1.00	1.00	1.00	1.00
(2) Students of teachers with 1.5 or *more* hours reading instruction professional development in past 12 months					
Impact	–1.68	–1.13	–1.52	–2.09	–1.21
Effect Size	–0.12	–0.08	–0.11	–0.15	–0.09
p-value	0.91	1.00	0.91	0.56	0.44
Difference between (1) and (2)					
Difference in Impact	4.06	1.22	2.07	2.91	1.17
Difference in Effect Size	0.30	0.09	0.15	0.21	0.09
p-value for the Difference	0.62	1.00	0.99	0.90	0.94
Social Studies Reading Comprehension Assessment Score					
(1) Students of teachers with *less* than 1.5 hours reading instruction professional development in past 12 months[b]					
Impact	8.60	1.24	–1.21	2.17	0.77
Effect Size	0.29	0.04	–0.04	0.07	0.03
p-value	0.53	1.00	1.00	1.00	1.00
(2) Students of teachers with 1.5 or *more* hours reading instruction professional development in past 12 months					
Impact	–5.33	–1.35	–2.74	–2.22	–1.72
Effect Size	–0.18	–0.05	–0.09	–0.07	–0.06
p-value	0.96	1.00	1.00	1.00	0.98
Difference between (1) and (2)					
Difference in Impact	13.93	2.59	1.52	4.39	2.48
Difference in Effect Size	0.47	0.09	0.05	0.15	0.08
p-value for the Difference	0.53	1.00	1.00	1.00	0.99

Table III.24 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students of teachers with *less* than 1.5 hours reading instruction professional development in past 12 months[b]					
Impact	7.28	0.43	–2.46	–3.31	–1.91
Effect Size	0.26	0.02	–0.09	–0.12	–0.07
p-value	0.35	1.00	1.00	1.00	0.99
(2) Students of teachers with 1.5 or *more* hours reading instruction professional development in past 12 months					
Impact	–3.78	–3.30	–2.73	–7.67	–4.27
Effect Size	–0.14	–0.12	–0.10	–0.28	–0.15
p-value	0.93	0.98	1.00	0.17	0.13
Difference between (1) and (2)					
Difference in Impact	11.07	3.72	0.27	4.36	2.36
Difference in Effect Size	0.40	0.13	0.01	0.16	0.09
p-value for the Difference	0.41	1.00	1.00	1.00	0.99
Number of Students in Classes with Teachers with *Less* than 1.5 hours Reading Instruction Professional Development in Past 12 Months[c]	**470**	**468**	**416**	**282**	**1,636**
Number of Students in Classes with Teachers with 1.5 or *More* Hours Reading Instruction Professional Development in Past 12 Months	**818**	**682**	**620**	**800**	**2,920**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]This data is from the Teacher Survey, which was conducted in the fall. Professional development could include any training, including training on the study interventions for treatment group teachers. This cutoff point is the median.

[c]Counts reflect the number of students that have teachers with nonmissing data on reading instruction professional development.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.25

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY TEACHER EFFICACY

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students of teachers with an overall teacher efficacy scale score *lower* than 4.16[b]					
Impact	–0.19	0.03	–0.19	–0.09	–0.11
Effect Size	–0.21	0.03	–0.21	–0.10	–0.13
p-value	0.17	1.00	0.26	0.85	0.09
(2) Students of teachers with an overall teacher efficacy scale score equal to or *higher* than 4.16					
Impact	0.13	–0.13	0.05	–0.14	–0.03
Effect Size	0.14	–0.14	0.06	–0.15	–0.03
p-value	0.17	0.41	1.00	0.43	0.80
Difference between (1) and (2)					
Difference in Impact	–0.32	0.16	–0.24	0.04	–0.08
Difference in Effect Size	–0.36	0.18	–0.27	0.05	–0.09
p-value for the Difference	0.05	0.78	0.62	1.00	0.57
GRADE Score					
(1) Students of teachers with an overall teacher efficacy scale score *lower* than 4.16[b]					
Impact	–2.46	0.02	–2.05	–0.41	–1.34
Effect Size	–0.18	0.00	–0.15	–0.03	–0.10
p-value	0.52	1.00	0.80	1.00	0.40
(2) Students of teachers with an overall teacher efficacy scale score equal to or *higher* than 4.16					
Impact	1.37	–1.49	0.79	–2.71	–0.50
Effect Size	0.10	–0.11	0.06	–0.20	–0.04
p-value	0.96	0.95	1.00	0.41	0.98
Difference between (1) and (2)					
Difference in Impact	–3.84	1.52	–2.85	2.31	–0.83
Difference in Effect Size	–0.28	0.11	–0.21	0.17	–0.06
p-value for the Difference	0.50	1.00	0.93	0.99	0.98
Social Studies Reading Comprehension Assessment Score					
(1) Students of teachers with an overall teacher efficacy scale score *lower* than 4.16[b]					
Impact	–9.26	3.86	–4.52	–3.24	–2.81
Effect Size	–0.31	0.13	–0.15	–0.11	–0.09
p-value	0.45	0.95	0.94	0.94	0.69
(2) Students of teachers with an overall teacher efficacy scale score equal to or *higher* than 4.16					
Impact	6.20	–5.10	–0.46	1.09	0.22
Effect Size	0.21	–0.17	–0.02	0.04	0.01
p-value	0.43	0.36	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Impact	–15.46	8.96	–4.07	–4.33	–3.04
Difference in Effect Size	–0.52	0.30	–0.14	–0.15	–0.10
p-value for the Difference	0.16	0.43	1.00	1.00	0.93

Table III.25 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students of teachers with an overall teacher efficacy scale score *lower* than 4.16[b]					
Impact	–2.80	1.34	–6.04	–7.51	–4.66
Effect Size	–0.10	0.05	–0.22	–0.27	–0.17
p-value	1.00	1.00	0.87	0.77	0.38
(2) Students of teachers with an overall teacher efficacy scale score equal to or *higher* than 4.16					
Impact	3.04	–4.74	2.20	–4.09	–0.99
Effect Size	0.11	–0.17	0.08	–0.15	–0.04
p-value	0.98	0.83	1.00	0.99	1.00
Difference between (1) and (2)					
Difference in Impact	–5.84	6.07	–8.23	–3.42	–3.67
Difference in Effect Size	–0.21	0.22	–0.30	–0.12	–0.13
p-value for the Difference	0.98	0.99	0.97	1.00	0.92
Number of Students in Classes with Teachers with an Overall Teacher Efficacy Scale Score *Lower* than 4.16[c]	**587**	**598**	**473**	**588**	**2,246**
Number of Students in Classes with Teachers with an Overall Teacher Efficacy Scale Score Equal to or *Higher* than 4.16	**701**	**552**	**587**	**494**	**2,334**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]This cutoff point is the median.

[c]Counts reflect the number of students that have teachers with nonmissing teacher efficacy data.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.26

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY PROFESSIONAL CULTURE IN SCHOOL

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students in schools with a professional culture scale score *lower* than 5.67[b]					
Impact	–0.10	–0.12	–0.14	–0.16	–0.12*
Effect Size	–0.12	–0.13	–0.16	–0.18	–0.14
p-value	0.80	0.61	0.65	0.17	0.04
(2) Students in schools with a professional culture scale score equal to or *higher* than 5.67					
Impact	0.07	0.04	0.06	–0.03	0.01
Effect Size	0.08	0.04	0.07	–0.03	0.01
p-value	0.94	1.00	0.99	1.00	0.99
Difference between (1) and (2)					
Difference in Impact	–0.17	–0.15	–0.20	–0.13	–0.13
Difference in Effect Size	–0.19	–0.17	–0.23	–0.15	–0.14
p-value for the Difference	0.73	0.82	0.79	0.97	0.24
GRADE Score					
(1) Students in schools with a professional culture scale score *lower* than 5.67[b]					
Impact	–1.90	–1.96	–1.01	–2.25	–1.72
Effect Size	–0.14	–0.14	–0.07	–0.16	–0.13
p-value	0.86	0.86	1.00	0.58	0.11
(2) Students in schools with a professional culture scale score equal to or *higher* than 5.67					
Impact	0.91	0.48	0.01	–0.23	0.14
Effect Size	0.07	0.04	0.00	–0.02	0.01
p-value	1.00	1.00	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Impact	–2.81	–2.44	–1.02	–2.01	–1.86
Difference in Effect Size	–0.20	–0.18	–0.07	–0.15	–0.14
p-value for the Difference	0.92	0.98	1.00	1.00	0.52
Social Studies Reading Comprehension Assessment Score					
(1) Students in schools with a professional culture scale score *lower* than 5.67[b]					
Impact	–2.00	2.87	0.65	1.06	0.84
Effect Size	–0.07	0.10	0.02	0.04	0.03
p-value	1.00	1.00	1.00	1.00	1.00
(2) Students in schools with a professional culture scale score equal to or *higher* than 5.67					
Impact	0.84	–2.51	–3.00	–2.14	–1.99
Effect Size	0.03	–0.08	–0.10	–0.07	–0.07
p-value	1.00	1.00	1.00	1.00	0.83
Difference between (1) and (2)					
Difference in Impact	–2.84	5.39	3.65	3.20	2.83
Difference in Effect Size	–0.10	0.18	0.12	0.11	0.10
p-value for the Difference	1.00	0.99	1.00	1.00	0.87

Table III.26 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students in schools with a professional culture scale score *lower* than 5.67[b]					
Impact	–2.36	–7.19	–7.88	–9.00	–6.66
Effect Size	–0.09	–0.26	–0.29	–0.33	–0.24
p-value	1.00	0.44	0.62	0.17	0.08
(2) Students in schools with a professional culture scale score equal to or *higher* than 5.67					
Impact	2.79	4.04	6.24	–3.11	1.34
Effect Size	0.10	0.15	0.23	–0.11	0.05
p-value	0.99	0.92	0.86	1.00	0.99
Difference between (1) and (2)					
Difference in Impact	–5.15	–11.23	–14.12	–5.89	–8.01
Difference in Effect Size	–0.19	–0.41	–0.51	–0.21	–0.29
p-value for the Difference	1.00	0.42	0.46	1.00	0.29
Number of Students in Schools with a Professional Culture Scale Score *Lower* than 5.67[c]	**564**	**596**	**643**	**607**	**2,410**
Number of Students in Schools with a Professional Culture Scale Score Equal to or *Higher* than 5.67	**724**	**554**	**441**	**475**	**2,194**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]This cutoff point is the median.

[c]Counts reflect the number of students with nonmissing values for the school-level professional culture scale.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.27

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY PERCENTAGE OF STUDENTS IN THE SCHOOL ELIGIBLE FOR FREE OR REDUCED-PRICE LUNCH

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students in schools with *less than* 79.2 percent of students eligible for free or reduced-price lunch[b]					
Impact	–0.03	–0.03	–0.05	–0.16	–0.07
Effect Size	–0.03	–0.03	–0.05	–0.18	–0.07
p-value	1.00	1.00	0.99	0.10	0.29
(2) Students in schools with 79.2 percent *or more* of students eligible for free or reduced-price lunch					
Impact	–0.04	–0.08	–0.11	–0.09	–0.10*
Effect Size	–0.04	–0.09	–0.12	–0.10	–0.11
p-value	1.00	0.91	0.70	0.76	0.05
Difference between (1) and (2)					
Difference in Impact	0.01	0.05	0.06	–0.07	0.03
Difference in Effect Size	0.01	0.06	0.07	–0.08	0.04
p-value for the Difference	1.00	1.00	1.00	0.99	0.83
GRADE Score					
(1) Students in schools with *less than* 79.2 percent of students eligible for free or reduced-price lunch[b]					
Impact	–0.79	–0.41	–0.52	–1.92	–0.98
Effect Size	–0.06	–0.03	–0.04	–0.14	–0.07
p-value	1.00	1.00	1.00	0.37	0.44
(2) Students in schools with 79.2 percent *or more* of students eligible for free or reduced-price lunch					
Impact	–0.23	–1.37	–1.11	–1.14	–1.20
Effect Size	–0.02	–0.10	–0.08	–0.08	–0.09
p-value	1.00	0.99	1.00	1.00	0.26
Difference between (1) and (2)					
Difference in Impact	–0.56	0.96	0.60	–0.78	0.23
Difference in Effect Size	–0.04	0.07	0.04	–0.06	0.02
p-value for the Difference	1.00	1.00	1.00	1.00	1.00
Social Studies Reading Comprehension Assessment Score					
(1) Students in schools with *less than* 79.2 percent of students eligible for free or reduced-price lunch[b]					
Impact	–2.01	–1.92	–1.36	–4.30	–2.30
Effect Size	–0.07	–0.06	–0.05	–0.14	–0.08
p-value	1.00	1.00	1.00	0.60	0.62
(2) Students in schools with 79.2 percent *or more* of students eligible for free or reduced-price lunch					
Impact	–0.07	0.88	–2.39	0.65	–0.49
Effect Size	–0.00	0.03	–0.08	0.02	–0.02
p-value	1.00	1.00	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Impact	–1.94	–2.80	1.03	–4.95	–1.81
Difference in Effect Size	–0.07	–0.09	0.03	–0.17	–0.06
p-value for the Difference	1.00	1.00	1.00	0.97	0.98

Table III.27 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students in schools with *less than* 79.2 percent of students eligible for free or reduced-price lunch[b]					
Impact	1.51	0.82	0.09	–5.74	–1.18
Effect Size	0.05	0.03	0.00	–0.21	–0.04
p-value	1.00	1.00	1.00	0.35	0.98
(2) Students in schools with 79.2 percent *or more* of students eligible for free or reduced-price lunch					
Impact	–0.75	–2.77	–3.50	–5.60	–3.87
Effect Size	–0.03	–0.10	–0.13	–0.20	–0.14
p-value	1.00	1.00	1.00	0.72	0.27
Difference between (1) and (2)					
Difference in Impact	2.26	3.58	3.59	–0.14	2.69
Difference in Effect Size	0.08	0.13	0.13	–0.01	0.10
p-value for the Difference	1.00	1.00	1.00	1.00	0.90
Number of Students in Schools with *Low* Concentration of Disadvantaged Students[c]	**637**	**523**	**551**	**718**	**2,429**
Number of Students in Schools with *High* Concentration of Disadvantaged Students	**679**	**725**	**455**	**473**	**2,332**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]This cutoff point is the median.

[c]Counts reflect the number of students with nonmissing values for the school-level disadvantaged student subgroup indicator.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.28

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY PERCENTAGE OF STUDENTS IN THE SCHOOL CLASSIFIED AS ENGLISH LANGUAGE LEARNERS

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students in schools with *less than* 6.8 percent of students classified as English Language Learners[b]					
Impact	–0.03	–0.16	–0.16	–0.12	–0.14*
Effect Size	–0.03	–0.18	–0.18	–0.14	–0.15
p-value	1.00	0.24	0.28	0.67	0.00
(2) Students in schools with 6.8 percent *or more* of students classified as English Language Learners					
Impact	0.07	0.06	0.05	–0.02	0.03
Effect Size	0.08	0.07	0.06	–0.02	0.03
p-value	0.85	0.96	0.98	1.00	0.75
Difference between (1) and (2)					
Difference in Impact	–0.09	–0.22	–0.21	–0.10	–0.17*
Difference in Effect Size	–0.11	–0.25	–0.23	–0.11	–0.19
p-value for the Difference	0.97	0.25	0.24	0.91	0.02
GRADE Score					
(1) Students in schools with *less than* 6.8 percent of students classified as English Language Learners[b]					
Impact	–0.56	–2.55	–2.03	–1.32	–2.02*
Effect Size	–0.04	–0.19	–0.15	–0.10	–0.15
p-value	1.00	0.52	0.45	1.00	0.01
(2) Students in schools with 6.8 percent *or more* of students classified as English Language Learners					
Impact	1.02	0.30	0.69	–0.67	0.27
Effect Size	0.07	0.02	0.05	–0.05	0.02
p-value	1.00	1.00	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Impact	–1.58	–2.85	–2.71	–0.66	–2.29
Difference in Effect Size	–0.12	–0.21	–0.20	–0.05	–0.17
p-value for the Difference	1.00	0.86	0.38	1.00	0.10
Social Studies Reading Comprehension Assessment Score					
(1) Students in schools with *less than* 6.8 percent of students classified as English Language Learners[b]					
Impact	–0.88	–1.90	–3.80	–2.45	–2.46
Effect Size	–0.03	–0.06	–0.13	–0.08	–0.08
p-value	1.00	1.00	0.96	1.00	0.58
(2) Students in schools with 6.8 percent *or more* of students classified as English Language Learners					
Impact	0.88	1.32	0.86	1.19	0.77
Effect Size	0.03	0.04	0.03	0.04	0.03
p-value	1.00	1.00	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Impact	–1.76	–3.22	–4.66	–3.64	–3.23
Difference in Effect Size	–0.06	–0.11	–0.16	–0.12	–0.11
p-value for the Difference	1.00	1.00	1.00	1.00	0.76

Table III.28 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students in schools with *less than* 6.8 percent of students classified as English Language Learners[b]					
Impact	1.22	–5.70	–3.87	–6.90	–4.21
Effect Size	0.04	–0.21	–0.14	–0.25	–0.15
p-value	1.00	0.67	1.00	0.69	0.44
(2) Students in schools with 6.8 percent *or more* of students classified as English Language Learners					
Impact	2.02	4.38	0.04	–0.12	1.82
Effect Size	0.07	0.16	0.00	–0.00	0.07
p-value	1.00	0.06	1.00	1.00	0.76
Difference between (1) and (2)					
Difference in Impact	–0.81	–10.08	–3.92	–6.79	–6.04
Difference in Effect Size	–0.03	–0.36	–0.14	–0.25	–0.22
p-value for the Difference	1.00	0.10	1.00	0.90	0.26
Number of Students in Schools with *Low* Concentration of English language learners[c]	**340**	**497**	**456**	**385**	**1,678**
Number of Students in Schools with H*igh* Concentration of English language learners	**691**	**575**	**552**	**539**	**2,357**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for each subgroup, the numbers reported are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. For each outcome, the differences between subgroup impacts are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]This cutoff point is the median.

[c]Counts reflect the number of students with nonmissing values for the school-level English language learner subgroup indicator.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

As mentioned above, we adjust for multiple comparisons *within* each subgroup analyzed. For example, within Table III.11, we adjust for all of the comparisons in that table. We do not adjust for multiple comparisons *across* all of the subgroups examined on the study.

Findings. Although reading comprehension test scores in schools using the selected reading comprehension curricula were statistically significantly lower than scores in control schools for subgroups of students defined by certain characteristics of the students, their teachers, and their schools, no clear pattern to these findings emerged. In addition, one percent of all of the subgroup impacts estimated (15 of 1,080) were statistically significant (which is less than the 5 percent of differences that one might expect to occur by chance alone).

In particular, for subgroups based on *student* characteristics, we did not find any positive, statistically significant impacts, and we found statistically significant negative impacts for subgroups defined by students' baseline fluency and comprehension levels (Tables III.11 through III.21). Overall, the findings show that comprehension assessment scores were lower in the treatment group than the control group for students with *comprehension* skills at baseline in the bottom third of the sample, and for students with above-average *fluency* skills at baseline. We observed these negative impacts for the combined treatment group on the following:

- Social studies reading comprehension assessment scores of students with baseline fluency levels above the *norm sample average* (Table III.11, effect size: -0.23), above the *study sample median* (Table III.12, effect size: -0.14), or in the *top third* of the TOSCRF distribution (Table III.15, effect size: -0.15)[54]

- GRADE and composite test scores of students with baseline comprehension levels in the *bottom third* of the GRADE distribution (Tables III.18 and III.19, effect sizes: -0.14, -0.15, -0.09, and -0.08)[55]

Using the teacher and school characteristics listed above, we examined whether impacts vary across subgroups of students defined by teacher characteristics and school conditions. We used the same analytic approach as the one used to analyze subgroups of students defined by student characteristics. We did not find any statistically significant, positive effect of the interventions, and we found statistically significant, negative impacts for four of the six subgroups (7 of the 420 impacts estimated for subgroups defined by teacher and school characteristics) (see Tables III.22 through III.28). In particular:

- We found statistically significant impacts for one of the subgroups of students defined by teacher characteristics—teacher experience. In particular, we observed a negative

[54]These findings were observed when comparing students in the *middle* and top thirds of the TOSCRF distribution. A similar pattern was found when comparing the *bottom* and top thirds of the TOSCRF distribution, although those findings were not statistically significant (Table III.13, p-value: 0.33).

[55]These findings were observed when comparing students in the *top* and bottom thirds of the GRADE distribution and when comparing students in the *middle* and bottom thirds of the GRADE distribution. A similar pattern was found in the models split at the sample median and national norm sample average, although those findings were not statistically significant (Tables III.16 and III.17, p-values: 0.13, 0.15, 0.13, and 0.15).

impact of Reading for Knowledge on the science comprehension assessment scores of students taught by teachers with more than 10 years of experience (Table III.22, effect size: -0.36). We also observed—for the combined treatment group—a negative impact on the composite scores of students taught by teachers with more than five years of experience (Table III.23, effect size: -0.09).

- All three of the school condition subgroups were statistically significantly related to impacts. The analyses presented in Tables III.26, III.27, and III.28, respectively, show a negative effect of the combined treatment on the composite test scores of students in schools with a School Professional Culture scale score[56] below the sample median (effect size: -0.14), with a concentration of students eligible for free or reduced-price lunch above the median at baseline (effect size: -0.11), and with a concentration of ELL students below the median at baseline (effect size: -0.15). We also observed a negative impact of the combined treatment group (see Table III.28) on the GRADE and composite scores of students in schools with a concentration of ELL students below the median at baseline (effect sizes: -0.15 for each).[57]

E. COEFFICIENTS ON 3 OF 120 INTERACTIONS BETWEEN TREATMENT STATUS AND TEACHER PRACTICES ARE STATISTICALLY SIGNIFICANT

As an exploratory analysis, we also investigated the relationship between intervention effects and classroom practices. We did this by conducting analyses of test scores for students in classrooms with different levels of observed teaching practices (as described above, we split the sample at the median levels of teacher practices observed). These relationships must be interpreted cautiously because the interventions may have affected the extent to which teachers engage in specific practices or the types of teachers who choose to engage in those practices. More specifically, because the research design did *not* randomly assign interventions to teachers with different levels of teacher practices, factors that led teachers to have a certain level of teacher practices could explain the observed correlations. As a result, treatment and control teachers who engage in teaching practices to the same degree may differ in unmeasurable ways.[58] In other words, analyses based on subgroups defined by teaching practices do not maintain the properties of random assignment. Therefore, it is important to note that these

[56]As described in Chapter I, the School Professional Culture scale reflects teachers' perceptions of the culture in their school, including relationships with colleagues, access to professional development, experiences with changes being implemented in their school, and leadership support in their school. See Appendix F for details.

[57]After finding a negative impact of the interventions in schools with a concentration of students eligible for free or reduced price lunch *above* the median and a concentration of ELL students *below* the median, we investigated the correlation between these two variables (as one might expect them to be positively correlated and to show a different pattern of impacts than what was observed). We found that the correlation (accounting for clustering of students within schools) between concentration of ELL students and concentration of students eligible for free or reduced-price lunch in schools in our sample is actually quite low (0.06) and not statistically significant (p-value: 0.75).

[58]If the intervention affected teacher practices, then that impact on teacher practices might explain the overall impact on student test scores. However, it is not possible to make causal statements about that relationship (causal statements would require a different study design than the one we used on this study, such as one in which teachers or schools were randomly assigned to implement the interventions to different degrees or amounts).

estimates of the relationship between intervention effects and teacher practices *cannot* be interpreted as providing rigorous impact estimates[59] and do *not* allow causal conclusions to be drawn about the impact of the interventions for those subgroups (see Tables III.29 through III.31).

Keeping these caveats in mind, we found no positive, statistically significant relationships between teacher practices and intervention effects in these analyses, but we did find three statistically significant, negative relationships. In particular, we found that students in Reading for Knowledge classrooms whose teachers had below-average scores on the Reading Strategy Guidance scale had statistically significantly lower composite test scores than students in control group classrooms in which teachers had below-average Reading Strategy Guidance scale (effect size: -0.23, Table III.30). In addition, we found that Students in Read for Real classrooms of teachers with Classroom Management scale scores below the sample median had statistically significantly lower scores than students in control group classrooms taught by teachers with Classroom Management scale scores below the sample median (effect sizes: -0.23 for the composite test score and -0.35 for the social studies reading comprehension test score (Table III.31). In both cases, these findings raise questions for further research, but—as noted above—the estimates do *not* provide experimental or causal evidence.

[59]See Appendix Figures F.1A through F.3 for information on how the frequency of specific teacher practices corresponds to different scale scores.

TABLE III.29

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY TRADITIONAL INTERACTION SCALE SCORE

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students in classrooms with a traditional interaction scale score *lower* than 499.5[b]					
Difference	–0.09	–0.14	–0.06	–0.12	–0.08
Effect Size	–0.10	–0.16	–0.07	–0.13	–0.09
p-value	0.93	0.39	0.98	0.78	0.30
(2) Students in classrooms with a traditional interaction scale score equal to or *higher* than 499.5					
Difference	0.10	0.07	–0.07	–0.13	–0.07
Effect Size	0.12	0.08	–0.08	–0.15	–0.08
p-value	0.89	0.95	0.90	0.70	0.36
Difference between (1) and (2)					
Difference in Difference	–0.19	–0.22	0.01	0.01	–0.01
Difference in Effect Sizes	–0.22	–0.24	0.01	0.02	–0.01
p-value for the Difference in Difference	0.85	0.56	1.00	1.00	0.99
GRADE Score					
(1) Students in classrooms with a traditional interaction scale score *lower* than 499.5[b]					
Difference	–1.67	–1.72	–1.16	–1.53	–1.19
Effect Size	–0.12	–0.13	–0.08	–0.11	–0.09
p-value	0.97	0.94	1.00	0.99	0.50
(2) Students in classrooms with a traditional interaction scale score equal to or *higher* than 499.5					
Difference	1.69	0.42	–0.36	–1.58	–0.70
Effect Size	0.12	0.03	–0.03	–0.12	–0.05
p-value	0.95	1.00	1.00	0.99	0.90
Difference between (1) and (2)					
Difference in Difference	–3.36	–2.14	–0.81	0.04	–0.49
Difference in Effect Sizes	–0.25	–0.16	–0.06	0.00	–0.04
p-value for the Difference in Difference	0.90	1.00	1.00	1.00	1.00
Social Studies Reading Comprehension Assessment Score					
(1) Students in classrooms with a traditional interaction scale score *lower* than 499.5[b]					
Difference	–5.30	–6.63	–2.76	–1.91	–2.89
Effect Size	–0.18	–0.22	–0.09	–0.06	–0.10
p-value	0.99	0.48	1.00	1.00	0.77
(2) Students in classrooms with a traditional interaction scale score equal to or *higher* than 499.5					
Difference	4.67	6.23	–1.54	–3.35	–0.40
Effect Size	0.16	0.21	–0.05	–0.11	–0.01
p-value	1.00	0.63	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Difference	–9.97	–12.85	–1.22	1.44	–2.49
Difference in Effect Sizes	–0.34	–0.43	–0.04	0.05	–0.08
p-value for the Difference in Difference	0.99	0.33	1.00	1.00	0.99

Table III.29 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students in classrooms with a traditional interaction scale score *lower* than 499.5[b]					
Difference	1.63	–4.93	1.48	–5.12	–3.08
Effect Size	0.06	–0.18	0.05	–0.19	–0.11
p-value	1.00	0.98	1.00	1.00	0.95
(2) Students in classrooms with a traditional interaction score equal to or *higher* than 499.5					
Difference	–0.61	3.47	–4.89	–6.63	–3.35
Effect Size	–0.02	0.13	–0.18	–0.24	–0.12
p-value	1.00	0.99	0.95	0.77	0.70
Difference between (1) and (2)					
Difference in Difference	2.23	–8.40	6.38	1.50	0.27
Difference in Effect Sizes	0.08	–0.30	0.23	0.05	0.01
p-value for the Difference in Difference	1.00	0.94	1.00	1.00	1.00
Number of Students in Classrooms with a Traditional Interaction Scale Score *Lower* than 499.5[c]	**732**	**669**	**599**	**552**	**2,552**
Number of Students in Classrooms with a Traditional Interaction Scale Score Equal to or *Higher* than 499.5	**486**	**507**	**584**	**589**	**2,166**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for students in each type of classroom, the numbers reported are, by row, (1) the difference between each intervention group and the control group, (2) the effect size for the difference, and (3) the *p-value* of the difference. For each outcome, the differences between differences for students in the two types of classrooms are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]This cutoff point is the median.

[c]Counts reflect the number of students that have a teacher with a nonmissing traditional instruction scale score.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.30

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY READING STRATEGY GUIDANCE SCALE SCORE

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students in classrooms with a reading strategy guidance scale score *lower* than 499.8[b]					
Difference	0.08	–0.01	–0.10	–0.20*	–0.07
Effect Size	0.09	–0.01	–0.11	–0.23	–0.08
p-value	0.90	1.00	0.84	0.02	0.26
(2) Students in classrooms with a reading strategy guidance scale score equal to or *higher* than 499.8					
Difference	–0.05	–0.04	–0.01	–0.03	–0.06
Effect Size	–0.05	–0.05	–0.01	–0.04	–0.07
p-value	0.99	0.99	1.00	1.00	0.33
Difference between (1) and (2)					
Difference in Difference	0.13	0.03	–0.09	–0.17	–0.01
Difference in Effect Sizes	0.14	0.04	–0.11	–0.19	–0.01
p-value for the Difference in Difference	0.88	1.00	0.98	0.52	0.99
GRADE Score					
(1) Students in classrooms with a reading strategy guidance scale score *lower* than 499.8[b]					
Difference	0.65	–0.11	–1.40	–2.28	–0.98
Effect Size	0.05	–0.01	–0.10	–0.17	–0.07
p-value	1.00	1.00	0.96	0.24	0.51
(2) Students in classrooms with a reading strategy guidance scale score equal to or *higher* than 499.8					
Difference	–0.86	–1.16	–0.03	–0.85	–1.05
Effect Size	–0.06	–0.08	–0.00	–0.06	–0.08
p-value	1.00	1.00	1.00	1.00	0.66
Difference between (1) and (2)					
Difference in Difference	1.51	1.05	–1.37	–1.43	0.07
Difference in Effect Sizes	0.11	0.08	–0.10	–0.10	0.00
p-value for the Difference in Difference	1.00	1.00	1.00	1.00	1.00
Social Studies Reading Comprehension Assessment Score					
(1) Students in classrooms with a reading strategy guidance scale score *lower* than 499.8[b]					
Difference	2.79	2.02	–1.50	–4.40	–0.55
Effect Size	0.09	0.07	–0.05	–0.15	–0.02
p-value	1.00	1.00	1.00	0.86	1.00
(2) Students in classrooms with a reading strategy guidance scale score equal to or *higher* than 499.8					
Difference	–2.18	–1.52	–0.79	0.32	–1.72
Effect Size	–0.07	–0.05	–0.03	0.01	–0.06
p-value	1.00	1.00	1.00	1.00	0.96
Difference between (1) and (2)					
Difference in Difference	4.97	3.55	–0.70	–4.72	1.17
Difference in Effect Sizes	0.17	0.12	–0.02	–0.16	0.04
p-value for the Difference in Difference	1.00	1.00	1.00	1.00	1.00

Table III.30 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students in classrooms with a reading strategy guidance scale score *lower* than 499.8[b]					
Difference	3.61	–0.50	–1.57	–9.59	–3.72
Effect Size	0.13	–0.02	–0.06	–0.35	–0.13
p-value	0.98	1.00	1.00	0.07	0.51
(2) Students in classrooms with a reading strategy guidance scale score equal to or *higher* than 499.8					
Difference	–0.48	–1.17	–0.86	–2.15	–0.71
Effect Size	–0.02	–0.04	–0.03	–0.08	–0.03
p-value	1.00	1.00	1.00	1.00	1.00
Difference between (1) and (2)					
Difference in Difference	4.09	0.67	–0.71	–7.43	–3.01
Difference in Effect Sizes	0.15	0.02	–0.03	–0.27	–0.11
p-value for the Difference in Difference	1.00	1.00	1.00	0.90	0.93
Number of Students in Classrooms with a Reading Strategy Guidance Scale Score *Lower* than 499.8[c]	**541**	**499**	**623**	**517**	**2,180**
Number of Students in Classrooms with a Reading Strategy Guidance Scale Score Equal to or *Higher* than 499.8	**677**	**677**	**560**	**624**	**2,538**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for students in each type of classroom, the numbers reported are, by row, (1) the difference between each intervention group and the control group, (2) the effect size for the difference, and (3) the *p-value* of the difference. For each outcome, the differences between differences for students in the two types of classrooms are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]This cutoff point is the median.

[c]Counts reflect the number of students that have a teacher with a nonmissing reading strategy guidance scale score.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE III.31

DIFFERENCES IN SPRING TEST SCORES BETWEEN EACH INTERVENTION GROUP AND THE CONTROL GROUP, BY CLASSROOM MANAGEMENT SCALE SCORE

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
(1) Students in classrooms with a classroom management scale score *lower* than 499.8[b]					
Difference	–0.01	–0.03	–0.20*	–0.11	–0.08
Effect Size	–0.01	–0.04	–0.23	–0.13	–0.09
p-value	1.00	1.00	0.04	0.58	0.23
(2) Students in classrooms with a classroom management scale score equal to or *higher* than 499.8					
Difference	0.01	–0.04	0.08	–0.12	–0.05
Effect Size	0.01	–0.05	0.09	–0.14	–0.06
p-value	1.00	1.00	0.76	0.60	0.49
Difference between (1) and (2)					
Difference in Difference	–0.02	0.01	–0.28	0.01	–0.03
Difference in Effect Sizes	–0.02	0.01	–0.32	0.01	–0.03
p-value for the Difference in Difference	1.00	1.00	0.08	1.00	0.93
GRADE Score					
(1) Students in classrooms with a classroom management scale score *lower* than 499.8[b]					
Difference	0.19	0.01	–1.57	–1.49	–0.66
Effect Size	0.01	0.00	–0.11	–0.11	–0.05
p-value	1.00	1.00	0.83	0.98	0.93
(2) Students in classrooms with a classroom management scale score equal to or *higher* than 499.8					
Difference	–0.48	–1.22	0.25	–1.27	–1.06
Effect Size	–0.04	–0.09	0.02	–0.09	–0.08
p-value	1.00	1.00	1.00	1.00	0.50
Difference between (1) and (2)					
Difference in Difference	0.67	1.23	–1.82	–0.23	0.40
Difference in Effect Sizes	0.05	0.09	–0.13	–0.02	0.03
p-value for the Difference in Difference	1.00	1.00	0.98	1.00	1.00
Social Studies Reading Comprehension Assessment Score					
(1) Students in classrooms with a classroom management scale score *lower* than 499.8[b]					
Difference	–2.18	–2.87	–10.34*	–2.87	–4.76
Effect Size	–0.07	–0.10	–0.35	–0.10	–0.16
p-value	1.00	1.00	0.00	0.96	0.09
(2) Students in classrooms with a classroom management scale score equal to or *higher* than 499.8					
Difference	0.84	1.36	6.58	–2.47	1.75
Effect Size	0.03	0.05	0.22	–0.08	0.06
p-value	1.00	1.00	0.21	1.00	0.94
Difference between (1) and (2)					
Difference in Difference	–3.02	–4.23	–16.92*	–0.40	–6.51
Difference in Effect Sizes	–0.10	–0.14	–0.57	–0.01	–0.22
p-value for the Difference in Difference	1.00	1.00	0.00	1.00	0.31

Table III.31 *(continued)*

	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Science Reading Comprehension Assessment Score					
(1) Students in classrooms with a classroom management scale score *lower* than 499.8[b]					
Difference	–0.17	–2.68	–6.46	–3.69	–2.91
Effect Size	–0.01	–0.10	–0.23	–0.13	–0.11
p-value	1.00	1.00	0.93	1.00	0.86
(2) Students in classrooms with a classroom management scale score equal to or *higher* than 499.8					
Difference	1.67	–0.01	2.85	–8.29	–2.34
Effect Size	0.06	–0.00	0.10	–0.30	–0.08
p-value	1.00	1.00	1.00	0.32	0.86
Difference between (1) and (2)					
Difference in Difference	–1.84	–2.67	–9.31	4.60	–0.56
Difference in Effect Sizes	–0.07	–0.10	–0.34	0.17	–0.02
p-value for the Difference in Difference	1.00	1.00	0.89	1.00	1.00
Number of Students in Classrooms with a Classroom Management Scale Score *Lower* than 499.8[c]	**605**	**659**	**527**	**556**	**2,347**
Number of Students in Classrooms with a Classroom Management Scale Score Equal to or *Higher* than 499.8	**613**	**517**	**656**	**585**	**2,371**

Source: Reading comprehension tests administered by study team.

Note: For each outcome and for students in each type of classroom, the numbers reported are, by row, (1) the difference between each intervention group and the control group, (2) the effect size for the difference, and (3) the *p-value* of the difference. For each outcome, the differences between differences for students in the two types of classrooms are also reported. All *p-values* were calculated taking into account the clustering of students within schools and adjusting for all comparisons shown in this table. The social studies and science reading comprehension assessments were developed by ETS. Variables in the regression model include baseline GRADE and TOSCRF scores, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]This cutoff point is the median.

[c]Counts reflect the number of students that have a teacher with a nonmissing classroom management scale score.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

IV. SUMMARY

This study used a rigorous experimental design to assess the effects of four reading comprehension curricula on reading comprehension among fifth-grade students in selected districts across the country. Consistent with the study's focus on schools serving low-income students, the districts and schools that the study team targeted—and that agreed to participate in the study—had above-average poverty levels, and were larger and more urban, on average, than districts and schools in the United States.

The key findings from the first year of the study are as follows:

Implementation Findings

- **Over 90 percent (91-100 percent) of treatment teachers were trained to use the assigned curriculum, and more than half (56 to 80 percent) reported that they were very well prepared by the training to implement it.** The percentage of teachers reporting that they felt very well prepared to implement the curricula ranged from 56 percent for Reading for Knowledge to 80 percent for Read for Real.

- **Over 80 percent (81 to 91 percent) of teachers reported using their assigned curriculum.** Eighty-one percent of Read for Real teachers, 83 percent of Reading for Knowledge teachers, 87 percent of ReadAbout teachers, and 91 percent of Project CRISS teachers reported using their assigned curriculum.

- **Classroom observation data showed that teachers implemented 55 to 78 percent of the behaviors deemed important by the developers for implementing each curriculum.** ReadAbout and Project CRISS teachers implemented, on average, 71 and 78 percent of such behaviors, respectively. Reading for Knowledge teachers implemented 58 and 65 percent of the behaviors deemed important for the two types of instructional days that are part of the curriculum. Similarly, Read for Real teachers implemented 55 and 71 percent of the behaviors deemed important for the two types of instructional days that are part of that curriculum.

Basic Questions on Intervention Effectiveness

- **Scores on the three reading comprehension assessments were not statistically significantly higher in schools using the selected reading comprehension curricula.** Scores on these assessments in treatment schools were not statistically significantly higher than scores in control schools, and there was evidence that test scores were statistically significantly lower in treatment schools than in control schools (effect sizes: -0.08 to -0.21).

Exploratory Questions on the Effectiveness of the Interventions for Subgroups of Students

- **Impacts were correlated with some subgroups defined by student, teacher, and school characteristics.** For the combined treatment group, statistically significant, negative impacts were observed for students with above-average baseline fluency levels, students with baseline comprehension levels in the bottom third of the sample, students of teachers with more than five years of teaching experience, students attending schools with below-average School Professional Culture scores, students attending schools with an above-average concentration of students eligible for free or reduced-price lunch, and students attending schools with a below-average concentration of English language learners. All of these findings have a causal interpretation—with the exception of the School Professional Culture subgroup findings—because these subgroups were formed using characteristics observed at the beginning of the study's implementation year. For Reading for Knowledge, negative impacts were observed for students with teachers who had more than 10 years of teaching experience.

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APPENDIX A

RANDOM ASSIGNMENT

Random assignment was conducted to ensure that the estimated impacts of the interventions could be attributed to the interventions and not other factors. The random assignment method used was designed to ensure an even distribution of the interventions overall and within each school district. Schools, not teachers, were randomly assigned due to concerns about the potential for contamination of control group teachers that could arise if teachers randomly assigned to treatment and control status were working within the same schools.

Random assignment of schools was carried out within school districts, and, whenever possible, within blocks of schools formed in each district based on baseline reading scores in participating schools.[60] Random assignment within districts helped to ensure that each treatment group was represented in each district. Doing random assignment within blocks of schools in each district avoided the possibility of a "bad draw"—a situation in which all the schools with high (or low) baseline reading scores might be assigned to one of the study's five arms (four treatment and one control).[61]

Two different methods were used to form blocks of schools. The first method—explicit blocking—was generally used when the number of schools within a district was a multiple of five. The second method—implicit blocking—was generally used when the number of schools was not a multiple of five.

In explicit blocking, the study team formed two groups or blocks of schools, and then conducted random assignment within those blocks. For example, in a district with 10 schools, two blocks of 5 schools were formed where the schools in each block had similar baseline reading achievement levels. Random assignment was then conducted separately within those two blocks. This resulted in one school from each block being assigned to each of the five arms of the study (and, overall, two schools assigned to each of the five study arms).

When the blocked experimental design was not possible, implicit ordering through a modified Chromy selection procedure was implemented (Chromy 1979). This modified procedure ordered schools within districts based on baseline reading scores, and then the curricula were randomly assigned to the ordered list of schools to achieve an approximate balance in both baseline scores in each study arm and the number of times each intervention appeared overall.

[60]In one district, blocks were formed based on magnet school status, as that district had five participating schools that were regular schools and five participating schools that were magnet schools.

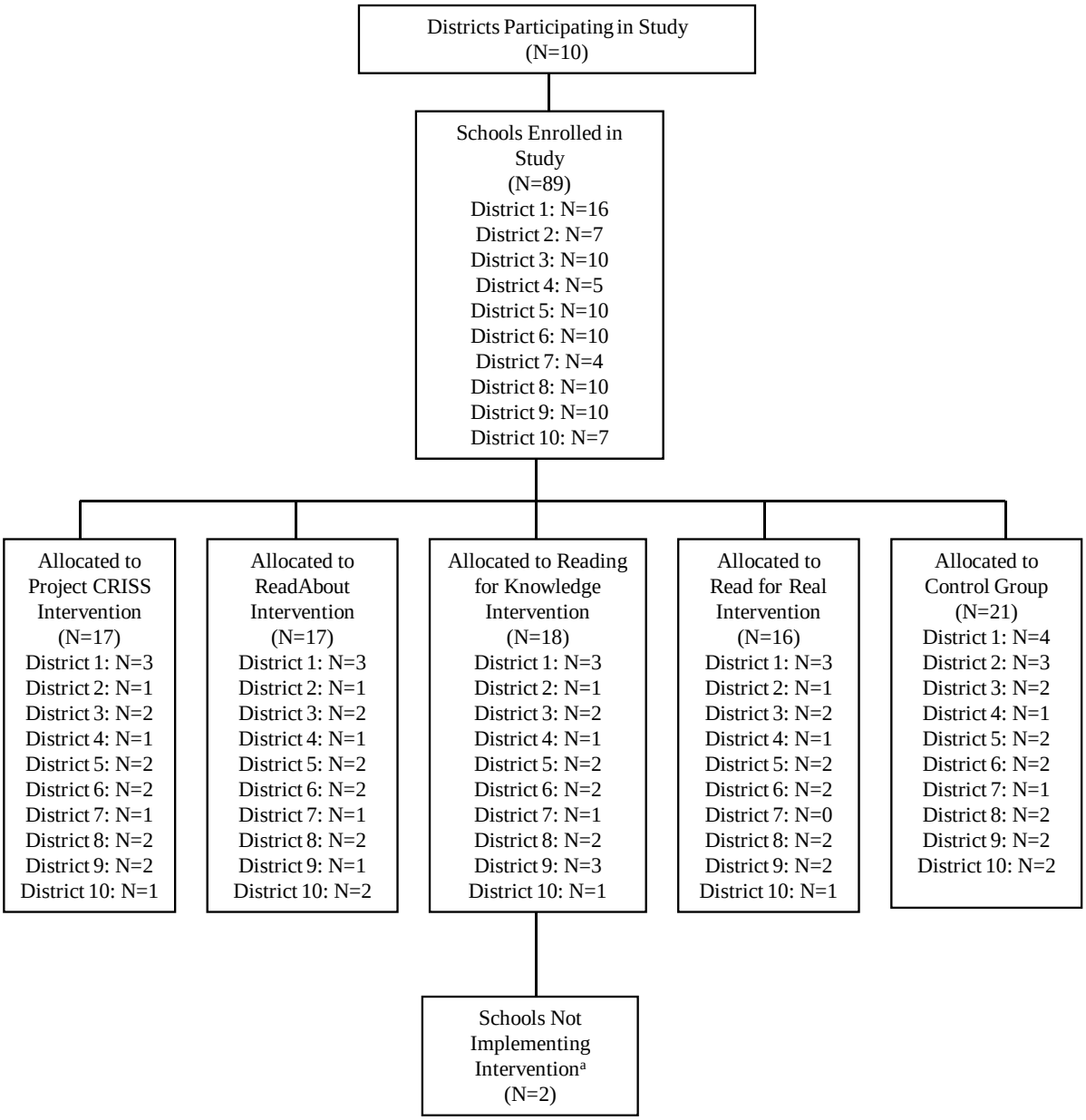
[61]Another factor we considered when conducting the random assignment was the desire to have at least two control schools in each district so that impacts for that district could still be estimated even if one of the control schools dropped out of the study.

APPENDIX B

FLOW OF SCHOOLS AND STUDENTS THROUGH THE STUDY

TABLE B.1

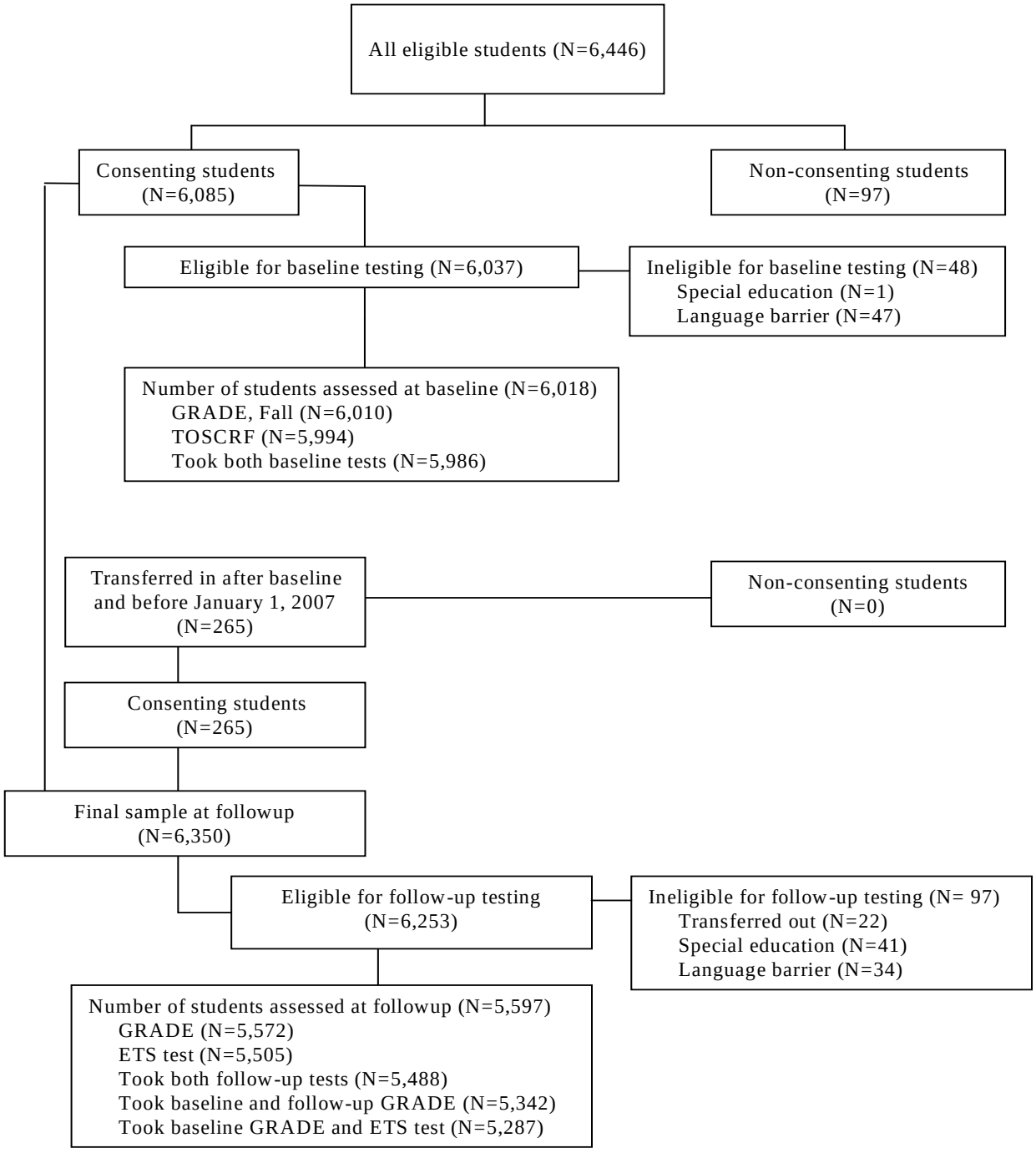
FLOW OF SCHOOLS THROUGH STUDY



[a]One school in District 5 stopped implementing the intervention early in the school year when the only teacher who attended training discontinued using the program. One school in District 7 never implemented the program after teachers were trained; the school said its schedule could not accommodate the required 45 minutes of instructional time. Follow-up data collection was conducted in both of these schools.

TABLE B.2

FLOW OF STUDENTS THROUGH STUDY



APPENDIX C

OBTAINING PARENT CONSENT

At the beginning of the 2006-2007 school year, the study team began the process of obtaining consent from parents of fifth-grade students attending study schools. We collected lists of all fifth-grade students in each study school (by classroom) and then sent letters to these students' parents requesting consent for their children to participate in the study. At the start of the spring semester, we again collected lists of fifth-grade students and sent letters to parents of students who had entered study classrooms after the baseline tests were administered but before January 1, 2007.

Letters describing the study (which were translated into Spanish and Louisiana Creole for schools that requested it) were sent home with students. The letters explained the purpose of the study and all data collection activities involving students. A brochure with answers to frequently asked questions was also included in the mailing.

In most districts and with most students, passive consent procedures were implemented. Of the 6,446 students on teachers' fall or spring semester classroom lists, 937 attended schools in one district requiring active consent and 5,509 attended schools in the nine remaining districts requiring passive consent (Table C.1).

Parent consent was obtained for nearly all students (98 percent). Consent in the active consent district was 93 percent, and consent in the passive consent districts was 99 percent.

There was no difference in consent rates by treatment or control status. Consent was obtained for 98 to 99 percent of students in each treatment and control condition (Table C.2).

TABLE C.1

CONSENT RATES, BY TYPE OF CONSENT

All Eligible Students			Eligible Students in Passive Consent Districts (N=9)			Eligible Students in Active Consent District (N=1)		
	With Consent			With Consent			With Consent	
Total	Number	Percentage	Total	Number	Percentage	Total	Number	Percentage
6,446	6,350	98	5,509	5,478	99	937	872	93

TABLE C.2

CONSENT RATES, BY INTERVENTION

	All Eligible Students		
		With Consent	
Intervention	All	Number	Percentage
Total	6,446	6,350	98
Combined Treatment Group	5,055	4,983	99
Project CRISS	1,324	1,319	99
ReadAbout	1,256	1,246	99
Reading for Knowledge	1,220	1,191	98
Read for Real	1,255	1,227	98
Control Group	1,391	1,367	98

APPENDIX D

IMPLEMENTATION TIMELINE

TABLE D.1

IMPLEMENTATION SCHEDULE FOR INTERVENTIONS: NUMBER OF SCHOOL DAYS FROM START OF SCHOOL, BY DISTRICT

District Number	1	2	3	4	5	6[a]		7	8	9	10
School Calendar Type—Traditional (T) or Year-round (Y)	T	T	T	T	T	T	Y	Y	T	T	T
Days to Initial Scheduled Training											
Read for Real	–12	–9	–15	10	–7	10	–4	n.a.	–15	–10	–8
Project CRISS	–11	10	–13	23	22	2	n.a.	57	–15	–19	20
ReadAbout	–9	–12	–17	4	–8	11	40	–3; 6	–8	–9	–10
Reading for Knowledge	–11	–8	–15	33	–9	5	n.a.	–8	–7	–8	–11
Days Until Technology[b] Was:											
Ordered	19	–12	16	3	0	0	30	–10	4	–5	–3
Received	23	11	19	17	13	5	35	4	15	7	11
Ready for Use—First Set	38	16	32	33	21	18	48	8	24	9	14
Ready for Use—Second Set	n.a.	26	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	31	n.a.	n.a.

Note: A negative number in this table indicates that the training took place *prior to* the start of the school year. For example, the -12 days shown for district 1 for Read for Real indicates that the Read for Real training in district 1 took place 12 days prior to the start of the school year. Similarly, a positive number indicates that the training took place *after* the start of the school year.

[a]One participating district included schools following both year-round and traditional calendars.

[b]Technology installation applies only to the ReadAbout program. Technology refers to the computers, software, and other equipment needed to implement the program. The developer reported to MPR when the technology was ready for use.

MPR = Mathematica Policy Research, Inc.

n.a. = not applicable.

APPENDIX E

SAMPLE SIZES AND RESPONSE RATES

All fifth-grade teachers in study schools were considered eligible for the study, but individual teachers could decline to participate (6 percent of teachers declined). Teachers who taught combined fourth-/fifth- or fifth-/sixth-grade classes were ineligible, as were teachers who taught self-contained special education classes. Table E.1 shows the final teacher sample, by treatment group, and the percentage of teachers who responded to the teacher survey.

Students enrolled in fifth-grade classes at the start of school in fall of 2006, or who transferred in to such classes within a study school before January 1, 2007, were eligible for the study. Students in combined fourth-/fifth- or fifth-/sixth-grade classes were excluded, as were those in self-contained special education classes. Eligible students were considered in the study sample if parent consent was obtained (Table E.2).

Baseline tests were administered to in-sample students at the start of the school year during regular class periods. The only in-sample students who were not eligible for testing were those whose limited English language skills precluded them from taking a test written in English. Most students who were absent on the initial test day were tested at subsequent make-up test sessions. Ninety-five percent of students completed the baseline GRADE test, and 94 percent completed the baseline TOSCRF test; over 99 percent of students who took the baseline GRADE also took the baseline TOSCRF, and vice versa (Table E.3A).

Follow-up tests were administered to in-sample students who had not transferred out of the school district at the time of testing. As was done at baseline, students whose limited English language skills at followup precluded them from taking a test written in English were not included in follow-up testing. The tests were administered at the end of the school year, on two consecutive days, with make-up sessions scheduled for absent students. Of the total sample of students (including those who could not be tested because they were not geographically accessible), 88 percent completed the follow-up GRADE test and 87 percent completed the follow-up ETS test (Table E.3B). In addition, more than 98 percent of students who took the follow-up GRADE also took the follow-up ETS test, and more than 99 percent of those who took the follow-up ETS test also took the follow-up GRADE.

Further, 96 percent of the students completed both the follow-up GRADE test and the baseline GRADE test, and 95 percent completed both the follow-up ETS test and the baseline GRADE (Table E.3B).

All students who completed follow-up tests were included in the impact analysis. The proportion of students in each experimental condition with follow-up test scores is reported in Table G.2.

Table E.4 shows the classroom observation sample and response rates, and Table E.5 shows the treatment classrooms in the fidelity observation sample and response rates.

TABLE E.1

TEACHER SURVEY SAMPLE AND RESPONSE RATES

	Teachers		
	Total	Number Completing Survey	Response Rate (Percentage)
Total	268	249	93
Combined Treatment Group	209	193	92
Project CRISS	52	50	96
ReadAbout	50	46	92
Reading for Knowledge	53	48	91
Read for Real	54	49	91
Control Group	59	56	95

TABLE E.2

STUDENT SAMPLE

	Baseline Sample	Transferred in before January 1, 2007	Total Sample[a]
Total	6,085	265	6,350
Combined Treatment Group	4,761	222	4,983
Project CRISS	1,241	78	1,319
ReadAbout	1,205	41	1,246
Reading for Knowledge	1,157	34	1,191
Read for Real	1,158	69	1,227
Control Group	1,324	43	1,367

[a]The total number of students in the study sample includes (1) students in study schools at the time of the baseline testing for whom parental consent was obtained, and (2) students who entered participating schools after baseline testing was completed but before January 1, 2007, and for whom parental consent was obtained. About 450 of those students transferred out of their school district before the follow-up test, but they remained part of the sample.

TABLE E.3A

STUDENT TEST SAMPLE AND RESPONSE RATES, FALL 2006

	Total	Number Tested	Response Rate[a] (Percentage)	Percentage Who Took the Listed Test Who Also Took the Other Baseline Test[b]
GRADE				
Total	6,350	6,010	95	99.6
Combined Treatment Group	4,983	4,708	94	99.6
Project CRISS	1,319	1,233	93	99.4
ReadAbout	1,246	1,186	95	99.7
Reading for Knowledge	1,191	1,138	96	99.7
Read for Real	1,227	1,151	94	99.6
Control Group	1,367	1,302	95	99.7
TOSCRF				
Total	6,350	5,994	94	99.9
Combined Treatment Group	4,983	4,696	94	99.8
Project CRISS	1,319	1,226	93	99.9
ReadAbout	1,246	1,186	95	99.7
Reading for Knowledge	1,191	1,137	95	99.8
Read for Real	1,227	1,147	93	99.9
Control Group	1,367	1,298	95	100.0

[a]The percentage of students tested at baseline is based on the total sample, although about 265 students included in the sample transferred into participating schools after the baseline test was completed. Of the students in the sample at the baseline testing, 99 percent completed the GRADE and the TOSCRF.

[b]The GRADE and the TOSCRF were administered on the same day, so nearly all students who completed one baseline test also completed the other baseline test. However, a small number of students completed only one test: of those who completed the baseline GRADE, 99.6 percent also completed the TOSCRF; of those who completed the TOSCRF, 99.9 percent also completed the baseline GRADE.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE E.3B

STUDENT TEST SAMPLE AND RESPONSE RATES, SPRING 2007

	Total	Number Tested	Response Rate[a] (Percentage)	Percentage Who Took the Listed Test Who Also Took the Other Follow-Up Test[b]	Percentage Who Took the Listed Test Who Also Took the Baseline GRADE[c]
GRADE					
Total	6,350	5,573	88	98.5	84
Combined Treatment Group	4,983	4,394	88	98.4	84
Project CRISS	1,319	1,154	87	98.4	83
ReadAbout	1,246	1,095	88	99.1	85
Reading for Knowledge	1,191	1,067	90	98.0	87
Read for Real	1,227	1,078	88	98.0	84
Control Group	1,367	1,179	86	98.8	83
ETS					
Total	6,350	5,512	87	99.6	83
Combined Treatment Group	4,983	4,344	87	99.5	83
Project CRISS	1,319	1,139	86	99.7	82
ReadAbout	1,246	1,089	87	99.6	84
Reading for Knowledge	1,191	1,051	88	99.5	85
Read for Real	1,227	1,065	87	99.2	82
Control Group	1,367	1,168	85	99.7	83

[a]The percentage of students tested at follow-up is based on the total sample, although about 450 of those students had transferred out of their school district before the follow-up tests. Of the students who had not transferred out of their district, about 94 percent completed the follow-up tests.

[b]The follow-up GRADE and ETS tests were administered on consecutive days to students. Nearly all students who completed one test also completed the other test. However, a small number of students completed only one test: of those who completed the follow-up GRADE, 98.5 percent also completed the ETS test; of those who completed the ETS test, 99.6 percent also completed the follow-up GRADE.

[c]Some students transferred into study schools after the baseline test was completed, and some in-sample students transferred out of study schools before the follow-up test was administered. Eighty-four percent of the students completed both the baseline and follow-up GRADE, and 83 percent completed both the baseline GRADE and the ETS test.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TABLE E.4

CLASSROOM OBSERVATION SAMPLE AND RESPONSE RATES

	Classrooms		
	Total	Number Observed	Response Rate (Percentage)
Total[a]	270	264	98
Combined Treatment Group	213	207	97
Project CRISS	56	52	93
ReadAbout	50	49	98
Reading for Knowledge	53	52	98
Read for Real	54	54	100
Control Group	57	57	100

[a]The number of classrooms shown in this table differs from the number of teachers shown in Table E.1 because some teachers taught more than one class.

TABLE E.5

FIDELITY OBSERVATION SAMPLE AND RESPONSE RATES

	Teachers		
	Total	Number Observed	Response Rate (Percentage)
Combined Treatment Group[a]	218	209	96
Project CRISS	54	54	100
ReadAbout	53	53	100
Reading for Knowledge	54	45	83
Read for Real	57	57	100

[a]One fidelity observation was conducted for each study teacher. The number of teachers shown in this table differs from the number shown in Table E.1 because the teacher survey was conducted at the start of the 2006-2007 school year while the fidelity observations were conducted later in the year (after some teacher changes had occurred). The number of teachers shown in this table differs from the number shown in Table E.4 because this table is focused on number of *teachers* while Table E.4 is focused on number of *classrooms.*

APPENDIX F

CREATION AND RELIABILITY OF CLASSROOM OBSERVATION AND TEACHER SURVEY MEASURES

A. ASSESSING INTER-RATER RELIABILITY

An important part of the analysis of data collected from classroom observations is an assessment of the reliability of the observation data across the staff conducting the observations. Data from 25 percent of classrooms are available for these calculations. Twenty percent of observations were randomly chosen to be reliability observations, which means that a second observer was randomly chosen to observe simultaneously with the observer assigned to that observation. The remaining 5 percent of the observations come from pairings of a master trainer with each observer at least once during the first two weeks of observation. This allows for a comparison of the data collected by the two observers during these observations.

In total, the study team had data from 97 pairs of observations that could be used to assess reliability of the observation data. Of these, 63 were pairs of regular field observation staff. An additional 34 were pairs in which a regular field observer did one observation and an expert observer acting in a quality control role did the second.

The inter-rater reliability of all of the study scales was over 0.94 (0.94 to 0.98). Pearson correlations of the scale scores based on the two observers' tallies were calculated for the three study scales. The inter-rater reliability of the scales based on sums of tallies across items for the Traditional Interaction scale was 0.98, and when the scale was based on the average of tallies across intervals the reliability was 0.97. The reliability of the Reading Strategy Guidance scale, based on both the sums and averages across intervals, was 0.97. The reliability of the Classroom Management scale was 0.94, whether based on sums or averages.

Inter-rater reliability for individual items from the classroom observation form was also analyzed. We calculated reliability by item by measuring the exact match percent agreement between observers in both types of pairs (reliability and quality control, during each interval). This method involves calculating agreements and disagreements tally by tally, to determine the exact match. That is, if observer one had six tallies and observer two had four tallies in the same cell, then we counted four agreements and two disagreements. This measure of agreement thus takes into account the degree of variation between observers' tallies.

The calculation of inter-rater reliability was conducted in a way designed to avoid inflating reliability scores simply because the target behaviors were unobserved. Because there were many zeros, representing the "absence" of the indicated instructional behaviors, there was a possibility that reliability could be exaggerated by inclusion of zeros in reliability calculations, because reliability would be 100 percent if neither observer recorded a tally. To address this issue, we removed those intervals that had no tallies from the reliability calculations.

The inter-rater reliability (as measured by percent agreement between observers) for individual items from the classroom observation form ranged from 78 to 100 percent (see Table F.1). The total percent agreement across all items was 89 percent. (Appendix I shows key descriptive statistics [including means and standard deviations] for the full set of items from the classroom observation and fidelity instruments.)

TABLE F.1

PERCENT AGREEMENT RELIABILITY FOR ACTIVE INTERVALS, BY ITEM

Item		Agreements of Observed Items	Agreements of Unobserved Items	Disagreements	Percent Agreement[a]
Comprehension Items					
Modeling and Thinking Aloud					
1A	Background knowledge	3	408	1	99.76
2A	Text structure	1	411	0	100.00
3A	Various comprehension strategies	0	408	4	99.03
4A	Generating questions	1	410	1	99.76
5A	Text features	1	410	1	99.76
Total		**6**	**2,047**	**7**	**99.66**
Explaining/Reviewing					
1B	Background knowledge	160	354	47	91.62
2B	Text structure	111	355	44	91.37
3B	Various comprehension strategies	443	321	126	85.84
4B	Generating questions	96	326	45	90.36
5B	Text features	78	344	34	92.54
Total		**888**	**1,700**	**296**	**89.74**
Comprehension Student Practice					
1C	Background knowledge	301	348	38	94.47
2C	Text structure	169	356	49	91.46
3C	Various comprehension strategies	614	246	134	86.52
4C	Generating questions	161	287	78	85.17
5C	Text features	90	349	39	91.84
Total		**1,335**	**1,586**	**338**	**89.63**
Interactive Teaching					
6	Justifying responses	76	336	60	87.29
7	Higher order questioning	388	228	171	78.27
8	Elaborating/clarifying the text	533	188	190	79.14
Total		**997**	**752**	**421**	**80.60**

Table F.1 *(continued)*

Item		Agreements of Observed Items	Agreements of Unobserved Items	Disagreements	Percent Agreement[a]
Vocabulary Items					
Teaching Vocabulary					
V1	Providing definitions	288	227	122	80.85
V2	Providing examples/elaborations	488	213	131	84.25
V3	Providing visuals	136	324	64	87.79
V4	Teaching context clues	38	376	18	95.83
Total		**950**	**1,140**	**335**	**86.19**
Vocabulary Student Practice					
V5	Using knowledge of words	757	190	190	83.29
V6	Using context clues	30	390	16	96.33
Total		**787**	**580**	**206**	**86.90**
Items in Each Area					
Comprehension		3,226	6,085	1,062	89.76
Vocabulary		1,737	1,720	541	86.47
Total		**4,963**	**7,805**	**1,603**	**88.85**
Items Contained in the Classroom Observation Scales					
Traditional Interaction		3,159	3,778	1,158	85.69
Reading Strategy Guidance		1,876	3,704	631	89.84

Source: Classroom observations.

Note: Inter-rater reliability calculations were based only on active intervals, which are those intervals during which the teacher and students were working on informational text and at least one teaching practice on the ERC form was observed by either member of the observer pair. If a teacher taught a lesson on informational text but was not observed to be using any of the teaching practices on the observation measure, that interval was not included.

[a]Reliability by item was calculated by measuring the exact match percent agreement between reliability (and quality control) observation pairs during each interval. This method involves calculating agreements and disagreements tally by tally, to determine the exact match. That is, if Observer 1 had six tallies and Observer 2 had four tallies in the same cell, then we will count four agreements and two disagreements.

B. ASSESSING CRITERION VALIDITY

Another important part of the analysis of classroom observation data is an examination of the criterion validity of the study's classroom observation scales. Criterion validity was measured by the extent to which these scales, measuring the incidence of teacher behaviors, are correlated with students' scores on reading comprehension tests. Achieving a high degree of validity for a scale suggests that affecting that scale has the potential to improve student achievement.

To examine this issue, we measured the extent to which the classroom observation scales are related to the study's key student test score outcomes. We conducted this analysis using classroom observation scales constructed in two different ways: based on sums of activities across observation intervals and based on averages of activities across the observation intervals. We accounted for clustering of students within schools in calculating p-values, but we did not account for multiple comparisons because this is purely an exploratory analysis.

We found that two of the three scales are positively and statistically significantly related to student test scores. The Reading Strategy Guidance scale is statistically significantly related to the composite test scores (correlation: 0.083, p-value: 0.03); the GRADE scores (correlation: 0.072, p-value: 0.05); the social studies reading comprehension assessment (correlation: 0.087, p-value: 0.01); and the science reading comprehension assessment (correlation: 0.075, p-value: 0.03). There was also a statistically significant relationship between the Classroom Management scale and the composite test scores (correlation: 0.115, p-value: 0.002); the GRADE scores (correlation: 0.106, p-value: 0.002); the social studies reading comprehension assessment (correlation: 0.086, p-value: 0.03); and the science reading comprehension assessment (correlation: 0.129, p-value: 0.001). We found no relationship between the Traditional Interaction scale and any of the study's test scores.

C. CREATION AND RELIABILITY OF CLASSROOM OBSERVATION MEASURES

Consistent data from both treatment and control group classrooms make it possible to compare teachers' instructional practices and determine whether the reading comprehension curricula affected instruction. The Expository Reading Comprehension (ERC) observation form enabled the study team to tally the number of times treatment and control group teachers engaged in specific teaching practices. These detailed observation data were then reduced to a manageable number of variables for analysis to obtain a summary picture of teacher behavior and whether (and how) it diverged in the two groups of teachers. This appendix describes the process the study team used to obtain this more manageable number of variables.

We developed summary scales for groupings of specific items for Parts I and II of the ERC instrument. Part I of the instrument focused on interactive teaching practices, vocabulary instruction, and comprehension strategy instruction; Part II focused on classroom management and student engagement. The development of scales was done by implementing preliminary exploratory factor analysis, conducting a review of item content, and implementing Item Response Theory (IRT) scaling (Nunnally and Bernstein 1994; Lord 1980; Wright and Stone 1979; and Lord and Novick 1968).

The goal of the factor analysis was to identify preliminary groupings of items for Part I of the ERC instrument that appeared to represent key underlying dimensions. Any of the Part I items that were weakly related to the identified underlying dimensions were dropped from further psychometric analyses. This process ultimately resulted in three groupings of items for Part I.

A review of item content was used to identify groupings of items for Part II of the ERC instrument, due to the smaller number of items and more distinct content groupings of items. Two groupings of items for Part II were specified based on the thematic similarities of content shared between the items for each of the two groups. In total, across Parts I and II of the ERC, five groupings of items were identified.[62]

The goal of the IRT scaling was to estimate reliable and valid scores for teachers on scales that represent the underlying dimensions for the respective item groupings in Parts I and II of the ERC instrument. The data preparation, IRT scaling process, evaluation of IRT model fit, evaluation of reliability and validity for scores, and information on how to interpret the scores are described in detail below.

Data Preparation. To support the most-valid IRT item calibration and score estimation, we conducted additional data processing for the items of each of the five groupings. The tallies for items of Part I for each interval were averaged across the 10-minute intervals for each classroom within a single day. We then evaluated the frequency distributions of each item and created meaningful categories representing the extent to which behaviors were observed (such as low, medium, and high).[63] The category boundaries were determined based on investigation of the frequency distributions for each item.

Because the items of Part II of the ERC instrument have their own specified rating scales, there was no need to create categories for those items. Therefore, data for the items of Part II were analyzed according to these existing rating scales.

IRT Scaling Process. For each of these five groups of items, IRT scaling was used to develop variables measuring the underlying latent dimensions. The IRT model features a multivariate logistic regression of the probability for the demonstration (or level of response) on each item in a grouping (such as, low, medium, or high) on the latent dimension as an underlying continuous variable, which was estimated by way of an iterative numerical process. The joint probabilities for the levels of demonstrations across the full set of items within a grouping, conditional on the underlying continuous variable used to represent the latent dimension, are used to estimate scores as proficiency estimates on the scale for the respective latent dimension.

[62]During the IRT scaling process, another dimension was specified in order to account for two items within Part II of the ERC that shared a common question stem. The additional dimension was specified to avoid estimation bias (it was *not* specified for use in the study's examination of the relationship between impacts and teacher practices).

[63]To permit sensitivity testing of the scales used in the analysis, we also created these categories based on sums of observed tallies across the 10-minute intervals for the day's observations. IRT scaling was done for data based on sums of tallies for items across the intervals, as well as averages of tallies for items across the intervals.

These scores quantify the levels of estimated proficiency for demonstrating the underlying skill for each latent dimension.

Scores for the five scales (that is, one scale for each of the five groupings of items) were estimated for all classrooms using a specific IRT technique. IRT item calibration and score estimation was done using the Multidimensional Random Coefficients Multinomial Logit Model (Adams et al. 1997).[64] This model was used to specify a multidimensional generalization of the Partial Credit Model (Masters and Wright 1997; Masters 1982), and is the core model of the software ACER ConQuest (Wu et al. 2007).

Items in the scales had two to four categories for the levels of demonstration, which affected how they were treated during IRT scaling. Items with only two categories (low and high) were treated as dichotomous items for IRT item calibration, while items with more than two categories (low, medium, and high, for example) were treated as polychotomous items. Data for dichotomous and polychotomous items for scales were analyzed together during the IRT analysis; this was possible because the IRT software used permits analysis for scales that have mixtures of item types, even when the numbers of categories for items differ.

Evaluation of IRT Model Fit. Overall, the IRT model fit the data well. Based on the guideline of 0.5 to 1.7 for reasonable infit and outfit mean square values for items of a clinical observation instrument (Wright and Linacre 1994), the scaling process resulted in acceptable overall model fit for each item contained in the three reliable scales (Table F.2).[65] The two remaining scales that were created in this process were not used in the study's analyses due to concerns over their reliability or inter-rater reliability. For one of these scales, reliability was the concern (with values of 0.43 for the version of the scale based on averages of teacher practice tallies and 0.58 for the version of the scale based on sums of tallies). For the other scale, inter-rater reliability was the concern (with values of 0.69 for the version of the scale based on averages of tallies and 0.73 for the version based on sums of tallies).

Additional statistical tests provide support for the use of the three reliable scales in the analysis. The separation reliability estimate for item parameter estimation is 0.99, indicating a high level of reliability for the estimation of item parameters, with a value of 1.0 being the theoretically maximum possible value. As one would hope, the Chi-square test of item parameter equality is statistically significant ($\chi^2 = 5233.70$, df = 34, $p < .05$). Taken together, these statistics indicate that items are distributed sufficiently well, for this sample of classrooms, across the continuums of proficiency for each scale; the statistics also indicate that items function well enough to ensure acceptable levels of measurement precision at various points along the scales.

[64]Using the Multidimensional Random Coefficients Multinomial Logit Model permitted (1) explicit modeling of the multidimensionality of the item data during analysis, facilitating proper estimation for the statistical characteristics of items, even as they contribute to multiple domains; (2) proper model specification when different items share common stems, necessitating additional dimensions to control for residual correlations between such items in order to avoid estimation bias; and (3) Bayesian estimators for both item and score parameter estimates, and an IRT-based reliability estimate for each scale overall and for the score of each classroom.

[65]Fit at the level of each category for all items for the three scales was also examined. In general, results from this examination showed acceptable IRT model fit for the categories of all the items.

TABLE F.2

ITEM RESPONSE MODEL DIFFICULTY PARAMETERS, STANDARD ERRORS, OUTFIT AND INFIT STATISTICS, AND CORRECTED ITEM-TOTAL CORRELATIONS FOR ITEMS OF EACH SCALE

Item	Item Difficulty[a]	Standard Error[b]	Outfit Mean Square[c]	Infit Mean Square[d]	Corrected Item-Total Correlation[e]
Traditional Interaction					
Comprehension Item 4B	505.34	0.49	1.01	1.03	0.31
Comprehension Item 4C	502.05	0.42	1.14	1.13	0.24
Comprehension Item 5B	506.64	0.53	0.90	0.97	0.30
Comprehension Item 5C	506.16	0.52	0.98	1.03	0.22
Comprehension Item 6C	503.79	0.43	1.29	1.18	0.14
Comprehension Item 7C	503.70	0.48	1.06	1.09	0.41
Comprehension Item 8	506.79	0.89	1.06	1.05	0.37
Vocabulary Item 1	503.53	0.85	1.26	1.17	0.25
Vocabulary Item 2	512.29	1.03	0.86	0.87	0.38
Vocabulary Item 3	511.31	1.03	0.89	0.87	0.43
Vocabulary Item 4	511.56	0.67	1.02	1.05	0.25
Vocabulary Item 5	507.40	0.93	0.86	0.89	0.31
Vocabulary Item 6	519.29	1.29	1.24	1.15	0.17
Reading Strategy Guidance					
Comprehension Item 2B	516.85	1.18	0.92	1.01	0.32
Comprehension Item 2C	514.19	1.09	1.10	1.14	0.24
Comprehension Item 3A	529.36	2.51	1.22	1.07	0.14
Comprehension Item 3B	510.62	0.99	0.82	0.91	0.44
Comprehension Item 3C	505.89	0.91	0.97	1.00	0.37
Comprehension Item 4B	505.34	0.49	1.01	1.03	0.35
Comprehension Item 4C	502.05	0.42	1.14	1.13	0.26
Comprehension Item 5B	506.64	0.53	0.90	0.97	0.43
Comprehension Item 5C	506.16	0.52	0.98	1.03	0.38
Comprehension Item 6C	503.79	0.43	1.29	1.18	0.23
Vocabulary Item 4	511.56	0.67	1.02	1.05	0.14
Classroom Management					
Part 2 Item 10	471.92	1.36	0.97	1.00	0.76
Part 2 Item 11	465.29	1.44	0.90	1.11	0.76
Part 2 Item 13	473.41	1.05	0.93	1.16	0.74
Part 2 Item 14	477.85	1.00	0.71	0.98	0.78

Source: Classroom observations.

[a]Item Difficulty provides a sense of the extent to which different behaviors will be observed in classrooms. Classroom scores and item difficulty parameter estimates are expressed together on the same scale, so that teachers (classrooms) that are more likely to exhibit behaviors for particular items will score above the respective difficulty levels for those items, and teachers (classrooms) that are less likely to exhibit behaviors for the items will score below the difficulty levels for the items.

Table F.2 *(continued)*

[b]The standard error is the estimation error of the item difficulty parameter.

[c]Outfit Mean Square is the average of the standardized residual variance for the item without any weighting (thus, it is sensitive to outliers). The expected value is 1.0, with values less than .5 and greater than 1.7 considered to indicate problematic items for a clinical observation measure (Wright and Linacre 1994).

[d]Infit Mean Square is the average of the standardized residual variance after weighting for each individual residual variance, so that unexpected responses close to the item's difficulty are given greater weight. The expected value is 1.0, with values less than .5 and greater than 1.7 considered to indicate problematic items for a clinical observation measure (Wright and Linacre 1994).

[e]Corrected Item-Total Correlation is the correlation between responses on an item and the total raw score that is calculated using the remaining set of items for the scale in order to correct for spuriousness.

Reliability and Validity of Scores. The reliability for the scales overall is 0.70 for Traditional Interaction; 0.72 for Reading Strategy Guidance; and 0.83 for Classroom Management (Table F.3). The mean and standard deviation for individual classroom reliability estimates were 0.70 and 0.07, respectively, for Traditional Interaction; 0.70 and 0.08, for Reading Strategy Guidance; and 0.82 and 0.10 for Classroom Management.

There is also evidence supporting the validity of the scales. First, the content of the items in Part I was based on experimental research from small-scale studies that investigated sound practices for reading comprehension and vocabulary instruction, and the content of items in Part II was based on a theoretical framework that identified some of the most-essential practices for classroom instruction in general, and the quality of classroom management in particular. Second, the content of the items in each scale is generally homogenous. Third, the empirical findings demonstrate an acceptable level of IRT model fit for the items in each scale. Finally, the multidimensional IRT model specification posits that there are multiple latent dimensions that explain the statistical relationships between all possible pairs of items for the respective scales, and the extent to which the model fits the data (as indicated by the item fit statistics) provides supporting evidence of the presence of these latent dimensions/components.

Interpreting the Scale Scores. Figures F.1A through F.3 provide a way to interpret the levels of the scale scores presented in the report. In particular, they provide a way to link a particular scale score to the ordinal categories that summarize the frequency with which teachers engaged in the practices underlying the three scales. For example, for the Traditional Interaction scale, Figure F.1A shows how 6 of the 13 items contained in the scale link to the levels of the scale scores. (Figure F.1B shows how the remaining 7 items in the scale link to the scale scores.) For example, a scale score of 560 corresponds to teachers explaining how to generate questions .56 to 4 times on average during each 10-minute interval (first bar) while that same score corresponds to teachers asking questions that go beyond a literal level 1.4 to 7.13 times during a 10-minute interval (last bar). It is important to note that teachers' actual scale score values do not vary as widely as the 400 to 600 range implied by the figures (as shown in the maximum and minimum values in Table F.3), because the actual scale scores reflect *multiple* teacher practices while each bar in Figures F.1A through F.3 represents just *one* teacher practice and the scale score that is possible based on that one practice. For example, in theory, a teacher could have scored as high as 600 (or as low as 400) on the Traditional Interaction scale, but none did so due to the levels of observed behaviors on all of the practices comprising that scale.

TABLE F.3

DESCRIPTIVE STATISTICS OF SCALE SCORES

Scale	Number of Classrooms	Reliability	Mean	Standard Deviation	Minimum	Maximum
Traditional Interaction	261	.70	500.00	6.53	486.37	517.38
Reading Strategy Guidance	261	.72	500.09	7.42	483.37	518.18
Classroom Management	261	.83	500.46	31.05	404.87	562.40

Source: Classroom observations

FIGURE F.1A

LINK BETWEEN AVERAGE NUMBER OF TIMES BEHAVIORS WERE OBSERVED AND TRADITIONAL INTERACTION SCALE SCORES

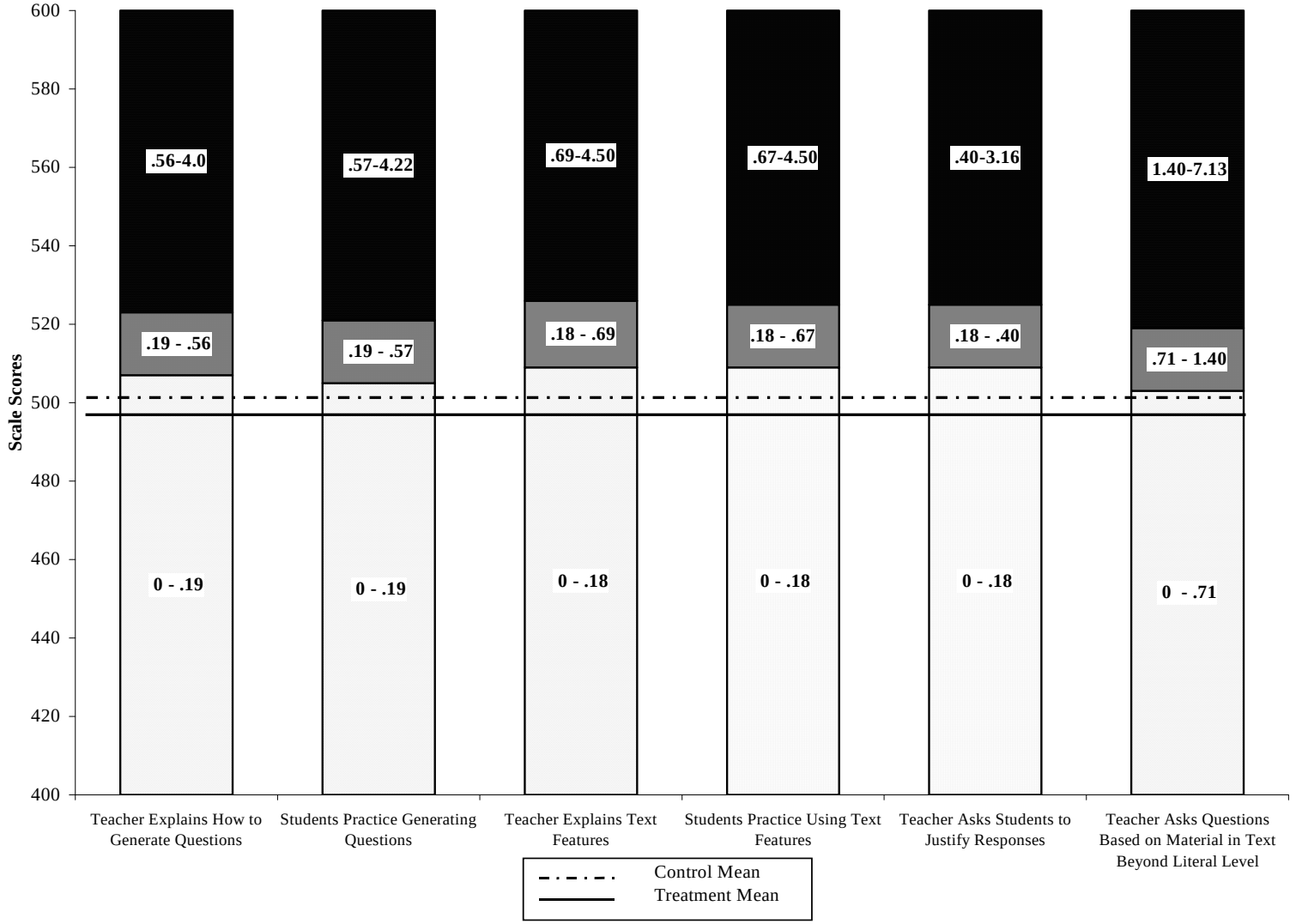


FIGURE F.1B

LINK BETWEEN AVERAGE NUMBER OF TIMES BEHAVIORS WERE OBSERVED AND TRADITIONAL INTERACTION SCALE SCORES

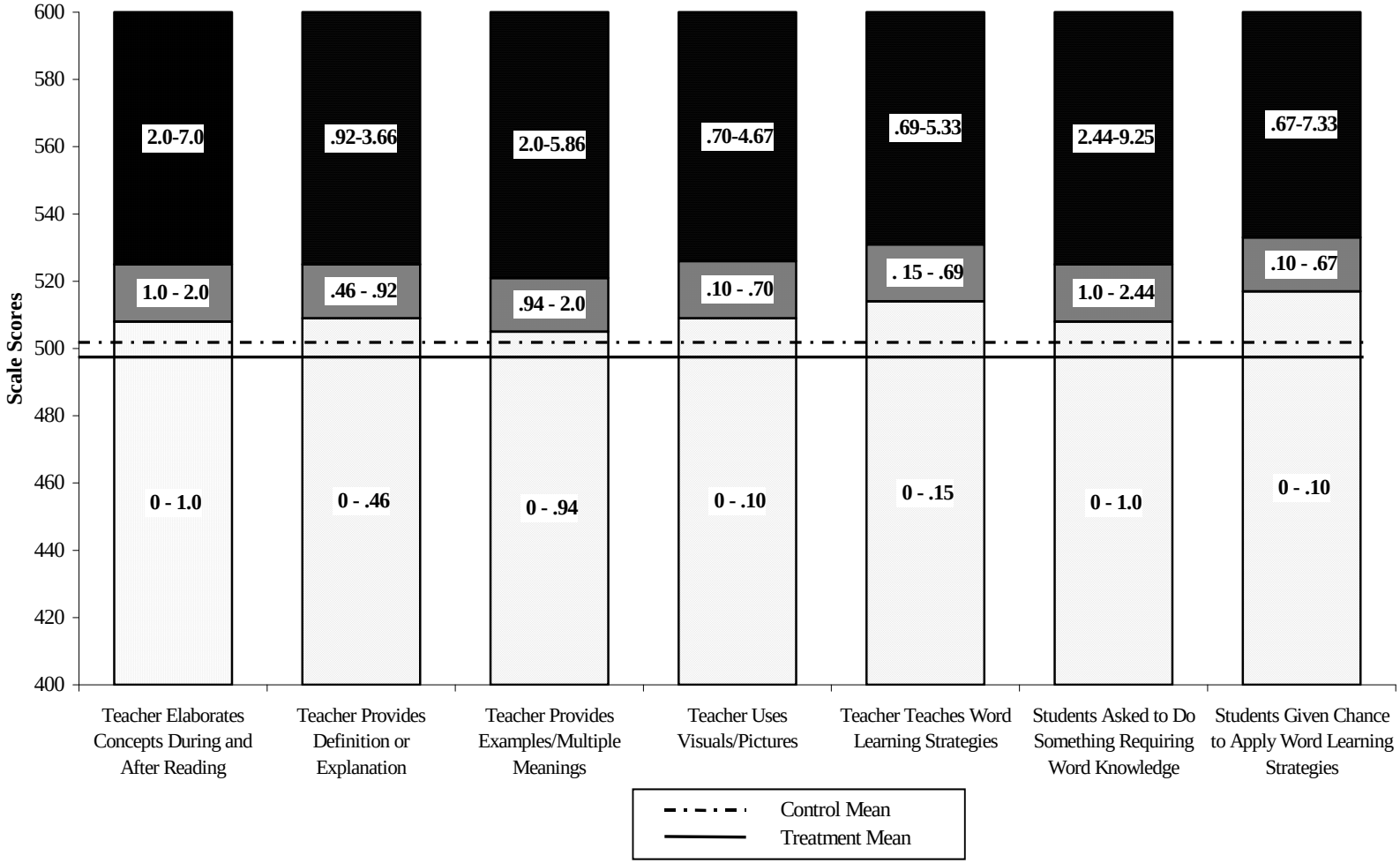
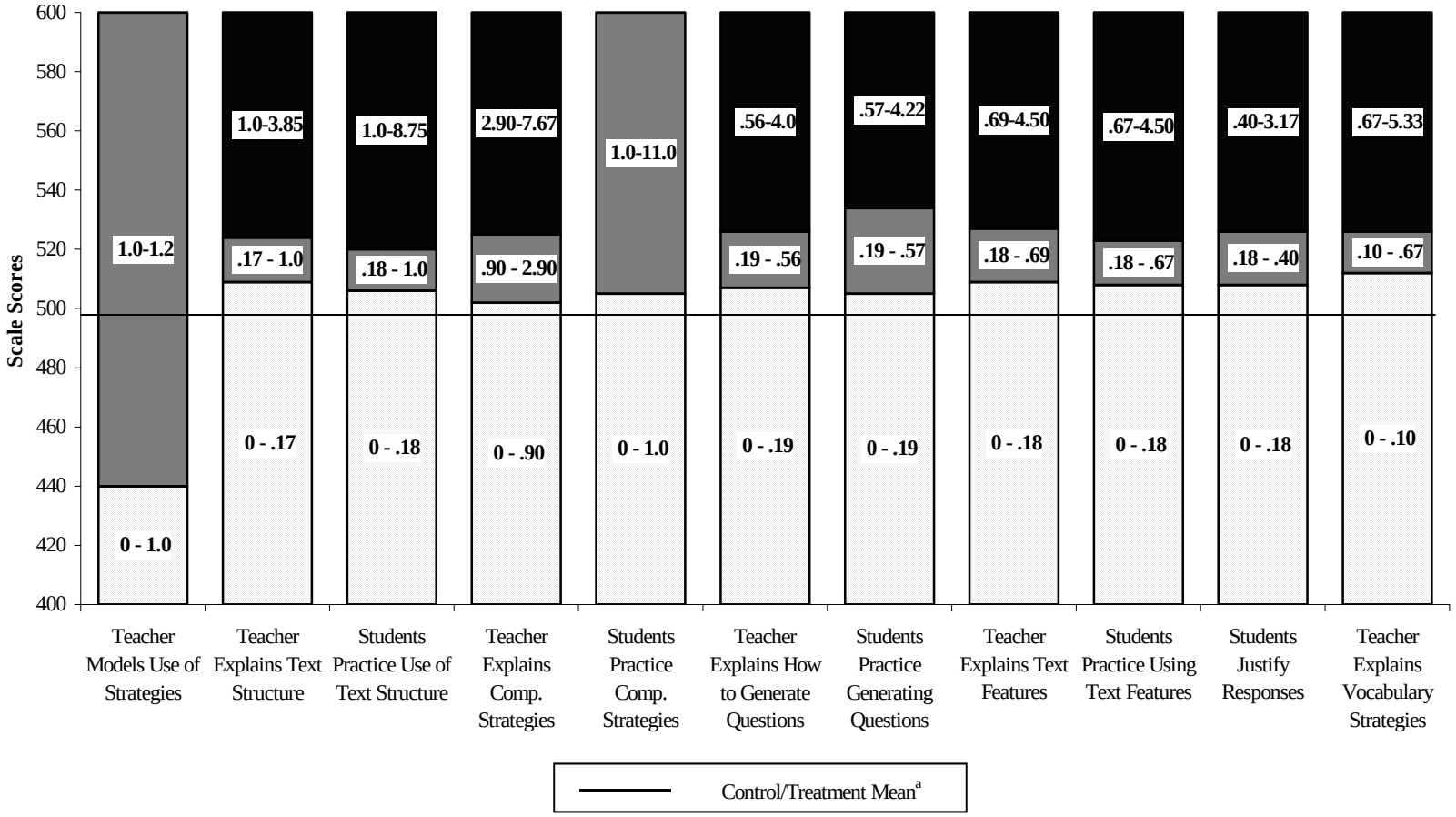


FIGURE F.2

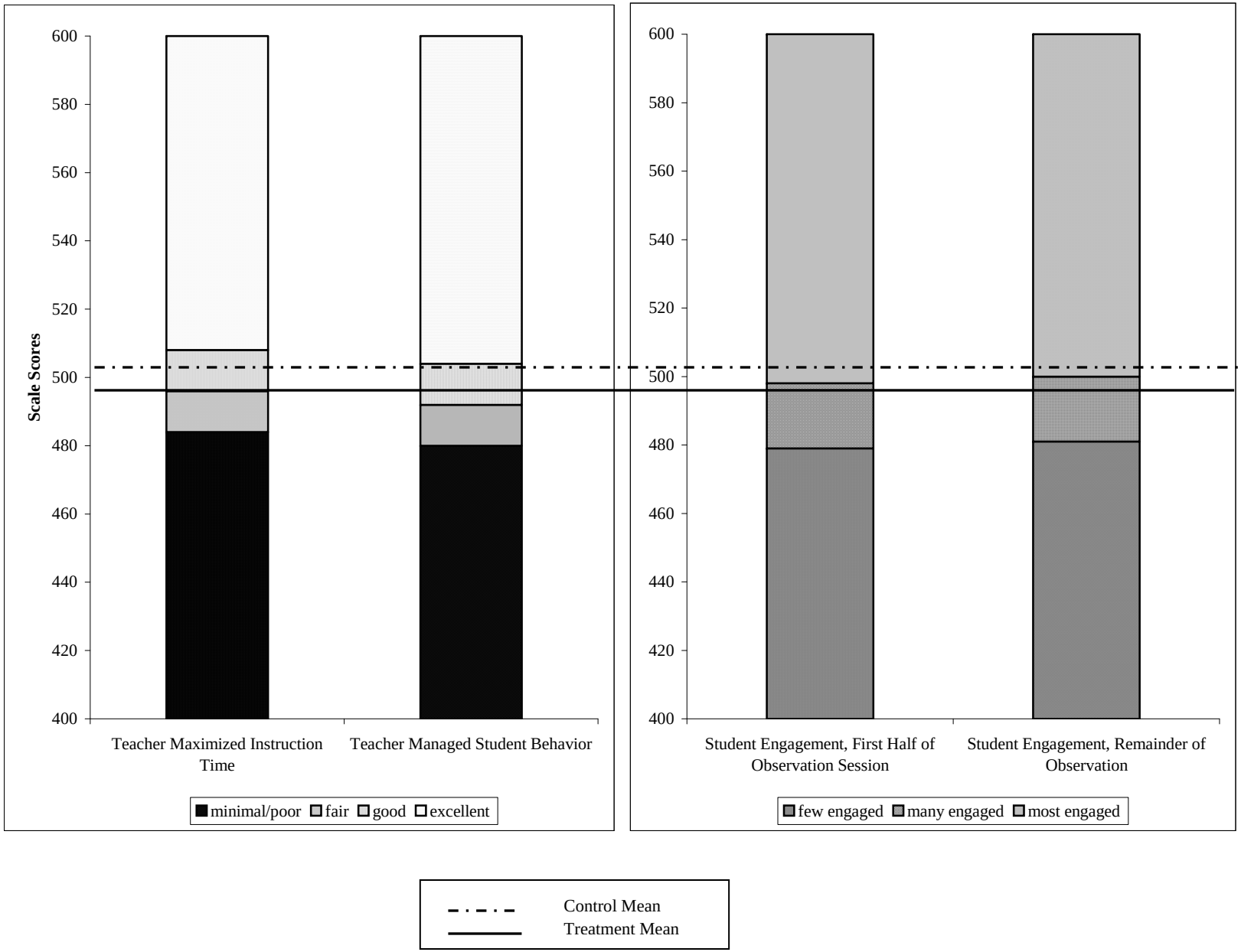
LINK BETWEEN AVERAGE NUMBER OF TIMES BEHAVIORS WERE OBSERVED AND READING STRATEGY SCALE SCORES



[a]The treatment and control means were so close it was not possible to distinguish between them in this figure. The values are 498.24 for the control group and 500.21 for the treatment group.

FIGURE F.3

LINK BETWEEN AVERAGE LIKERT-SCALE ITEM RATINGS AND SCALE SCORES FOR CLASSROOM MANAGEMENT



D. CREATION OF TEACHER EFFICACY AND SCHOOL PROFESSIONAL CULTURE SCALES

We used data from the Teacher Survey to construct a Teacher Efficacy scale and a School Professional Culture scale.

Teacher Efficacy Scale

Twelve items from the Teacher Survey were used to construct this scale (items borrowed with permission from Hoy and Woolfolk, 1993). These items are on a 0 to 5 Likert scale and correspond to teacher self-reports on attitudes and beliefs on student engagement (4 items), instructional strategies (4 items), and classroom management (4 items). To create the teacher efficacy scale, we averaged the responses to the 12 items for each teacher, so the original scale of 0 to 5 was preserved. A higher score on the scale represents more-positive teacher perceptions of their efficacy.

The reliability of the Teacher Efficacy scales exceeded 0.79 (0.79 to 0.90). The alpha for the overall Teacher Efficacy scale was 0.90, and the reliability of the Teacher Efficacy subscales was 0.83, 0.79, and 0.85, for efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management, respectively (Table F.4).

TABLE F.4

RELIABILITY OF THE TEACHER EFFICACY OVERALL SCALE AND SUBSCALES

Scale	Number Of Items	Coefficient Alpha	Mean	Standard Deviation	Minimum	Maximum
Overall Teacher Efficacy	12	0.90	4.19	0.49	2.83	5.0
Efficacy In Student Engagement	4	0.83	4.07	0.62	2.25	5.0
Efficacy In Instructional Strategies	4	0.79	4.14	0.54	2.50	5.0
Efficacy In Classroom Management	4	0.85	4.34	0.56	2.25	5.0

Source: Teacher Survey.

School Professional Culture Scale

Thirty-five items from the Teacher Survey were used to construct this scale. The items correspond to teacher self-reports on attitudes and beliefs on reflective dialogue, perceptions about relationships among peers, access to new ideas, experience with changes being implemented in school, professional development opportunities, and leadership and support. The range of this scale is 0 to 10, and a higher score on the scale indicates more-positive teacher perceptions of the professional culture in their school.

This scale was constructed using a Rasch rating-scale model in Winsteps (Linacre 2006). In the Rasch rating-scale model, scale scores were constructed by estimating the probability of a specified response as a function of (1) each teacher's ability level for the construct being measured and (2) item difficulty. In IRT analyses, ability corresponds to the level of the attitude or belief being measured, and item difficulty corresponds to the prevalence of or likelihood of endorsing the attitude, belief, or behavior represented by each item in a scale. Most-prevalent beliefs, attitudes, or behaviors are least difficult to endorse, while uncommon ones are more difficult to endorse.

In the rating scale model, the scores are usually rescaled to correspond to the original scale on the items in order to ease interpretation. For the School Professional Culture scale, the scores were rescaled to a 0 to 10 scale. The rescaled scores were used in the statistical analyses presented in this report. Item difficulties were also rescaled with the least difficult items having low values on the scale. The item difficulties and teacher scores are thus placed on a common scale and the items are expected to be ordered hierarchically along the difficulty continuum.

Therefore, the way to interpret these scales is that teachers are more likely to endorse items below their scale score and less likely to endorse items above their scale score. Given that scores estimated on a limited number of responses are less reliable than scores with more ratings, if 50 percent or more of the items in a scale were missing, the score for that teacher was set to missing.[66]

Several statistical tests indicate that this scale and its six subscales (corresponding to the six categories of attitudes and beliefs described above) are reliable and valid measures. Person separation reliability, infit mean square, and item difficulty were produced to evaluate the reliability and validity of the scales. Person separation reliability, which is equivalent to Cronbach's alpha and measures internal consistency of the scale, ranged from 0.66 to 0.86 for the overall scale and subscales. The infit mean square values for most of the items, which indicate whether the response items are consistent with the hierarchical ordering of the items, were close to 1, which suggests that most response patterns align with the hierarchical ordering of the items in the six subscales. Finally, the items in the six subscales were spread along the difficulty hierarchy, with item difficulty statistics ranging from 2.97 to 6.27 (Tables F.5 and F.6).

[66]This occurred for only two teachers in the sample.

TABLE F.5

DESCRIPTIVE STATISTICS AND PERSON SEPARATION RELIABILITIES FOR THE OVERALL SCHOOL CULTURE SCALE AND SUBSCALES

Scale	Number of Items	Person Separation Reliability	Sample Size	Mean	Standard Deviation	Minimum	Maximum
Overall School Culture	35	.87	258	5.69	.47	4.53	7.86
Reflective Dialogue	4	.78	253	5.62	2.00	0	10
Perceptions About Relationships Among Peers	6	.82	258	8.17	1.95	2.26	9.99
Access to New Ideas	6	.75	258	5.04	1.30	2.21	10
Experience of Change	3	.66	256	5.97	1.85	1.21	9.99
Professional Development Opportunities	9	.86	257	5.74	1.46	2.55	10
Leadership and Support	7	.84	255	7.39	2.06	0	9.99

Source: Teacher Survey.

TABLE F.6

PSYCHOMETRIC STATISTICS FOR SCHOOL CULTURE SUBSCALES

Subscale/Item	Infit Mean Square[a]	Item Difficulty[b]
Reflective Dialogue		
During the past school year, how often have you had conversations with colleagues about…		
5a. The goals of this school?	.95	5.55
5b. Development of new curriculum?	1.06	6.02
5c. Managing classroom behavior?	1.25	4.11
5d. What helps students learn best?	.74	3.93
Perceptions About Relationships Among Peers		
How much do you disagree or agree with each of the following…		
6a. Teachers in this grade level trust each other.	.93	5.04
6b. It's OK in this grade level to discuss feelings, worries, and frustrations with other teachers.	.87	4.93
6c. Teachers respect other teachers who take the lead in grade-level improvement efforts.	.79	5.08
6d. Teachers in this grade level respect those colleagues who are expert at their craft.	.76	4.90
6e. To what extent do you feel respected by other teachers in this grade level?	1.42	4.30
6f. How many teachers in this grade level really care about each other?	1.06	4.76
Access to New Ideas		
How often have you …		
7a. Taken courses at a college or university relative to improving your school?	1.41	4.91
7b. Participated in a network with other teachers outside your school?	.86	4.53
7c. Discussed curriculum and instruction matters with an outside professional group or organization?	.85	4.74
7d. Attended professional development activities organized by your school (include meetings that focus on improving your teaching)?	1.10	2.97
7e. Attended workshops or courses sponsored by your school district (exclude required in-services)?	.85	3.71
7f. Attended professional development activities sponsored by the teachers' union?	.99	6.27
Experience of Change		
How much do you disagree or agree with each of the following…		
8a. Most changes introduced at this school involve only a few teachers; rarely does the whole faculty become involved (reverse-coded).	1.13	4.56
8b We receive adequate professional development support for the changes we introduce at our school.	1.16	4.94
8c. Most changes introduced at this school gain little support among teachers (reverse-coded).	.68	4.64

Table F.6 (*continued)*

Subscale/Item	Infit Mean Square[a]	Item Difficulty[b]
Professional Development Opportunities		
Overall, my professional development experiences over the past school year…		
9a. Have included opportunities to work productively with teachers from other schools.	1.24	5.20
9b. Have included enough time to think carefully about, to try, and to evaluate new ideas.	.99	5.64
9c. Have deepened my understanding of subject matter.	.77	4.35
9d. Have helped me understand my students better.	.81	4.63
9e. Have been sustained and coherently focused, rather than being short term and unrelated.	.85	5.13
9f. Have included opportunities to work productively with colleagues in my school.	1.16	4.74
9g. Have led me to make changes in my teaching.	.71	3.99
9h. Have been closely connected to my school's improvement plan.	1.22	3.96
9i. Most of what I learn in professional development addresses the needs of the students in my classroom.	1.10	4.35
Leadership and Support		
How much do you disagree or agree with each of the following…		
10a. The principal at this school is strongly committed to shared decision making.	1.46	5.02
10b. The principal at this school works to create a sense of community in the school.	.80	4.46
10c. The principal at this school promotes parent and community involvement in the school.	.94	3.95
10d. The principal at this school supports and encourages teachers to take risks.	.91	5.12
10e. The principal at this school is willing to make changes.	.91	4.62
10f. Most changes introduced at this school receive strong support from the principal.	.80	4.99
10g. The principal at this school encourages teachers to try new methods of instruction.	1.11	4.48

Source: Teacher Survey.

[a]Infit Mean Square is the average of the standardized residual variance weighting for each individual residual variance so that unexpected responses close to the item's difficulty are given greater weight. The expected value is 1.0, with values less than .5 and greater than 1.7 generally considered poorly fitting items (Wright and Linacre 1994).

[b]Item difficulty is the relative likelihood that different opinions/perceptions of the professional culture in their schools will be endorsed by teachers. Items that are endorsed more frequently have lower values, and items that are endorsed less frequently have higher values. Teachers and items are placed on the same scale so that teachers who are highly likely to endorse the perceptions are below the item difficulty for their score, and teachers who are less likely to endorse the perceptions have difficulties above their score.

APPENDIX G

ESTIMATING IMPACTS

This appendix describes our approach to calculating impacts as part of our confirmatory and exploratory analyses. Our confirmatory analyses focus on the central question of whether any of the four interventions individually, or the four as a group, improve students' scores on reading comprehension assessments, and whether intervention effects differ. Our exploratory analyses were designed to decompose overall impacts and thus improve our understanding of whether the interventions are particularly effective for certain subgroups, and to explore the pathways through which interventions affect student achievement.

A. BENCHMARK APPROACH TO CALCULATING CONFIRMATORY IMPACTS

The benchmark approach to calculating impacts reflects decisions regarding methodological approaches determined most appropriate for this study. The approach also reflects input from the Department of Education (ED) and the study's Technical Work Group regarding suitable analytic approaches given the study's design and goals. Five key areas are addressed in our benchmark approach to estimating impacts: (1) regression adjustment, (2) clustering of students, (3) missing data, (4) multiple comparisons, and (5) weights.

1. Regression Adjustment

We calculated impacts using regression adjustment in order to increase the statistical precision of our impact estimates, which would enable us to detect smaller treatment effects. Although random assignment ensures no systematic differences between the treatment and control groups in the characteristics of students, teachers, or schools, it is still possible that random differences will exist between the groups. By regression adjusting for these random differences, we can greatly improve the precision of our impact estimates. With regression adjustment the minimum detectable effect size (MDES) of this study is 0.17 standard deviations. Without regression adjustment, the MDES would have been 0.44 standard deviations.

We chose covariates for our regression model using a search algorithm designed to select a set of covariates that maximizes the proportion of variation in students' follow-up test scores that can be explained. Specifically, we developed an algorithm based on a genetic search package available for R[67] (Mebane and Sekhon 2008) to select the k covariates that maximize the regression R^2, where we choose the value of k and the algorithm selects the k covariates that maximize R^2. For example, if we pick $k = 5$, the algorithm searches for the five covariates (out of all available covariates) that maximizes the regression R^2. For each test score outcome, we found the five[68] covariates that maximize the regression R^2. We then estimated all impact regressions using all of these covariates. Those covariates are (1) student baseline GRADE

[67]"R is a language and environment for statistical computing and graphics. It is a GNU project which is similar to the S language and environment which was developed at Bell Laboratories (formerly AT&T, now Lucent Technologies) by John Chambers and colleagues." See [http://www.r-project.org/about.html] accessed on June 2, 2008.

[68]We found that adding 20 covariates instead of 5 covariates only increased the regression R^2 for the GRADE impact regression from 0.541 to 0.547, thereby providing insufficient benefit to warrant the cost in degrees of freedom.

scores, (2) student baseline TOSCRF scores, (3) student ELL status, (4) student race/ethnicity, (5) teacher race, and (6) school urbanicity.

We also included district fixed effects in our regression model (in the form of district indicator variables) to further increase statistical precision.[69] We treat district effects as fixed rather than random because (1) districts were not randomly sampled and (2) districts were not randomly assigned. Stated differently, if we were to repeat the study we would have the same districts represented in the study and in the treatment and control groups, meaning that districts do not vary and do not contribute to variation in impacts.

In equation form, the regression model we estimated is:

$$(1) \quad y_{i,j} = \alpha + \delta_1 CRISS_j + \delta_2 RA_j + \delta_3 R4K_j + \delta_4 R4R_j + \beta X_{i,j} + \sum_{k=1}^{10} \gamma_k D_k + u_j + \varepsilon_{i,j}$$

where *i* and *j* index students and schools, respectively; *CRISS*, *RA*, *R4K*, and *R4R* are treatment group indicators (for Project CRISS, ReadAbout, Reading for Knowledge, and Read for Real, respectively); *X* represents covariates; D_1-D_{10} are district indicators; *u* is a school-level random intercept; and ε is a student-level random intercept. The impact of the interventions relative to the control group (the omitted category) is given by the coefficients on the treatment group indicators. For example, the impact of Project CRISS is given by δ_1. Below we describe how we account for the correlation between students within schools that is implied by the school-level random intercept.

2. Clustering of Students

To account for correlation in the error term between students within the same schools, we estimated standard errors using Taylor series linearization with the software package SUDAAN.[70] This approach yields impact estimates that are the same as ordinary least squares (OLS) impact estimates, but adjusts the standard errors in order to account for clustering of students within schools.

An alternative approach to account for clustering would be to estimate a mixed effects model using software such as SAS (using the *proc mixed* command) or HLM. The difference between estimating our impact model using HLM instead of SUDAAN is that HLM calculates parameter estimates as a weighted average of within-school and between-school effects, while

[69]Alternatively, we could have included block indicator variables, which would have reduced the degrees of freedom for the impact regressions from 67 to 63. As a robustness check, we conducted statistical tests using 63 degrees of freedom instead of 67 and found that p-values increased by less than 0.001, which does not change the statistical significance of any of our findings.

[70]Students are also clustered within classrooms, but classrooms were neither randomly sampled nor randomly assigned and therefore do not contribute to variance. We treat classroom effects as fixed by centering all classrooms within a school at the school-level means of all variables used in the impact regressions (both outcomes and covariates). We also ran impacts without mean centering and found that it did not change the sign, statistical significance, or magnitude of reported impacts.

SUDAAN calculates the same parameter estimates as OLS. The parameter estimates from SUDAAN can be interpreted as the marginal effect of a variable for the average student in the sample. The interpretation of the HLM parameter estimates is less clear because the weights used to create the weighted average are selected to minimize variance, not to represent any particular group. Because there is no "within-school" treatment effect (because there is no within-school variation in treatment status), however, HLM and SUDAAN will both estimate treatment effects using between-school variation in treatment status only. The only difference between the two approaches will be in the estimate of the effects of covariates that vary within schools (such as students' baseline test scores).

We chose to use Taylor series linearization instead of mixed effects modeling for our benchmark model because the parameter estimates are easier to interpret (as noted above) and because it allows for greater flexibility theoretically and it facilitates the implementation of the analysis. From a theoretical perspective, the Taylor series linearization approach is more flexible because it accounts for any within-school correlations between students that are not explicitly specified, whereas HLM requires that all correlations be known and fully specified. From an implementation perspective, the software used to account for clustering using Taylor series linearization is easier to integrate into our overall approach to estimating impacts. This is because SUDAAN can be completely controlled programmatically from SAS whereas HLM cannot.[71]

3. Missing Data

We encounter missing data in two contexts. First, we encounter missing *covariate* data in our impact regressions. Second, we encounter missing *outcome* data when estimating impacts on the GRADE and ETS follow-up tests. We discuss how each of these is addressed in the analysis below.

Missing Covariates[72]

We implemented an approach to account for missing covariates to maximize the number of observations that would contribute to the estimation of impacts of the curricula. We account for missing covariates by imputing the missing variable to the mean of the variable and including a missing value indicator in our regression equation. By using this approach we ensure that the parameter estimate for each covariate is based only on nonmissing observations while allowing an observation that is missing data on one covariate to still contribute to estimating the effects of covariates for which that observation is not missing data. (In the context of this evaluation, the primary concern is ensuring that all observations with follow-up data contribute to the estimation

[71]There are software packages that can estimate mixed effects models while providing much better programming control than HLM, for example *proc mixed* in SAS or the LMER package in R. However these packages do not properly account for school-level weights, whereas SUDAAN does.

[72]This discussion applies only to missing covariates, such as baseline test score and race/ethnicity. It does not apply to the treatment indicator variables. The treatment indicator variables are never missing because we know the random assignment status of every school in the study.

of the coefficients on the treatment status indicators.) This approach may result in parameter estimates for covariates with missing data that do not fully represent the entire study sample. Because the purpose of including covariates is to increase the precision of the impact estimates, this issue has little practical significance in this context. Table G.1 shows the proportion of the sample missing each of the covariates included in our impact regressions.

Missing Follow-up Tests

Missing follow-up test score data have two potential implications. First, if students who have follow-up test score data in a treatment group are different from those who have follow-up test score data in the control group, then impacts could be biased. Evidence of this kind of bias would be either a differential rate of nonresponse between the treatment and control groups or different characteristics of respondents between treatment and control groups. Second, if students who are missing test score data are different from those who are not, then the impacts calculated for the analysis sample (that is, students who are not missing the outcome variable) might not be completely representative of students in the study sample.

Our analysis indicates that the impact estimates are unlikely to be biased due to differential nonresponse between the treatment and control groups**.** The proportion of students with a score on each test is between 84 and 90 percent (Table G.2). Statistically significantly more students in the Reading for Knowledge treatment arm have a GRADE and ETS social studies score than students in the control group (a difference of 4 and 6 percentage points, respectively), but there are no other statistically significant differences. In addition, as shown in Tables G.3-G.5, the average characteristics of students with follow-up test scores do not differ systematically among the treatment and control groups (including comparisons between students in the control group and Reading for Knowledge group). Of the 240 comparisons made in these three tables, only three are statistically significant (which is well within the number of differences one might expect to occur by chance alone). We conclude from these comparisons that the internal validity of the study is not threatened by missing follow-up test score data.

However, there is evidence that nonrespondents are more disadvantaged than respondents. Specifically, we see that nonrespondents have lower baseline test scores, are more likely to be overage for grade, and are more likely to be identified as having a disability (Table G.6). Nonrespondents are also more likely to be black, less likely to be white, and less likely to be classified as English language learners.

We used nonresponse weights to account for these differences in baseline characteristics of students who do and do not have a follow-up test. These weights are described in detail in Section 5.

TABLE G.1

PROPORTION OF SAMPLE MISSING EACH COVARIATE, BY OUTCOME

	Composite Test Score	GRADE Score	Social Studies Reading Comprehension Assessment Score	Science Reading Comprehension Assessment Score
School Location[a]	3.6	3.6	3.7	3.6
Teacher Race[b]	1.2	1.2	1.2	1.1
Baseline GRADE	4.2	4.1	4.1	4.1
Baseline TOSCRF	4.5	4.4	4.4	4.3
Student English Language Learner Status	22.5	22.5	21.6	23.1
Student Race[c]	34.5	34.4	34.3	34.8
Student Ethnicity[d]	53.5	53.4	52.7	54.0

[a]School location includes indicators for “Urban,” “Urban Fringe,” and “Rural” locations.

[b]Teacher race includes indicators for “White,” “Black,” “Asian,” and “Native American/Pacific Islander.”

[c]Student race includes indicators for “White,” “Black,” “Asian,” and “Native American/Pacific Islander.”

[d]Student ethnicity includes an indicator for “Hispanic.”

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE G.2

PROPORTION OF STUDENTS WITH FOLLOW-UP TEST SCORES, BY EXPERIMENTAL CONDITION

Follow-Up Tests	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
GRADE	86	88 (.52)	88 (.45)	88 (.44)	90* (.05)	88 (.20)
ETS Social Studies	84	87 (.23)	86 (.57)	87 (.40)	90* (.03)	87 (.15)
ETS Science	85	85 (.93)	89 (.06)	88 (.09)	86 (.55)	87 (.15)

Source: Reading comprehension tests administered by study team.

Note: The *p-values* from t-tests of treatment and control group differences in means are presented in parentheses. These tests account for clustering of students within schools.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TABLE G.3

AVERAGE BASELINE CHARACTERISTICS OF STUDENTS WITH FOLLOW-UP GRADE SCORES, BY EXPERIMENTAL CONDITION

	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Percentage in Study Schools at Beginning of School Year	98	95 (.13)	97 (.58)	95 (.22)	98 (.10)	96 (.19)
GRADE Score (Average)	100.35	101.51 (.45)	99.91 (.55)	99.66 (.36)	101.49 (.50)	100.66 (.80)
TOSCRF Score (Average)	88.58	89.30 (.56)	88.18 (.28)	88 (.21)	90.01 (.19)	88.88 (.73)
Female (Percentage)	49	52 (.06)	50 (.75)	50 (1)	48 (.20)	50 (.44)
Age (Average)	10.68	10.72 (.76)	10.69 (.63)	10.75 (.34)	10.71 (.93)	10.72 (.39)
Overage[a] (Percentage)	20	22 (.93)	20 (.62)	24 (.46)	22 (.78)	22 (.49)
Hispanic (Percentage)	78	73 (.97)	80 (.59)	71 (.82)	66 (.50)	73 (.70)
Race (Percentage)						
White	36	42 (.93)	37 (.61)	45 (.71)	49 (.42)	43 (.41)
Black	42	39 (.82)	44 (.74)	41 (.98)	39 (.83)	41 (.93)
Asian	3	2 (.86)	4 (.56)	2 (.20)	3 (.94)	3 (.79)
Native American	4	0* (.04)	2 (.65)	2 (.82)	0 (.08)	1 (.16)
Number of Days Absent in Prior School Year (Average)	12.95	9.98 (.54)	11.18 (.80)	14.62 (.49)	10.98 (.76)	11.66 (.73)
Eligible for Free or Reduced-Price Lunch (Percentage)	59	60 (.94)	63 (.51)	58 (.82)	57 (.63)	60 (.98)
Classified as English Language Learner (Percentage)	30	26 (.72)	31 (.84)	33 (.76)	24 (.65)	29 (.88)
Identified as Having a Disability[b] (Percentage)	9	9 (.52)	11 (.94)	12 (.46)	12 (.58)	11 (.54)
Received Remedial or Specialized Services in Reading[c] (Percentage)	50	28 (.43)	37 (.87)	51 (.51)	34 (.65)	37 (.47)
Number of Students[d]	**1,179**	**1,154**	**1,095**	**1,077**	**1,067**	**4,393**

Table G.3 *(continued)*

Source: Student Records Form. Baseline GRADE and TOSCRF tests administered by study team.

Note: Baseline characteristics are reported only for students who were present in study schools at baseline. The *p-values* from tests of treatment and control group differences in means are presented in parentheses. These tests account for clustering of students within schools.

[a]We considered a fifth grader to be overage for grade if he or she was 11 or older as of September 1, 2006.

[b]A student was identified as having a disability if any of the following categories were indicated on the student records form: autism, deaf-blindness developmental delay, emotional disturbance, hearing impairment, learning disability, mental retardation, orthopedic impairment, other health impairment, speech or language impairment, traumatic brain injury, visual impairment, and other disability not included in this list.

[c]Services in reading include reading support, speech/language support, English as a Second Language (ESL), Title I, tutoring, and other forms of extra help to bring students up to grade level.

[d]The number of students presented in this row is the number with follow-up GRADE scores. Response rates vary across items.

*Statistically different at the .05 level.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE G.4

AVERAGE BASELINE CHARACTERISTICS OF STUDENTS WITH FOLLOW-UP SOCIAL STUDIES READING COMPREHENSION SCORES, BY EXPERIMENTAL CONDITION

	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Percentage in Study Schools at Beginning of School Year	98	96 (.44)	97 (.02)	94 (.22)	98 (.64)	96 (.06)
GRADE Score (Average)	100	102 (.40)	100 (.28)	100 (.54)	101 (.49)	101 (.95)
TOSCRF Score (Average)	88	90 (.46)	89 (.37)	88 (.17)	90 (.56)	89 (.33)
Female (Percentage)	48	54 (.19)	52 (.80)	50 (.14)	48 (.31)	51 (.37)
Age (Average)	11	11 (.72)	11 (.15)	11 (.72)	11 (.62)	11 (.36)
Overage[a] (Percentage)	20	21 (.84)	20 (.34)	24 (.91)	22 (.54)	22 (.45)
Hispanic (Percentage)	78	76 (.87)	79 (.85)	70 (.42)	65 (.65)	73 (.7)
Race (Percentage)						
White	36	41 (.99)	36 (.75)	44 (.33)	50 (.58)	42 (.43)
Black	40	39 (.84)	46 (.84)	44 (.79)	39 (.70)	42 (.90)
Asian	4	2 (.88)	3 (.13)	1 (.97)	2 (.79)	2 (.33)
Native American	4	0* (.04)	2 (.50)	3 (.32)	1 (.88)	1 (.20)
Number of Days Absent in Prior School Year (Average)	14	9 (.56)	10 (.55)	14 (.81)	11 (.65)	11 (.56)
Eligible for Free or Reduced-Price Lunch (Percentage)	61	60 (.85)	60 (.95)	59 (.60)	56 (.98)	59 (.84)
Classified as English Language Learner (Percentage)	31	26 (.75)	29 (.76)	31 (.71)	25 (.96)	28 (.85)
Identified as Having a Disability[b] (Percentage)	9	8 (.28)	12 (.36)	13 (.62)	12 (.54)	11 (.38)
Received Remedial or Specialized Services in Reading[c] (Percentage)	52	28 (.45)	35 (.54)	49 (.68)	35 (.78)	37 (.41)
Number of Students[d]	**576**	**573**	**537**	**541**	**553**	**2,204**

Table G.4 *(continued)*

Source: Student Records Form. Baseline GRADE and TOSCRF tests administered by study team.

Note: Baseline characteristics are reported only for students who were present in study schools at baseline. The *p-values* from tests of treatment and control group differences in means are presented in parentheses. These tests account for clustering of students within schools.

[a]We considered a fifth grader to be overage for grade if he or she was 11 or older as of September 1, 2006.

[b]A student was identified as having a disability if any of the following categories were indicated on the student records form: autism, deaf-blindness developmental delay, emotional disturbance, hearing impairment, learning disability, mental retardation, orthopedic impairment, other health impairment, speech or language impairment, traumatic brain injury, visual impairment, and other disability not included in this list.

[c]Services in reading include reading support, speech/language support, English as a Second Language (ESL), Title I, tutoring, and other forms of extra help to bring students up to grade level.

[d]The number of students presented in this row is the number with follow-up social studies reading comprehension scores. Response rates vary across items.

*Statistically different at the .05 level.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE G.5

AVERAGE BASELINE CHARACTERISTICS OF STUDENTS WITH FOLLOW-UP SCIENCE READING COMPREHENSION SCORES, BY EXPERIMENTAL CONDITION

	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Percentage in Study Schools at Beginning of School Year	97	94 (.06)	97 (.75)	96 (.50)	99* (.02)	96 (.41)
GRADE Score (Average)	100.35	101.54 (.49)	99.95 (.55)	99.84 (.43)	101.65 (.49)	100.73 (.75)
TOSCRF Score (Average)	89.08	89.06 (.67)	87.71 (.12)	87.73 (.13)	89.97 (.24)	88.60 (.61)
Female (Percentage)	49	52 (.29)	49 (.54)	50 (.88)	48 (.54)	50 (.75)
Age (Average)	10.67	10.72 (.88)	10.69 (.72)	10.75 (.50)	10.73 (.60)	10.72 (.34)
Overage[a] (Percentage)	19	21 (.91)	20 (.77)	23 (.50)	22 (.67)	22 (.49)
Hispanic (Percentage)	79	71 (.79)	81 (.55)	71 (.79)	69 (.64)	73 (.69)
Race (Percentage)						
White	37	43 (.91)	38 (.63)	46 (.71)	49 (.51)	44 (.48)
Black	41	38 (.84)	43 (.76)	39 (.94)	38 (.84)	39 (.87)
Asian	3	3 (.88)	5 (.41)	2 (.45)	3 (.81)	3 (.79)
Native American	3	0 (.12)	2 (.36)	1 (.72)	0 (.)	1 (.15)
Number of Days Absent in Prior School Year (Average)	12.55	10.30 (.55)	11.96 (.93)	15.42 (.44)	10.90 (.66)	12.15 (.91)
Eligible for Free or Reduced-Price Lunch (Percentage)	59	59 (.86)	66 (.21)	57 (.60)	57 (.68)	60 (.88)
Classified as English Language Learner (Percentage)	30	26 (.7)	33 (.74)	34 (.77)	24 (.62)	29 (.94)
Identified as Having a Disability[b] (Percentage)	10	10 (.83)	9 (.67)	11 (.66)	12 (.48)	10 (.75)
Received Remedial or Specialized Services in Reading[c] (Percentage)	48	27 (.42)	38 (.92)	51 (.48)	34 (.67)	38 (.54)
Number of Students[d]	**593**	**568**	**559**	**536**	**503**	**2,166**

Table G.5 *(continued)*

Source: Student Records Form. Baseline GRADE and TOSCRF tests administered by study team.

Note: Baseline characteristics are reported only for students who were present in study schools at baseline. The *p-values* from tests of treatment and control group differences in means are presented in parentheses. These tests account for clustering of students within schools. *P-values* could not be obtained when none (or most) of the students exhibited a given characteristic. This is indicated by a (.).

[a]We considered a fifth grader to be overage for grade if he or she was 11 or older as of September 1, 2006.

[b]A student was identified as having a disability if any of the following categories were indicated on the student records form: autism, deaf-blindness developmental delay, emotional disturbance, hearing impairment, learning disability, mental retardation, orthopedic impairment, other health impairment, speech or language impairment, traumatic brain injury, visual impairment, and other disability not included in this list.

[c]Services in reading include reading support, speech/language support, English as a Second Language (ESL), Title I, tutoring, and other forms of extra help to bring students up to grade level.

[d]The number of students presented in this row is the number with follow-up science reading comprehension scores. Response rates vary across items.

*Statistically different at the .05 level.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TABLE G.6

BASELINE CHARACTERISTICS OF STUDENTS WITH AND WITHOUT FOLLOW-UP TEST SCORES

	GRADE		Social Studies Reading Comprehension		Science Reading Comprehension	
	Students With a Score	Students Without a Score	Students With a Score	Students Without a Score	Students With a Score	Students Without a Score
Percentage in Study Schools at Beginning of School Year	96.5	90.2* (0.00)	96.6	95.1* (0.03)	96.4	95.2* (0.01)
GRADE Score (Average)	100.6	96.4* (0.00)	100.6	99.8* (0.00)	100.6	99.7* (0.00)
TOSCRF Score (Average)	88.8	86.3* (0.00)	88.9	88.2* (0.22)	88.7	88.4 (0.00)
Female (Percentage)	50.0	46.7 (0.23)	50.4	49.3 (0.75)	50.0	49.6 (0.42)
Age (Average)	10.71	10.96* (0.00)	10.70	10.74* (0.05)	10.70	10.75* (0.00)
Overage[a] (Percentage)	21.4	38.9* (0.00)	21.4	23.6* (0.00)	20.9	24.0* (0.03)
Hispanic (Percentage)	73.7	67.4 (0.20)	73.8	72.9 (0.09)	74.2	72.6 (0.43)
Race (Percentage)						
White	41.6	32.8* (0.04)	41.1	41.0 (0.06)	42.4	39.9 (0.98)
Black	40.6	53.0* (0.01)	41.6	41.2 (0.01)	39.5	43.0* (0.75)
Asian	2.7	1.2 (0.09)	2.4	2.8 (0.06)	3.0	2.2 (0.34)
Native American	1.7	1.6 (0.87)	1.9	1.6 (0.13)	1.4	2.0 (0.48)
Number of Days Absent in Prior School Year (Average)	11.8	10.1 (0.37)	11.5	11.8 (0.09)	12.2	11.3 (0.54)
Eligible for Free or Reduced-Price Lunch (Percentage)	59.4	57.6 (0.61)	59.3	59.3 (0.73)	59.6	59.1 (1.00)
Classified as English Language Learner (Percentage)	28.5	15.3* (0.01)	28.3	26.7 (0.00)	29.1	26.1* (0.17)
Identified as Having a Disability[b] (Percentage)	10.3	16.0* (0.02)	10.6	10.9 (0.23)	10.2	11.3 (0.72)
Received Remedial or Specialized Services in Reading[c] (Percentage)	39.5	28.0 (0.08)	40.0	38.1 (0.64)	39.3	38.7 (0.11)
Number of Students[d]	**5,572**	**778**	**2,759**	**3,591**	**2,746**	**3,604**

Source: Student Records Form. Baseline GRADE and TOSCRF tests administered by study team.

Note: Baseline characteristics are reported only for students who were present in study schools at baseline. The *p-values* from tests of differences in means between students with and without test scores are presented in parentheses. These tests account for clustering of students within schools.

Table G.6 *(continued)*

[a]We considered a fifth grader to be overage for grade if he or she was 11 or older as of September 1, 2006.

[b]A student was identified as having a disability if any of the following categories were indicated on the student records form: autism, deaf-blindness developmental delay, emotional disturbance, hearing impairment, learning disability, mental retardation, orthopedic impairment, other health impairment, speech or language impairment, traumatic brain injury, visual impairment, and other disability not included in this list.

[c]Services in reading include reading support, speech/language support, English as a Second Language (ESL), Title I, tutoring, and other forms of extra help to bring students up to grade level.

[d]The number of students presented in this row is the number participating in the study. Response rates vary across items.

*Statistically different at the .05 level.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

4. Multiple Comparisons

In this study, making clear distinctions between effects that are real and those that are due to chance is complicated by the issue of multiple comparisons. By comparing multiple intervention groups to a control group, for multiple outcomes, the probability that one of those differences will appear to be statistically significant is greater than the probability that a single difference will appear statistically significant. Intuitively, this is similar to the difference between the probability of a *single* toss of a coin yielding heads and the probability that *at least one of several* coin tosses will yield heads.

Our benchmark approach to adjusting p-values to account for multiple comparisons begins with the establishment of several different sets, or domains, of multiple tests. Each domain pertains to a separate research question. We then adjust p-values for tests within these domains so that we control the probability of drawing a false conclusion. The first domain consists of 12 tests—the impact of each of four interventions on each of three test scores. The second domain consists of 4 tests—the effect of each intervention on a composite test score. The third domain consists of 3 tests—the effect of the combined treatment group on each of three test scores. The fourth domain consists of a single test—the effect of the combined treatment group on the composite test score. The last domain consists of 6 tests—the pairwise comparisons among the four treatment groups. The p-values reported in the impact tables are adjusted within these domains to account for multiple comparisons.

Within domains we calculate p-values using a generalized version of the Dunnett (1955) adjustment. Dunnett's approach takes into account correlations between tests due to a shared control group, drawing critical values based on a multivariate t-distribution. Hothorn, Bretz, and Westfall (2008) implement a more generalized procedure that is also based on a multivariate t-distribution but adjusts p-values for multiple tests taking into account correlations that arise for *any* reason (not just a common control group). We use this approach to adjust for both multiple treatment groups and multiple outcomes. For the exploratory analyses described below, we also adjust for multiple subgroups.

5. Weights

Accounting for nonresponse and random assignment probabilities in our benchmark models required the use of weights with two components. The overall weight used in the analysis is the product of these two components.[73]

The first component involves weighting by the inverse of random assignment probabilities. In districts where the number of schools is evenly divisible by five, every school has an equal chance of being assigned to one of the five experimental conditions (four treatment groups and one control group). However, in districts where the number of schools is not evenly divisible by

[73]In all, eight weights were created. Weights were created for each of the study's four test scores (ETS science comprehension, ETS social studies comprehension, GRADE, and the composite). Weights for each of the four test scores were created in two ways, corresponding to the two types of comparisons being made: (1) the pooled treatment group versus the control group and (2) all pairwise comparisons (both between treatment groups and between each treatment group and the control group).

five, we conducted random assignment such that the probability of being assigned to the control group is higher than the probability of being assigned to any given treatment group.[74] We take into account these assignment probabilities in our analysis so that all five experimental groups are balanced in terms of their representation of school districts.

The second component involves accounting for nonresponse to adjust for differences in baseline characteristics of students who do and do not have a follow-up test (as described above in Section 3). For each follow-up test score, we estimated a propensity regression model where the outcome is a binary variable that equals one if a student has a follow-up test score and zero otherwise. We calculated the expected probability of having a follow-up test score for every student using baseline data.[75,76] We then created a weight that is inversely proportional to the probability of having a follow-up test score, meaning that students with a lower probability of having a follow-up test score are weighted more heavily in our analysis.

B. BENCHMARK APPROACH TO CALCULATING EXPLORATORY IMPACTS

The exploratory analyses examine how impacts vary by student and teacher characteristics, school conditions, and teacher practices. Each of these analyses is implemented by interacting the treatment dummy variables in equation 1 with subgroup dummy variables. However, the interpretation of these impacts differs depending on whether the subgroup is defined at baseline or could itself be affected by the interventions. Subgroups defined by student characteristics (such as baseline test scores), teacher characteristics (such as years of experience), and school conditions (such as concentration of ELL students in the school) cannot be affected by the intervention. Impacts for these subgroups can be interpreted as causal. Subgroups defined by teacher practices, however, could be affected by the interventions, which complicates interpretation because the treatment and control groups are no longer equivalent within those subgroups. Impacts for these subgroups cannot be interpreted as causal.

The benchmark approach for the exploratory analysis is the same as for the confirmatory analysis in all ways but one. The exploratory analysis uses the same approach for regression

[74]If all schools in the control group within a district left the study, we would lose the ability to calculate any impacts in that district. To reduce the chance of this happening, we chose to assign "extra" schools in a district to the control group.

[75]The baseline data used in the propensity score models included students' demographic characteristics (age, gender, race, ethnicity, whether the student is disabled, and whether the student received any reading services), students' baseline scores on the GRADE and TOSCRF assessments, characteristics of each student's teacher (degree and experience), and characteristics of each student's school (percentage of students eligible for free or reduced-price lunch and percentage of students classified as English language learners). Only those characteristics that were statistically significant were kept in the final model for each of the eight weights.

[76]Because of the extent to which baseline test scores are associated with nonresponse (see Table G.6), separate nonresponse models were estimated for students *without* baseline test score data. Because of the small number of students that fell into this category, a weighting class approach was used to develop nonresponse weights for these students. In this method, students are assigned to cells based on their characteristics and then the respondents in each cell are essentially weighted up to represent the nonrespondents in that cell. The same set of characteristics listed above (with the exception of baseline test scores) was used in this approach.

adjustment, clustering, missing data, and weights. The only difference in the benchmark approach between the exploratory analysis and the confirmatory analysis is how we deal with multiple comparisons. For the exploratory analysis, we do not adjust for multiple comparisons across all subgroups. We adjust only for multiple comparisons within each subgroup analysis. For each subgroup analysis, we calculate 12 impacts (four interventions times three outcomes) for each of two subgroups (for example, low and high achievers) and the difference in those 12 impacts between the two subgroups for a total of 36 comparisons. We adjust for those comparisons using the same adjustment based on the multivariate t-distribution described above.

APPENDIX H

ASSESSING ROBUSTNESS OF THE IMPACTS

This appendix describes the robustness of our impacts to variations in the benchmark model described in Appendix G and to additional issues that might influence our findings.

A. ROBUSTNESS OF THE BENCHMARK APPROACH

The benchmark approach reflects the methodological choices we made to calculate impacts. While we think these are the best methodological choices for this study, there are valid alternatives to many of these choices that could potentially alter our findings. In this section we assess the sensitivity of our findings to variations in our benchmark model. Specifically, we assess sensitivity to (1) the inclusion of covariates, (2) the approach to adjusting for clustering, (3) the use of nonresponse weights, and (4) the approach used to adjust for multiple comparisons.

1. Regression Adjustment

Without covariate adjustment, the statistically significant negative impacts reported in Chapter III are no longer statistically significant but are still negative (Table H.1). The loss of statistical significance is not surprising, given that regression adjustment for baseline covariates dramatically increased the precision of the impact estimates on this study (see Appendix G for details). However, unbiased impacts can be calculated without any covariate adjustment at all.

2. Clustering

Our findings are not sensitive to the method used to account for clustering. In the benchmark model, we accounted for clustering of students within schools when calculating standard errors using the SUDAAN computer program, which accounts for clustering using Taylor series linearization. An alternative approach, as described further in Appendix G, is to account for clustering using mixed effects modeling.

A comparison of the estimates generated by SUDAAN and HLM shows little difference (Table H.2). We find that the impacts and standard errors using these two approaches are very similar. Therefore, our findings would not have been substantively different if we had used HLM instead of SUDAAN.

3. Nonresponse Weights

The magnitude and statistical significance of our findings are not sensitive to the use of nonresponse weights (Table H.1). As described in Appendix G, we see no systematic differences in the characteristics of students with valid follow-up test scores between the control and treatment groups, but we do see an overall difference in the characteristics of students with and without follow-up test scores (those without follow-up test scores appear more disadvantaged). The lack of sensitivity to the use of nonresponse weights implies that (1) impacts are not substantially different for disadvantaged students and (2) estimated impacts would not have been different had we not used nonresponse weights.

TABLE H.1

SENSITIVITY OF IMPACT ESTIMATES TO ALTERNATIVE SPECIFICATIONS

	Difference in Spring Test Scores Between Each of the Following and the Control Group:				
	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]					
Benchmark model[b]					
Impact	-0.02	-0.05	-0.07	-0.12*	-0.07*
Effect Size	-0.02	-0.06	-0.08	-0.14	-0.08
p-value	0.98	0.69	0.45	0.02	0.01
Model with no covariates					
Impact	-0.05	-0.04	-0.15	-0.08	-0.08
Effect Size	-0.06	-0.04	-0.16	-0.08	-0.09
p-value	0.89	0.94	0.16	0.65	0.06
Model with weights that adjust for random assignment probability but *not* nonresponse					
Impact	-0.02	-0.05	-0.07	-0.12*	-0.07*
Effect Size	-0.02	-0.06	-0.08	-0.14	-0.08
p-value	0.98	0.69	0.45	0.02	0.01
Alternative approaches to adjusting *p-values* for multiple comparisons					
Bonferroni adjusted *p-value*	1.00	1.00	0.63	0.02	0.01
Benjamini-Hochberg adjusted *p-value*	0.64	0.37	0.31	0.02	0.01
GRADE Score					
Benchmark model[b]					
Impact	-0.57	-0.98	-0.89	-1.56	-1.12*
Effect Size	-0.04	-0.07	-0.06	-0.11	-0.08
p-value	0.99	0.85	0.80	0.12	0.02
Model with no covariates					
Impact	-0.77	-0.75	-1.79	-0.64	-1.05
Effect Size	-0.06	-0.05	-0.13	-0.05	-0.08
p-value	1.00	1.00	0.73	1.00	0.33
Model with weights that adjust for random assignment probability but *not* nonresponse					
Impact	-0.57	-0.98	-0.89	-1.56	-1.12*
Effect Size	-0.04	-0.07	-0.06	-0.11	-0.08
p-value	0.98	0.79	0.74	0.11	0.02
Alternative approaches to adjusting *p-values* for multiple comparisons					
Bonferroni adjusted *p-value*	1.00	1.00	1.00	0.14	0.02
Benjamini-Hochberg adjusted *p-value*	0.62	0.42	0.42	0.07	0.02
Social Studies Reading Comprehension Assessment Score					
Benchmark model[b]					
Impact	-0.89	-0.51	-1.86	-2.24	-1.44
Effect Size	-0.03	-0.02	-0.06	-0.08	-0.05
p-value	1.00	1.00	0.96	0.79	0.49

Table H.1 *(continued)*

	Difference in Spring Test Scores Between Each of the Following and the Control Group:				
	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Model with no covariates					
Impact	-2.78	-0.67	-4.65	-2.22	-2.39
Effect Size	-0.09	-0.02	-0.16	-0.07	-0.08
p-value	0.98	1.00	0.34	0.95	0.29
Model with weights that adjust for random assignment probability but *not* nonresponse					
Impact	-0.89	-0.51	-1.86	-2.24	-1.44
Effect Size	-0.03	-0.02	-0.06	-0.08	-0.05
p-value	1.00	1.00	0.94	0.73	0.44
Alternative approaches to adjusting *p-values* for multiple comparisons					
Bonferroni adjusted *p-value*	1.00	1.00	1.00	1.00	0.61
Benjamini-Hochberg adjusted *p-value*	0.75	0.77	0.57	0.42	0.20
Science Reading Comprehension Assessment Score					
Benchmark model[b]					
Impact	0.66	-0.96	-1.38	-5.78*	-2.32
Effect Size	0.02	-0.03	-0.05	-0.21	-0.08
p-value	1.00	1.00	1.00	0.02	0.20
Model with no covariates					
Impact	-1.64	-0.75	-4.61	-4.00	-2.68
Effect Size	-0.06	-0.03	-0.17	-0.14	-0.10
p-value	1.00	1.00	0.36	0.56	0.16
Model with weights that adjust for random assignment probability but *not* nonresponse					
Impact	0.66	-0.96	-1.38	-5.78*	-2.32
Effect Size	0.02	-0.03	-0.05	-0.21	-0.08
p-value	1.00	1.00	1.00	0.02	0.17
Alternative approaches to adjusting *p-values* for multiple comparisons					
Bonferroni adjusted *p-value*	1.00	1.00	1.00	0.02	0.21
Benjamini-Hochberg adjusted *p-value*	0.75	0.72	0.72	0.02	0.11

Source: Reading comprehension tests administered by study team.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]The "benchmark" model includes weights that adjust for nonresponse and random assignment probability and the following covariates: baseline GRADE score, baseline TOSCRF score, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

*Statistically different at the .05 level.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TABLE H.2

COMPARISON OF BENCHMARK AND HLM MODELS

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]						
Benchmark						
Impact	0.02	-0.02	-0.05	-0.07	-0.12	-0.07
Std. Error		(0.05)	(0.05)	(0.05)	(0.04)	(0.03)
HLM						
Impact		-0.03	-0.05	-0.08	-0.12	-0.07
Std. Error		(0.05)	(0.05)	(0.05)	(0.05)	(0.03)
GRADE Score						
Benchmark						
Impact	100.81	-0.57	-0.98	-0.88	-1.55	-1.12
Std. Error		(0.62)	(0.72)	(0.61)	(0.60)	(0.40)
HLM						
Impact		-0.65	-0.98	-0.92	-1.54	-1.11
Std. Error		(0.71)	(0.68)	(0.70)	(0.68)	(0.39)
Social Studies Reading Comprehension Assessment Score						
Benchmark						
Impact	501.67	-0.89	-0.50	-1.86	-2.24	-1.44
Std. Error		(2.23)	(1.70)	(1.72)	(1.52)	(1.12)
HLM						
Impact		-0.85	-0.66	-2.29	-2.41	-1.57
Std. Error		(1.97)	(1.87)	(1.96)	(1.91)	(1.11)
Science Reading Comprehension Assessment Score						
Benchmark						
Impact	501.51	0.66	-0.96	-1.38	-5.78	-2.31
Std. Error		(1.48)	(1.53)	(2.25)	(1.79)	(1.26)
HLM						
Impact		0.71	-1.03	-1.42	-5.70	-2.32
Std. Error		(1.80)	(1.72)	(1.80)	(1.75)	(1.18)
Number of Schools[b]	**21**	**17**	**17**	**16**	**18**	**68**
Number of Students[b]	**1,368**	**1,316**	**1,248**	**1,227**	**1,191**	**4,982**

Source: Reading comprehension tests administered by study team.

Note: For each outcome, the number reported in the column labeled "Control Group Mean" is the actual average outcome for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the impact and (2) the standard error of the impact. The social studies and science reading comprehension assessments were developed by ETS. Regression-adjusted impacts were calculated taking into account the clustering of students within schools. Variables in this model include baseline GRADE score, baseline TOSCRF score, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

Table H.2 *(continued)*

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]The numbers in these rows refer to the schools and students participating in the study. The proportion of students in each experimental condition with follow-up test scores is reported in Appendix Table G.2.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

4. Multiple Comparisons

The statistical significance of our findings is not sensitive to the technique used to adjust for multiple comparisons (Table H.1). We used two alternative approaches, one that is more conservative and one that is less conservative than our benchmark approach. The statistically significant negative impacts reported in Chapter III are still statistically significant even when using the more conservative Bonferroni adjustment. When using the less conservative Benjamini-Hochberg procedure, we do not see any newly statistically significant findings.

B. SENSITIVITY TO ADDITIONAL ISSUES

After completing our descriptive and impact analyses, we identified several additional issues to investigate through sensitivity analysis. Below we list these issues and the results of our sensitivity analyses.

Adding Teacher Age and Teacher Experience as Covariates

Adding teacher age and teacher experience as covariates did not change our findings (not shown in table). Teacher age and experience are not included as covariates in our benchmark model because they do not explain enough variation in follow-up test scores to increase the precision of our impact estimates. However, because we observed a statistically significant difference in teacher age between the treatment and control groups at baseline, we investigated whether adding these two covariates to our impact regressions for the full sample of students would change our findings. The statistically significant negative impacts remained negative and statistically significant, and no finding that previously was insignificant became statistically significant.

Estimating Impacts with Raw Test Scores

Using raw test scores instead of standardized scores reduces the statistical significance of some impacts (not shown in table). Calculating impacts on the raw GRADE score instead of the standardized score has no effect on statistical significance because the standardized GRADE score is just a linear transformation of the raw score. However, the ETS standardized scores are nonlinear transformations of the raw score. When calculating impacts on the raw ETS scores, we find that the p-value for the impact of Reading for Knowledge on the science comprehension score increases from 0.02 to 0.11 and that the magnitude of the point estimate falls to -0.17 standard deviations from -0.21 standard deviations. Reading for Knowledge still has a statistically significant, negative impact on the composite test score (the p-value rises from 0.02 to 0.04).

District-Specific Effects

We assessed the sensitivity of the negative effect of Reading for Knowledge on the ETS science comprehension test to individual school districts by recalculating the overall impact after dropping each district. That is, we calculated 10 impacts, each time dropping one of the 10 districts so that each impact included 9 districts. We found that the negative impact of Reading for Knowledge lost statistical significance after dropping the district with the most students in the study, but was otherwise robust to dropping individual districts from the analysis. Because we would expect to lose statistical precision when dropping a large number of students from the study, we do not believe this undermines the overall finding that Reading for Knowledge had a negative impact on the ETS science comprehension test score.

Students with Only Baseline and Follow-up Tests

Restricting the analysis sample to only students with both baseline and follow-up tests reduces the statistical significance of some findings. This is not surprising, as this restriction reduces the student sample size by nearly 20 percent, which limits the study's power to detect impacts. With this restriction, the negative impact of Reading for Knowledge is no longer statistically significant (although the sign is still negative). However, the negative effect of the combined treatment group remains statistically significant, and this negative impact is clearly driven by Reading for Knowledge (Table H.3).

Imputing Missing Outcomes for English Language Learners

Some students were deemed ineligible for testing by field staff because of low English proficiency. If an intervention were to affect students' eligibility for testing by improving their English ability, impacts could be biased. Across all five arms of the study, we found only 32 students who were deemed ineligible at followup because of this issue. To assess whether these students might be driving our impacts, we imputed their test scores to the lowest scores observed in the data. This imputation did not change the sign, magnitude, or statistical significance of any finding (not shown in table).

Interacting Treatment Status with Continuous Measures of Prior Achievement

The use of continuous subgroup indicators changed one of the two achievement subgroup findings. Our benchmark subgroup analyses compared impacts for students with above-median prior achievement to impacts for students with below-median prior achievement. (As described in Chapter III and in the next section, we also estimated several other variations based on different cutoffs to form the subgroups.) As an additional sensitivity test, we also estimated a model in which a continuous measure of prior achievement was interacted with treatment indicator variables. The results of this analysis are shown in Tables H.4 and H.5.

TABLE H.3

DIFFERENCES IN SPRING TEST SCORES BETWEEN TREATMENT AND CONTROL GROUPS, FOR STUDENTS WITH BASELINE AND FOLLOW-UP SCORES

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]						
Impact	0.02	-0.02	-0.05	-0.05	-0.10	-0.07*
Effect Size		-0.02	-0.06	-0.06	-0.11	-0.08
p-value		0.97	0.68	0.69	0.10	0.02
Number of Students with at Least One Baseline Score and One Follow-up Score	**1,143**	**1,093**	**1,062**	**1,034**	**1,040**	**4,229**
GRADE Score						
Impact	100.81	-0.50	-0.97	-0.66	-1.25	-1.01*
Effect Size		-0.04	-0.07	-0.05	-0.09	-0.07
p-value		1.00	0.86	0.98	0.39	0.04
Number of Students with Baseline and Follow-up GRADE Scores	**1,141**	**1,091**	**1,058**	**1,025**	**1,034**	**4,208**
Social Studies Reading Comprehension Assessment Score						
Impact	501.67	-1.38	-0.47	-1.29	-2.05	-1.44
Effect Size		-0.05	-0.02	-0.04	-0.07	-0.05
p-value		1.00	1.00	1.00	0.90	0.46
Number of Students with at Least One Baseline Score and a Social Studies Reading Comprehension Assessment Score[b]	**554**	**544**	**516**	**507**	**526**	**2,093**
Science Reading Comprehension Assessment Score						
Impact	501.51	0.55	-1.08	-1.15	-4.96	-2.15
Effect Size		0.02	-0.04	-0.04	-0.18	-0.08
p-value		1.00	1.00	1.00	0.11	0.26
Number of Students with at Least One Baseline Score and a Science Reading Comprehension Assessment Score[b]	**568**	**530**	**535**	**512**	**492**	**2,069**
Number of Schools[c]	**21**	**17**	**17**	**16**	**18**	**68**
Number of Students[c]	**1,368**	**1,316**	**1,248**	**1,227**	**1,191**	**4,982**

Source: Reading comprehension tests administered by study team.

Table H.3 *(continued)*

Note: For each outcome, the number reported in the column labeled "Control Group Mean" is the actual average outcome for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the impact, (2) the effect size, and (3) the *p-value* of the impact. The social studies and science reading comprehension assessments were developed by ETS. Regression-adjusted impacts were calculated taking into account the clustering of students within schools. Variables in this model include baseline GRADE score, baseline TOSCRF score, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]These sample sizes are smaller than for the other tests because students were randomly assigned to take either the Social Studies or the Science Reading Comprehension Assessment, and no student took both.

[c]The numbers in these rows refer to the schools and students participating in the study.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE H.4

DIFFERENCES IN SPRING TEST SCORES BETWEEN TREATMENT AND CONTROL GROUPS, INTERACTING TREATMENT STATUS WITH STUDENT BASELINE FLUENCY

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]						
Impact	0.02	-0.02	-0.05	-0.07	-0.12*	-0.07*
Effect Size		-0.02	-0.06	-0.08	-0.14	-0.08
p-value		1.00	0.88	0.69	0.03	0.02
Interaction Between Baseline TOSCRF and Treatment Indicator						
Coefficient		-0.03	-0.02	0.00	-0.00	-0.01
p-value		0.97	0.99	1.00	1.00	0.95
GRADE Score						
Impact	100.81	-0.53	-1.00	-0.88	-1.62	-1.12*
Effect Size		-0.04	-0.07	-0.06	-0.12	-0.08
p-value		1.00	0.96	0.95	0.16	0.04
Interaction Between Baseline TOSCRF and Treatment Indicator						
Coefficient		-0.05	-0.02	-0.00	0.05	0.01
p-value		1.00	1.00	1.00	1.00	1.00
Social Studies Reading Comprehension Assessment Score						
Impact	501.67	-0.90	-0.67	-1.93	-2.17	-1.43
Effect Size		-0.03	-0.02	-0.07	-0.07	-0.05
p-value		1.00	1.00	1.00	0.95	0.74
Interaction Between Baseline TOSCRF and Treatment Indicator						
Coefficient		-0.32	-0.26	-0.17	-0.35	-0.27*
p-value		0.37	0.44	0.98	0.42	0.05
Science Reading Comprehension Assessment Score						
Impact	501.51	0.60	-0.98	-1.33	-5.80	-2.30
Effect Size		0.02	-0.04	-0.05	-0.21	-0.08
p-value		1.00	1.00	1.00	0.05	0.37
Interaction Between Baseline TOSCRF and Treatment Indicator						
Coefficient		0.13	0.09	0.20	0.11	0.12
p-value		1.00	1.00	1.00	1.00	0.95
Number of Schools[b]	**21**	**17**	**17**	**16**	**18**	**68**
Number of Students[b]	**1,368**	**1,316**	**1,248**	**1,227**	**1,191**	**4,982**

Source: Reading comprehension tests administered by study team.

Table H.4 *(continued)*

Note: For each outcome, the number reported in the column labeled "Control Group Mean" is the actual average outcome for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact, (4) the coefficient on the interaction between baseline TOSCRF and the treatment indicator, and (5) the *p-value* of that interaction. The social studies and science reading comprehension assessments were developed by ETS. Regression-adjusted impacts were calculated taking into account the clustering of students within schools. Variables in this model include baseline GRADE score, baseline TOSCRF score, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]The numbers in these rows refer to the schools and students participating in the study.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

TABLE H.5

DIFFERENCES IN SPRING TEST SCORES BETWEEN TREATMENT AND CONTROL GROUPS, INTERACTING TREATMENT STATUS WITH STUDENT BASELINE COMPREHENSION

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Composite Test Score[a]						
Impact	0.02	-0.02	-0.05	-0.06	-0.12*	-0.07*
Effect Size		-0.03	-0.06	-0.07	-0.14	-0.08
p-value		1.00	0.89	0.70	0.04	0.02
Interaction Between Baseline GRADE and Treatment Indicator						
Coefficient		-0.00	-0.00	0.05	-0.01	0.01
p-value		1.00	1.00	0.58	1.00	0.86
GRADE Score						
Impact	100.81	-0.57	-0.99	-0.87	-1.56	-1.12*
Effect Size		-0.04	-0.07	-0.06	-0.11	-0.08
p-value		1.00	0.97	0.95	0.22	0.04
Interaction Between Baseline GRADE and Treatment Indicator						
Coefficient		0.02	0.02	0.04	0.03	0.03
p-value		1.00	1.00	1.00	1.00	0.80
Social Studies Reading Comprehension Assessment Score						
Impact	501.67	-0.94	-0.52	-1.74	-2.17	-1.42
Effect Size		-0.03	-0.02	-0.06	-0.07	-0.05
p-value		1.00	1.00	1.00	0.97	0.75
Interaction Between Baseline GRADE and Treatment Indicator						
Coefficient		-0.07	-0.15	0.07	-0.11	-0.06
p-value		1.00	0.95	1.00	1.00	0.96
Science Reading Comprehension Assessment Score						
Impact	501.51	0.66	-0.94	-1.28	-5.70*	-2.32
Effect Size		0.02	-0.03	-0.05	-0.21	-0.08
p-value		1.00	1.00	1.00	0.05	0.35
Interaction Between Baseline GRADE and Treatment Indicator						
Coefficient		-0.03	0.07	0.12	-0.11	0.03
p-value		1.00	1.00	1.00	1.00	1.00
Number of Schools[b]	**21**	**17**	**17**	**16**	**18**	**68**
Number of Students[b]	**1,368**	**1,316**	**1,248**	**1,227**	**1,191**	**4,982**

Source: Reading comprehension tests administered by study team.

Table H.5 *(continued)*

Note: For each outcome, the number reported in the column labeled "Control Group Mean" is the actual average outcome for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the impact, (2) the effect size, (3) the *p-value* of the impact, (4) the coefficient on the interaction between baseline TOSCRF and the treatment indicator, and (5) the *p-value* of that interaction. The social studies and science reading comprehension assessments were developed by ETS. Regression-adjusted impacts were calculated taking into account the clustering of students within schools. Variables in this model include baseline GRADE score, baseline TOSCRF score, student ethnicity and race, student English language learner status, school location, teacher race, and district indicators.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]The numbers in these rows refer to the schools and students participating in the study.

*Statistically different at the .05 level.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.

We find one statistically significant interaction: for the combined treatment group, the impact on social studies reading comprehension appears more negative for students with higher baseline fluency. This finding is consistent with the fluency subgroup analysis reported in Chapter III, which also found a negative impact on social studies comprehension for high fluency students. The one finding that differs from what was presented in Chapter III is for subgroups formed by students' baseline comprehension levels. In the benchmark models shown in Chapter III, we found a negative impact for students with comprehension levels in the bottom third of the sample. In the models shown in Table H.5, none of the interactions between the treatment indicator and baseline GRADE scores are statistically significant.

Defining Achievement Subgroups by Tertiles

We assessed the sensitivity of subgroup impacts to the way in which student achievement subgroups were formed. We formed student subgroups by dividing the sample at the median (as was done for other subgroups), by dividing the sample at the *norm sample* average, and by splitting the sample into the bottom, middle, and top third of the prior achievement distribution. For the combined treatment group, we found the following statistically significant findings:

- Comparing students above and below the sample median on the baseline fluency assessment, we found a statistically significant, negative effect on social studies comprehension scores for students that scored above the median at baseline (effect size: -0.14, see Table III.7).
- Comparing students above and below the *norm sample average* on the baseline fluency assessment, we found a statistically significant, negative effect on social studies comprehension scores for above-average students (effect size: -0.23, see Table III.6).
- Comparing the top and the middle thirds of the sample on the baseline fluency assessment, we found a statistically significant, negative effect on social studies comprehension scores for students with baseline fluency in the top third of the distribution (effect size: -0.15, see Table III.10).[77]
- Comparing the top and bottom (and middle and bottom) thirds of the sample on the baseline comprehension assessment, we found a statistically significant, negative effect across treatments on composite test scores and GRADE scores of students with baseline comprehension in the bottom third of the sample (effect sizes: -0.14, -0.15, -0.09, and -0.08, see Tables III.13 and III.14).[78]

[77]When we compare the *bottom* and top third of the sample in terms of students' baseline fluency levels, the combined treatment effect on the social studies comprehension scores of students in the top third is negative, but it is no longer statistically significant (p-value: 0.33, Table III.8).

[78]A similar pattern was found in the models split at the sample median and national norm sample average, although those findings were not statistically significant (Tables III.11 and III.12, p-values: 0.13, 0.15, 0.13, and 0.15).

Impacts for Novice Teachers

Teacher experience subgroup results were sensitive to the subgroup cutoff used. We assessed the sensitivity of impacts to the way in which we defined the teacher experience subgroups. In one approach, we used 10 years of experience (the study's median) as the cutoff. In the other, we compared the effects of the interventions on test scores for students taught by teachers with less than five years of experience and students taught by teachers with five or more years of experience. In the analyses based on the 10-year cutoff, we found a negative effect of Reading for Knowledge on science comprehension scores for teachers with more than 10 years of experience (effect size: -0.36, see Table III.17). In the analyses based on the five-year cutoff, we found—for the combined treatment group—a negative impact on the composite scores of students taught by teachers with more than five years of experience (effect size: -0.09, Table III.18).

Sensitivity of Teacher Practice Scales

We assessed the sensitivity of the benchmark approach to the way in which we constructed the teacher practice scales. As noted in Chapter II, the benchmark approach to forming teacher practice scales used *averages* of behavior tallies across classroom observation intervals for each teacher and item. As a sensitivity test, we also constructed the scales using the same items for each of the scales, but using *sums* of behavior tallies across intervals. Findings based on sums (shown in Table H.6) were similar to those based on averages (shown in Table II.13), with statistically significant, negative effects observed for Project CRISS and the combined treatment group on the Traditional Interaction scale (effect sizes: -0.70 and -0.51).

As an additional sensitivity test, we considered a different set of teacher instructional practices scales. These scales were constructed by grouping all items pertaining to teaching comprehension to create a Teaching Comprehension scale, and all items regarding teaching vocabulary to create a Teaching Vocabulary scale. These scales were also created in two ways: using sums and using averages of tallies from the classroom observations.

On the Teaching Comprehension scale, there were no statistically significant differences between treatment and control group teachers' scores (Table H.7). We found statistically significant differences on the Teaching Vocabulary scale, which showed that teachers in the treatment group were less likely to engage in vocabulary-related teaching practices (Table H.7, effect sizes: -0.50, -0.55, -0.59, -0.72, -0.89). This pattern of findings is consistent with the pattern observed for the Traditional Interaction and Reading Strategy Guidance scales shown in Chapter II. In particular, there were no statistically significant impacts on the Reading Strategy Guidance scale, which is focused on comprehension practices, and there were statistically significant, negative impacts on the Traditional Interaction scale, which—based on an examination of impacts on individual items that are part of that scale—appeared to be driven by differences in vocabulary-related teaching practices.

TABLE H.6

DIFFERENCE IN SPRING CLASSROOM PRACTICES BETWEEN TREATMENT AND CONTROL GROUP TEACHERS, FOR SCALES BASED ON SUMS OF TALLIES ACROSS OBSERVATION INTERVALS

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Traditional Interaction Scale						
Impact	502.83	-5.08*	-3.78	-3.75	-2.46	-3.70*
Effect size		-0.70	-0.52	-0.52	-0.34	-0.51
p-value		0.02	0.40	0.07	0.52	0.01
Reading Strategy Guidance Scale						
Impact	498.24	0.20	1.53	1.24	1.20	1.09
Effect size		0.03	0.20	0.16	0.16	0.14
p-value		1.00	0.99	0.99	1.00	0.84
Classroom Management Scale						
Impact	502.54	0.30	-9.36	-5.87	30.61	4.23
Effect size		0.00	-0.07	-0.05	0.24	0.03
p-value		1.00	1.00	1.00	0.90	1.00
Number of Teachers	**59**	**52**	**50**	**54**	**53**	**209**

Source: Classroom Observations.

Note: The scales presented in this table were constructed to capture the frequency of the behaviors in each instructional practice domain shown above, using sums of tallies across observation intervals for each teacher and item. For each scale, the number reported in the column labeled "Control Group Mean" is the actual average value of the scale for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the impact (difference in means between treatment and control group), (2) the effect size, and (3) the *p-value* of the impact. Regression adjusted impacts were calculated taking into account the clustering of teachers within schools. The *p-values* presented in this table were computed taking into account the presence of four treatment groups and are adjusted for estimating impacts on three scales. Variables in this model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators. Smaller scale values represent lower levels of behaviors in the instructional practice domain, while larger values represent higher values of the behaviors.

*Statistically different at the .05 level.

TABLE H.7

DIFFERENCES IN SPRING CLASSROOM PRACTICES BETWEEN TREATMENT AND CONTROL GROUP TEACHERS, FOR TEACHING COMPREHENSION AND TEACHING VOCABULARY SCALES

		Difference Between Each of the Following and the Control Group:				
	Control Group Mean	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Teaching Comprehension Scale, Based on Averages of Tallies						
Impact	500.11	-0.73	-1.04	-0.03	-0.33	-0.56
Effect Size		-0.20	-0.28	-0.01	-0.09	-0.15
p-value		0.70	0.27	1.00	1.00	0.45
Teaching Comprehension Scale, Based on Sums of Tallies						
Impact	501.01	-1.94	-1.32	-0.41	-0.77	-1.10
Effect Size		-0.34	-0.23	-0.07	-0.13	-0.19
p-value		0.69	0.95	1.00	1.00	0.60
Teaching Vocabulary Scale, Based on Averages of Tallies						
Impact	503.42	-6.83*	-4.53	-4.53	-3.30	-4.70*
Effect Size		-0.72	-0.48	-0.48	-0.35	-0.50
p-value		0.01	0.38	0.12	0.60	0.01
Teaching Vocabulary Scale, Based On Sums Of Tallies						
Impact	504.57	-8.34*	-5.02	-5.50*	-2.29	-5.11*
Effect Size		-0.89	-0.54	-0.59	-0.24	-0.55
p-value		0.00	0.38	0.02	0.93	0.01
Number of Teachers	**59**	**52**	**50**	**54**	**53**	**209**

Source: Classroom Observations.

Note: The scales presented in this table were constructed to capture the frequency of the behaviors in each instructional practice domain shown above. For each scale, the number reported in the column labeled "Control Group Mean" is the actual average value of the scale for the control group, not a regression-adjusted mean. The numbers reported in the remaining columns are, by row, (1) the impact (difference in means between treatment and control group), (2) the effect size, and (3) the *p-value* of the impact. Regression adjusted impacts were calculated taking into account the clustering of teachers within schools. The *p-values* presented in this table were computed taking into account the presence of four treatment groups and are adjusted for estimating impacts on four scales. Variables in this model include Baseline GRADE Score, Baseline TOSCRF Score, student ethnicity and race, student Limited English Proficiency (LEP) status, school location, teacher ethnicity and race, and district indicators. Smaller scale values represent lower levels of behaviors in the instructional practice domain, while larger values represent higher values of the behaviors.

*Statistically different at the .05 level.

APPENDIX I

KEY DESCRIPTIVE STATISTICS FOR CLASSROOM OBSERVATION AND FIDELITY DATA

TABLE I.1

DESCRIPTIVE STATISTICS FOR EXPOSITORY READING COMPREHENSION CLASSROOM OBSERVATION INSTRUMENT ITEMS, BASED ON THE AVERAGE NUMBER OF TIMES EACH PRACTICE WAS OBSERVED DURING THE 10-MINUTE OBSERVATION INTERVALS

	Mean	Standard Deviation	Reliability, All Observation Pairs	Reliability, Excluding Observation Pairs with Zero Tallies
Part I, Comprehension				
Activates prior knowledge and/or previews text before reading				
Teacher models	0.01	0.04	.949	.925
Teacher explains, reviews, provides examples and elaborations	0.57	0.59	.937	.896
Students practice	1.01	1.09	.982	.963
Explicit comprehension instruction that teaches students about text structure				
Teacher models	0.00	0.02	1.00[a]	n.a.[b]
Teacher explains, reviews, provides examples and elaborations	0.24	0.43	.974	.964
Students practice	0.38	0.78	.978	.967
Explicit comprehension instruction that teaches students how to use comprehension strategies				
Teacher models	0.02	0.06	.021	.973
Teacher explains, reviews, provides examples and elaborations	1.17	1.43	.978	.970
Students practice	1.70	1.79	.981	.974
Explicit comprehension instruction that teaches students how to generate questions				
Teacher models	0.00	0.02	.798	1.00
Teacher explains, reviews, provides examples and elaborations	0.25	0.36	.790	.677
Students practice	0.43	0.56	.916	.893
Explicit comprehension instruction that teaches text features to interpret text				
Teacher models	0.00	0.02	.778	1.00
Teacher explains, reviews, provides examples and elaborations	0.20	0.30	.943	.914
Students practice	0.25	0.38	.870	.806
Teacher asks students to justify their responses	0.24	0.32	.656	.504
Teacher asks questions based on material in the text that are beyond the literal level	0.96	1.07	.941	.922
Teacher elaborates, clarifies, or links concepts during and after text reading	1.26	1.20	.941	.929
Part I, Vocabulary				
Teacher provides an explanation and/or a definition or asks a student to read a definition	0.67	0.60	.905	.879
Teacher provides examples, contrasting examples, multiple meanings, immediate elaborations to students' responses	0.85	0.81	.971	.961
Teacher uses visuals/pictures, gestures related to word meaning, facial expressions, or demonstrations to discuss/demonstrate word meanings	0.23	0.46	.922	.881
Teacher teaches word learning strategies using context clues, word parts, root meaning	0.10	0.21	.970	.969
Students do or are asked to do something that requires knowledge of words	1.34	1.22	.967	.963
Students are given an opportunity to apply word learning strategies using context clues, word parts, and root meaning	0.12	0.33	.938	.918
Part I, Grouping Arrangements and Text Reading				
Teacher is working with:				
Whole class (≥75% of class)	0.82	0.23	.924	n.a.
Large group (> 6 students, < 75% of class)	0.03	0.11	.962	n.a.
Small groups (3-6 students)	0.20	0.25	.919	n.a.
Pairs	0.10	0.18	.852	n.a.
An individual	0.05	0.10	.924	n.a.
No direct student contact	0.02	0.06	.528	n.a.

Table I.1 *(continued)*

	Mean	Standard Deviation	Reliability, All Observation Pairs	Reliability, Excluding Observation Pairs with Zero Tallies
Text Reading (applies to reading connected text)				
Supported oral reading (includes choral and round robin reading)	0.36	0.32	.908	n.a.
Independent silent reading	0.28	0.29	.956	n.a.
Independent or buddy oral reading	0.33	0.32	.929	n.a.
Teacher reads aloud	0.16	0.23	.737	n.a.
Teacher reads aloud with students following along silently	0.15	0.22	.865	n.a.
Text not present	0.05	0.13	.814	n.a.
Text present but not being read	0.23	0.23	.788	n.a.
Part II, Overall Effectiveness of Instruction				
Gave inaccurate and/or confusing explanations or feedback	0.04	0.17	.334	n.a.
Missed opportunity to correct or address error	0.06	0.22	1.00	n.a.
Provided opportunities for most students to participate actively during teacher-led instruction	0.86	0.32	.844	n.a.
Paced instruction so that the length of the comprehension or vocabulary activities was appropriate for this age group	0.89	0.28	.813	n.a.
Taught using outlining and/or note taking	0.31	0.41	.797	n.a.
Used graphic organizers	0.30	0.41	.888	n.a.
Kept students thinking for two or more seconds before calling on a student to respond to a complex question	0.61	0.46	.711	n.a.
Gave independent/pairs/small-group practice in answering comprehension questions or applying comprehension strategy(ies) with expected written product	0.56	0.45	.769	n.a.
Used writing activities in response to reading (does not include fill-in-the-blank or one-word answers)	0.40	0.45	.874	n.a.
Part II, Overall Management/Responsiveness to Students				
Teacher maximized the amount of time available for instruction	3.25	0.83	.861	n.a.
Teacher managed student behavior effectively in order to avoid disruptions and provide productive learning environments	3.41	0.77	.863	n.a.
Teacher redirected discussion if a student response was leading the group off topic/focus	3.31	0.77	.602	n.a.
Part II, Overall Student Engagement During Observation				
Student engagement during the first half of the observation session	2.65	0.54	.842	n.a.
Student engagement during the remainder of the observation session	2.59	0.59	.873	n.a.

Source: Classroom observations.

Note: Reliability was calculated using Pearson correlation coefficients. The first reliability column includes all nonmissing paired observations, while the second column removes from the calculations observer pairs that reported zero tallies on that specific item (note that the second reliability column is relevant only for the vocabulary and comprehension sections of Part I where observers recorded tallies of the number of times teachers engaged in each behavior so n.a. (not applicable) is shown for all of the other items). For Part I vocabulary and comprehension items, the means, standard deviations, and reliability estimates shown are for the average of the classroom tallies across all the observed 10-minute intervals (up to 10 intervals per teacher).

[a]This reliability estimate of 1.0 seems to be inconsistent with the reported standard deviation, which is greater than zero. This occurs because only a *subset* of observations can be used for the reliability estimates, while the full set of observations are used in calculating the means and standard deviations. For this item, all of the observations used for the reliability calculations had zero tallies, which corresponds to a reliability estimate equal to 1.0.

[b]Inter-rater reliability could not be calculated as there were no remaining observer pairs after dropping the pairs with zero tallies.

n.a. = not applicable.

TABLE I.2

DESCRIPTIVE STATISTICS FOR PROJECT CRISS FIDELITY OBSERVATION ITEMS

	Percentage	Standard Deviation
Teachers observed to have done the following during the time when their classes were observed:[a]		
Provide instruction or lead activities to generate background knowledge about a topic or concept before students read about it	64.81	48.20
Help students set goals and determine a purpose before beginning to read	61.11	49.21
Have students read a written text	81.48	39.21
Lead students during and/or after reading in transforming information activities (e.g. graphic organizer, guided discussion)	79.63	40.65
Include informal or formal writing in the transforming activities (including note-taking)	74.07	44.23
Use the transforming activities to teach the content of the lesson	74.07	44.23
Discuss or reflect on students' metacognitive processes during the transforming activities	44.44	50.16
Lead the whole class in a reflection discussion at the end of the lesson using questions such as:	—[b]	—[b]
A. Metacognition: How did you evaluate your comprehension?		
B. Background knowledge: Did I assist you in thinking about what you already knew?		
C. Purpose setting: Did you have clear purposes?		
D. Active involvement: How were you actively engaged?		
E. Discussion: How did discussion clarify your thinking?		
F. Writing: How did you use writing to help you learn?		
G. Transformation: What were the different ways you transformed information? How did this help you?		
H. Teacher modeling: Did I do enough modeling?		
Number of Teachers	**54**	

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. The percentage of teachers who reported using Project CRISS is 90.74 percent. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

[b]Value suppressed to protect teacher confidentiality.

TABLE I.3

DESCRIPTIVE STATISTICS FOR READ FOR REAL FIDELITY OBSERVATION ITEMS

	Learn Observation Days		Practice Observation Days	
	Percentage	Standard Deviation	Percentage	Standard Deviation
Teachers observed to have done the following during the time when their classes were observed:[a]				
Before Reading				
Reads or asks a student to read the explanation of the Before Reading focus strategy	50.00	51.18	51.42	50.71
Discusses the strategy with students	40.91	50.32	51.42	50.71
Reads or asks a student to read the information in the My Thinking box	50.00	51.18	n.a.	n.a.
Asks students to apply the strategy	40.91	50.32	54.29	50.54
Discusses students' comments	n.a.	n.a.	45.71	50.54
During Reading				
Reads or asks a student to read the explanation of the During Reading focus strategy	54.55	50.96	45.71	50.54
Discusses the strategy with the students	59.09	50.32	n.a.	n.a.
Reads or asks a student to read the information in the My Thinking box (notes from the reading partner)	54.55	50.96	40.00	49.71
Asks students to share their thinking about the strategy	54.55	50.96	n.a.	n.a.
Reminds students to write notes about the strategy	n.a.	n.a.	34.29	48.16
Stops and addresses the My Thinking notes at the "red strategy buttons"	59.09	50.32	65.71	48.16
Reads and/or asks students to read the selection	63.64	49.24	65.71	48.16
After Reading[b]				
Reads or asks a student to read the After Reading focus strategy	31.82	47.67	22.86	42.60
Discusses or asks questions about the strategy	22.73	42.89	20.00	40.58
Reads or asks a student to read the information in the My Thinking box	18.18	39.48	n.a.	n.a.
Gives a written assignment highlighting the After Reading focus strategy	n.a.	n.a.	14.29	35.50
Calls on students to implement the After Reading focus strategy	13.64	35.13	n.a.	n.a.
Comprehension				
Administers the open book comprehension test	—[c]	—[c]	—[c]	—[c]
Corrects tests with the class	—[c]	—[c]	—[c]	—[c]
Discusses responses	—[c]	—[c]	—[c]	—[c]
Organizing Information				
Reads or asks a student to read the information from the reading partner	18.18	39.48	n.a.	n.a.
Discusses the graphic organizer	27.27	45.58	n.a.	n.a.
Asks students to complete graphic organizer	n.a.	n.a.	11.43	32.28
Writing for Comprehension				
Reads or asks a student to read the information from the reading partner	13.64	35.13	n.a.	n.a.
Reads or asks a student to read the summary	18.18	39.48	n.a.	n.a.
Asks students to write a summary based on their completed graphic organizer	n.a.	n.a.	—[c]	16.90
Identifies how the paragraphs and sentences in the summary correspond to the information on the graphic organizer	13.64	35.13	n.a.	n.a.

Table I.3 *(continued)*

	Learn Observation Days		Practice Observation Days	
	Percentage	Standard Deviation	Percentage	Standard Deviation
Discusses the Three Parts of a Summary				
Introduction	18.18	39.48	n.a.	n.a.
Body	18.18	39.48	n.a.	n.a.
Conclusion	18.18	39.48	n.a.	n.a.
Sample Size	**22**		**35**	

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. The percentage of teachers who reported using Read for Real is 80.70 percent. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

[b]The vocabulary and fluency items are not included in the table because developers noted they were not essential for implementation of the Read for Real intervention.

[c]Value suppressed to protect teacher confidentiality.

n.a. = not applicable.

TABLE I.4

DESCRIPTIVE STATISTICS FOR READABOUT FIDELITY OBSERVATION ITEMS

	Percentage	Standard Deviation
Teachers observed to have done the following during the time when their classes were observed:[a]		
Used the ReadAbout materials	79.25	40.94
Computer workstation used	79.25	40.94
Independent workstation used	50.94	49.99
Provided direction instruction (explain and/or model) on the comprehension or vocabulary strategy or skill	73.58	44.51
Provided opportunities for students to apply the comprehension or vocabulary skill (guided practice)	77.36	41.85
Provided students instruction on the selected 6+1 Writing Trait	0.00	0.00
Provided opportunities to apply the 6+1 Writing Trait Model	0.00	0.00
Sample Size	**53**	

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula, however, all teachers are included in these calculations. The percentage of teachers who reported using ReadAbout is 86.79 percent. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

TABLE I.5

DESCRIPTIVE STATISTICS FOR FIDELITY OBSERVATION ITEMS FOR READING FOR KNOWLEDGE DIRECT INSTRUCTION OBSERVATION DAYS

	Percentage	Standard Deviation
Teachers observed to have done the following during the time when their classes were observed:[a]		
Post the reading goal	38.09	50.32
Present the reading goal	57.14	50.32
Present the cooperative learning goal	38.09	50.32
Ask students to review vocabulary or provide practice and instruction (Exception: This is not done on the first day of a new unit.)	—[b]	—[b]
Build background knowledge about the topic of text or about a skill/strategy	66.67	49.24
Explain a skill/strategy or remind students of a skill/strategy recently learned	71.42	47.67
Read the text aloud and (1) think aloud or model a skill/strategy or (2) ask the students to apply a skill/strategy	52.38	51.18
Follow the recommended pacing for the lesson	57.14	50.96
Award cooperation and/or improvement points during lesson	52.38	51.18
Sample Size	**21**	

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. The percentage of teachers who reported using Reading for Knowledge is 83.33 percent. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

[b]Value suppressed to protect teacher confidentiality.

TABLE I.6

DESCRIPTIVE STATISTICS FOR FIDELITY OBSERVATION ITEMS FOR READING FOR KNOWLEDGE COOPERATIVE GROUPS OBSERVATION DAYS

	Percentage	Standard Deviation
Teachers observed to have done the following during the time when their classes were observed:[a]		
Post the reading goal	60.61	49.90
Present the reading goal	87.88	33.60
Present the cooperative learning goal	66.67	48.26
Ask students to review vocabulary or provide practice and instruction (Exception: This is not done on the first day of a new unit.)	54.55	50.40
Use a whole group or partner activity to discuss key points about the day's skill/strategy	81.82	39.66
Provide feedback and prompts to partner pairs during partner reading	81.82	39.66
Chart individual students' progress on the setting goals and charting progress forms during partner reading	27.27	45.68
Review routines for Team Talk discussion	51.52	50.70
Read aloud Team Talk questions	60.61	49.90
Circulate within the classroom and monitor team discussions and provide prompts	78.79	42.00
Ask team members to share with the class their response and reasoning to Team Talk questions	75.76	43.99
Follow the recommended pacing for the lesson	54.55	50.40
Award cooperation and/or improvement points during lesson	60.61	49.19
Sample Size	**33**	

Source: Classroom observations.

[a]Fidelity observations were conducted only for teachers implementing the assigned curricula; however, all teachers are included in these calculations. The percentage of teachers who reported using Reading for Knowledge is 83.33 percent. We assumed that teachers who were not implementing the curricula did not engage in the activities listed in this table.

APPENDIX J

STUDY INSTRUMENTS

OMB No.: 1850-0812
Expiration Date: 03/31/2009

PRELIMINARY SCHOOL INFORMATION FORM
National Evaluation of Reading Comprehension Programs

School_____ District_____ Principal_____

Person completing form_____ Phone number_____

1. How many students are enrolled:
   a. In this school?..... _____ **Total enrollment**
   b. In the fifth grade?..... _____ **Fifth-grade students**

2. How many fifth-grade classes do you have?..... _____ **Fifth-grade classes**

3. What percentage of your school's students are:
   a. Eligible for the federally funded free or reduced-price lunch program? _____ **% of students**
   b. Classified as limited English proficient (LEP)?..... _____ **% of students**

4. How many students enrolled in this school are:
   a. Hispanic or Latino?..... _____ **Students**
   b. Not Hispanic or Latino?..... _____ **Students**

5. How many students enrolled in this school are *(please select one or more categories for each student)*:
   a. American Indian or Alaska Native?..... _____ **Students**
   b. Asian?..... _____ **Students**
   c. Black or African American?..... _____ **Students**
   d. Native Hawaiian or other Pacific Islander?..... _____ **Students**
   e. White?..... _____ **Students**

6. Did your school participate in Reading First in the 2005-2006 school year? ..... 1 ☐ Yes 0 ☐ No

Please complete the other side.

7. What resources does your school use for its fifth-grade reading curriculum? *(Please specify resources for all components of the reading curriculum, including reading comprehension.)*

Core Curriculum	**Name**	**Publisher**
Textbook.....		
Basal reader series.....		
Special program.....		
Supplemental Curriculum	**Name**	**Publisher**
Specify topic (e.g., phonics): _____ _____		
Specify topic (e.g., phonics): _____ _____		

8. Please complete the table below for the most current average reading and math standardized test scores for this school's fourth- and fifth-grade students.

Grade Level	**Test**	**Publisher**	**Month/ Year**	**Reading**		**Math**	
				Standard Score*	**Nat'l Percentile**	**Standard Score***	**Nat'l Percentile**
4th							
4th							
5th							
5th							
*If standard scores are not available, check here if reporting:				1 ☐ Scaled Scores 2 ☐ Raw Scores		1 ☐ Scaled Scores 2 ☐ Raw Scores	

9. Did your school make Adequate Yearly Progress (AYP) in the **2005-2006** school year in the following areas:

   a. Reading/language arts ..... 1 ☐ Yes 0 ☐ No

   b. Mathematics ..... 1 ☐ Yes 0 ☐ No

   c. Attendance rate ..... 1 ☐ Yes 0 ☐ No

10. Did your school make Adequate Yearly Progress (AYP) in the **2004-2005** school year in the following areas:

   a. Reading/language arts ..... 1 ☐ Yes 0 ☐ No

   b. Mathematics ..... 1 ☐ Yes 0 ☐ No

   c. Attendance rate ..... 1 ☐ Yes 0 ☐ No

Please return this form to Mathematica, by faxing it to 202-863-1763, attention Melissa Dugger, or by emailing it to mdugger@mathematica-mpr.com. Thank you very much.

OMB No.: 1850-0812
Expiration Date: 03/31/2009

SCHOOL INFORMATION FORM (2006-2007)
National Evaluation of Reading Comprehension Programs

INSERT SCHOOL LABEL HERE

1. For what grade levels does this school offer instruction? (CHECK ALL THAT APPLY)

1 ☐ Prekindergarten	5 ☐ 3rd grade	9 ☐ 7th grade
2 ☐ Kindergarten	6 ☐ 4th grade	10 ☐ 8th grade
3 ☐ 1st grade	7 ☐ 5th grade	11 ☐ Other (specify):__
4 ☐ 2nd grade	8 ☐ 6th grade	12 ☐ Ungraded *(including ungraded special ed. students)*

2. What was the total number of students enrolled in this school around the first of October 2006?..... _____ **Students enrolled**

3. How many students enrolled in this school are:
   a. Hispanic or Latino?..... _____ **Students**
   b. Not Hispanic or Latino?..... _____ **Students**

4. How many students enrolled in this school are:
   (PLEASE SELECT ONE OR MORE CATEGORIES FOR EACH STUDENT)
   a. American Indian or Alaska Native? ..... _____ **Students**
   b. Asian? ..... _____ **Students**
   c. Black or African American? ..... _____ **Students**
   d. Native Hawaiian or other Pacific Islander?..... _____ **Students**
   e. White?..... _____ **Students**

5. What percentage of students in the 2006-2007 academic year are:
   a. Eligible for the federally funded free or reduced-price lunch program?..... _____ **% of students**
   b. Classified as limited English proficient (LEP)? ..... _____ **% of students**

6. How many <u>fifth-grade students</u> were enrolled in this school around the first of October 2006?..... _____ **Fifth-grade students**

7. How many <u>fifth-grade classes</u> do you have?..... _____ **Fifth-grade classes**

Please complete the other side.

8. What type of school is this? (CHECK ONE)

   1 ☐ Regular

   2 ☐ Special Program Emphasis *(science/math school, talented/gifted school, foreign language immersion school, etc.)*

   3 ☐ Special Education *(primarily serves students with disabilities)*

   4 ☐ Other **(specify):** ___

9. Does this school offer a magnet program?.....1 ☐ Yes 0 ☐ No

10. Is this a charter school? .....1 ☐ Yes 0 ☐ No

11. a. Is this a Title I school? .....1 ☐ Yes 0 ☐ No

    b. *If yes:* Is it schoolwide Title I? .....1 ☐ Yes 0 ☐ No

12. Is your school participating in any comprehensive school reform?

    1 ☐ Yes→ **Please describe:**_____

    _____

    _____

    0 ☐ No

13. Please complete the table below for the most current average **reading** standardized test scores for this school's fourth- and fifth-grade students.

Grade Level	Test	Publisher	Month/ Year	Standard Score	Scale Scores *Please provide ONLY If standard scores are NOT available.*	National Percentile
4th						
4th						
5th						
5th						

14. Please complete the table below for the most current average **math** standardized test scores for this school's fourth- and fifth-grade students.

Grade Level	Test	Publisher	Month/ Year	Standard Score	Scale Scores *Please provide ONLY If standard scores are NOT available.*	National Percentile
4th						
4th						
5th						
5th						

Please return this form to Mathematica Policy Research, Inc., in the postage-paid envelope provided. Thank you very much.

OMB No.: 1850-0812
Expiration Date: 03/31/2009

Student bar-coded label

STUDENT RECORDS FORM (2006-07)
NATIONAL EVALUATION OF READING COMPREHENSION PROGRAMS

1. What is this student's **date of birth**?

   _____/_____/_____
   MONTH DAY YEAR

2. Is this student **male or female**?

   1 ☐ Male 2 ☐ Female

3. What is the student's **ethnicity**?

   1 ☐ Hispanic or Latino
   0 ☐ Not Hispanic or Latino
   9 ☐ Don't know

4. What is this student's **race**?
   (PLEASE SELECT ONE OR MORE)

   1 ☐ American Indian/Alaska Native
   2 ☐ Asian
   3 ☐ Black or African American
   4 ☐ Native Hawaiian or other Pacific Islander
   5 ☐ White
   9 ☐ Don't know

5. How many days was this student **absent** during the 2006-07 school year? (WRITE "0" IF NO ABSENCES)
   a. _____ **Total** days absent in the 2006-07 school year
   b. _____ **Unexcused** days absent in the 2006-07 school year (WRITE "NA" IF NOT AVAILABLE)

6. Is this student… (CHECK ONE IN EACH ROW)

	YES	NO
a. Classified as **limited English proficient (LEP)**?	1 ☐	0 ☐
b. Eligible for the federally funded **free or reduced-price lunch program**?	1 ☐	0 ☐

7. For which of the following **disability categories** has this student been officially identified?
   (CHECK ALL THAT APPLY)

   1 ☐ Autism
   2 ☐ Deaf-blindness
   3 ☐ Developmental delay
   4 ☐ Emotional disturbance
   5 ☐ Hearing impairment
   6 ☐ Learning disability
   7 ☐ Mental retardation
   8 ☐ Orthopedic impairment
   9 ☐ Other health impairment
   10 ☐ Speech or language impairment
   11 ☐ Traumatic brain injury
   12 ☐ Visual impairment
   13 ☐ Other disability (SPECIFY):_____
   14 ☐ None of the above

Please complete the other side.

8. Which of the following **services** does this student receive in reading? (CHECK ALL THAT APPLY)

   1 ☐ Reading support

   2 ☐ Speech/Language support

   3 ☐ English as a Second Language (ESL)/English for Speakers of Other Languages (ESOL), English Language Development (ELD)

   4 ☐ Any other extra support or tutoring (i.e., Title I or other extra help to bring students up to grade-level expectations)

   5 ☐ None of the above

9. In what **grade** was this student enrolled in the 2006-07 school year? _____Grade

10. What was this student's **enrollment status** on the last day of the 2006-07 school year? (CHECK ONE)
    If the student transferred, was expelled, or left for another reason, please fill in the box to the right.

    1 ☐ Enrolled at this school on the last day of the 2006-07 school year

    2 ☐ Transferred to another school

    3 ☐ Expelled

    4 ☐ Other (SPECIFY)_____

    _____....

    → Last day of attendance: _____/_____/_____
    MONTH DAY YEAR

    Name of new school: _____

    New school's address:_____
    CITY STATE

11. Has this student been **promoted** to the next grade for the 2007-08 school year? (CHECK ONE)
    If the student will attend a new school next year, please fill in the box to the right.

    1 ☐ Yes → Promoted to grade: ____

    0 ☐ No

    9 ☐ Don't know

    If attending a new school next year:
    Name of new school: _____

    New school's address:_____
    CITY STATE

Please return this form to Mathematica Policy Research, Inc., in the postage-paid envelope provided or by faxing it to 202-863-1763, attention Melissa Dugger.

Thank you very much.

TEACHER SURVEY (2006-07)

NATIONAL EVALUATION OF READING COMPREHENSION PROGRAMS

U.S. DEPARTMENT OF EDUCATION

ATTACH LABEL HERE
Teacher ID Teacher Name
School ID School Name

IF ABOVE INFORMATION IS INCORRECT,
PLEASE MAKE CORRECTIONS DIRECTLY ON LABEL.

This survey is part of the Evaluation of Reading Comprehension Programs, a national evaluation being conducted for the U.S. Department of Education. The questions ask about the training you received on the reading comprehension program, professional culture at your school, your reflections, and your background. All information you provide will be kept confidential. While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive and accurate. Thank you.

Please return the completed form to: Mathematica Policy Research, Inc. 315 Enterprise Drive Plainsboro, NJ 08536 ATTN: Ms. Season Bedell-Boyle	**If you have questions, please contact:** Ms. Valerie Williams Phone: 888.535.0283 FAX: 202.863.1763 E-mail: VWilliams@mathematica-MPR.com

OMB NO.: 1850-0812
EXPIRATION DATE: 03/31/2009

SECTION I. READING COMPREHENSION PROGRAM TRAINING

This section asks about the training you recently received on the reading comprehension program you are using in your classroom as part of the Evaluation of Reading Comprehension Programs.

1. Thinking about the initial training you received on the reading comprehension program you are using with your class, how would you rate the following?

IN EACH ROW, CHECK ONE BOX ONLY	POOR	FAIR	GOOD	EXCELLENT
a. Trainer's (or trainers') knowledge of reading comprehension instruction for fifth graders	1 ☐	2 ☐	3 ☐	4 ☐
b. Trainer's (or trainers') preparedness	1 ☐	2 ☐	3 ☐	4 ☐
c. Trainer's (or trainers') presentation style	1 ☐	2 ☐	3 ☐	4 ☐
d. Quality of content covered in training	1 ☐	2 ☐	3 ☐	4 ☐
e. Amount of content covered in training	1 ☐	2 ☐	3 ☐	4 ☐
f. Training schedule (i.e., amount of time spent on the various sessions)	1 ☐	2 ☐	3 ☐	4 ☐
g. Materials provided in training	1 ☐	2 ☐	3 ☐	4 ☐

	NOT AT ALL	SOMEWHAT	VERY WELL
2. Overall, how well did the initial training you received prepare you to use the reading comprehension program with your students?	1 ☐	2 ☐	3 ☐

3. What was the first day on which you…

a. Received the initial training _____/_____/2006
MONTH / DAY / YEAR

b. Began using the reading comprehension program in class instruction? _____/_____/2006
MONTH / DAY / YEAR

4. If you have any other comments about the training, please note them below.

SECTION II. PROFESSIONAL CULTURE

This section asks about the professional culture within your school.[1]

5. CONVERSATIONS ABOUT TEACHING

During the past school year, how often have you had conversations with colleagues about…

IN EACH ROW, CHECK ONE BOX ONLY	LESS THAN ONCE A MONTH	2 OR 3 TIMES A MONTH	ONCE OR TWICE A WEEK	DAILY
a. The goals of this school?	1 ☐	2 ☐	3 ☐	4 ☐
b. Development of new curriculum?	1 ☐	2 ☐	3 ☐	4 ☐
c. Managing classroom behavior?	1 ☐	2 ☐	3 ☐	4 ☐
d. What helps students learn best?	1 ☐	2 ☐	3 ☐	4 ☐

6. MY GRADE LEVEL

How much do you disagree or agree with each of the following?

IN EACH ROW, CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. Teachers in this grade level trust each other	1 ☐	2 ☐	3 ☐	4 ☐
b. It's OK in this grade level to discuss feelings, worries, and frustrations with other teachers	1 ☐	2 ☐	3 ☐	4 ☐
c. Teachers respect other teachers who take the lead in grade level improvement efforts	1 ☐	2 ☐	3 ☐	4 ☐
d. Teachers in this grade level respect those colleagues who are expert at their craft	1 ☐	2 ☐	3 ☐	4 ☐

*PLEASE NOTICE **DIFFERENT** RESPONSE CHOICES FOR THE ITEM BELOW.*	NOT AT ALL	A LITTLE	SOME	A GREAT EXTENT
e. To what extent do you feel respected by other teachers in this grade level?	1 ☐	2 ☐	3 ☐	4 ☐

*PLEASE NOTICE **DIFFERENT** RESPONSE CHOICES FOR THE ITEM BELOW.*	NONE	SOME	ABOUT HALF	MOST	NEARLY ALL
f. How many teachers in this grade level really care about each other?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐

[1] Questions 5 through 10 in this section are from The Consortium on Chicago School Research. (1999). "Improving Chicago's Schools: The Teachers' Turn, 1999; Elementary School Teacher Survey, 1999." Chicago, IL. Available at www.consortium-chicago.org.

7. ACCESS TO NEW IDEAS

How often have you…

IN EACH ROW, CHECK ONE BOX ONLY	NEVER	ONCE	TWICE	3 TO 4 TIMES	5 TO 9 TIMES	10 OR MORE TIMES
a. Taken courses at a college or university relative to improving your school?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
b. Participated in a network with other teachers outside your school?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
c. Discussed curriculum and instruction matters with an outside professional group or organization?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
d. Attended professional development activities organized by your school (include meetings that focus on improving your teaching)?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
e. Attended workshops or courses sponsored by your school district (exclude required in-services)?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
f. Attended professional development activities sponsored by the teachers' union?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

8. MY EXPERIENCE OF CHANGE

How much do you disagree or agree with the following?

IN EACH ROW, CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. Most changes introduced at this school involve only a few teachers; rarely does the whole faculty become involved	1 ☐	2 ☐	3 ☐	4 ☐
b. We receive adequate professional development support for the changes we introduce at our school.....	1 ☐	2 ☐	3 ☐	4 ☐
c. Most changes introduced at this school gain little support among teachers.....	1 ☐	2 ☐	3 ☐	4 ☐

9. PROFESSIONAL DEVELOPMENT

How much do you disagree or agree with the following?

Overall, my professional development experiences over the past school year… *IN EACH ROW, CHECK ONE BOX ONLY*	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. …have included opportunities to work productively with teachers from other schools	1 ☐	2 ☐	3 ☐	4 ☐
b. …have included enough time to think carefully about, to try, and to evaluate new ideas	1 ☐	2 ☐	3 ☐	4 ☐
c. …have deepened my understanding of subject matter	1 ☐	2 ☐	3 ☐	4 ☐
d. …have helped me understand my students better	1 ☐	2 ☐	3 ☐	4 ☐
e. …have been sustained and coherently focused, rather than being short term and unrelated	1 ☐	2 ☐	3 ☐	4 ☐
f. …have included opportunities to work productively with colleagues in my school	1 ☐	2 ☐	3 ☐	4 ☐
g. …have led me to make changes in my teaching	1 ☐	2 ☐	3 ☐	4 ☐
h. …have been closely connected to my school's improvement plan	1 ☐	2 ☐	3 ☐	4 ☐

CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
i. Most of what I learn in professional development addresses the needs of the students in my classroom	1 ☐	2 ☐	3 ☐	4 ☐

10. LEADERSHIP AND SUPPORT

How much do you disagree or agree with the following?

IN EACH ROW, CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. The principal at this school is strongly committed to shared decision-making	1 ☐	2 ☐	3 ☐	4 ☐
b. The principal at this school works to create a sense of community in the school	1 ☐	2 ☐	3 ☐	4 ☐
c. The principal at this school promotes parent and community involvement in the school	1 ☐	2 ☐	3 ☐	4 ☐
d. The principal at this school supports and encourages teachers to take risks	1 ☐	2 ☐	3 ☐	4 ☐
e. The principal at this school is willing to make changes	1 ☐	2 ☐	3 ☐	4 ☐
f. Most changes introduced at this school receive strong support from the principal	1 ☐	2 ☐	3 ☐	4 ☐
g. The principal at this school encourages teachers to try new methods of instruction	1 ☐	2 ☐	3 ☐	4 ☐

11. THOUGHTS ABOUT TEACHING READING[2]

How much do you agree or disagree with the following?

IN EACH ROW, CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. I feel I need to make changes in the methods I use to teach children to read and spell	1 ☐	2 ☐	3 ☐	4 ☐
b. I get help from staff members to understand some children's difficulties learning to read	1 ☐	2 ☐	3 ☐	4 ☐
c. I have benefited from opportunities to learn more about methods for teaching reading	1 ☐	2 ☐	3 ☐	4 ☐
d. The children in my class are making satisfactory progress in learning to read	1 ☐	2 ☐	3 ☐	4 ☐
e. I do not have sufficient materials to teach reading effectively	1 ☐	2 ☐	3 ☐	4 ☐
f. I do not understand why some children learn to read easily while other children struggle to learn basic reading skills	1 ☐	2 ☐	3 ☐	4 ☐
g. The literacy coach supports my efforts to teach reading effectively *IF A LITERACY COACH IS NOT AVAILABLE FOR 5TH-GRADE STUDENTS, PLEASE SKIP THIS QUESTION AND CHECK THIS BOX* → ☐ 1	1 ☐	2 ☐	3 ☐	4 ☐
h. I have a good understanding of how children acquire language and literacy skills	1 ☐	2 ☐	3 ☐	4 ☐
i. I wish I had more opportunities to discuss how to teach reading with other teachers	1 ☐	2 ☐	3 ☐	4 ☐
j. I feel I am good at teaching reading and writing	1 ☐	2 ☐	3 ☐	4 ☐
k. The principal of my school supports my efforts to teach reading effectively	1 ☐	2 ☐	3 ☐	4 ☐
l. I would like to learn methods to help children develop their oral language	1 ☐	2 ☐	3 ☐	4 ☐
m. I look for opportunities to learn effective methods to teach reading and writing	1 ☐	2 ☐	3 ☐	4 ☐
n. I could do a better job teaching reading if I had more assistance from aides or volunteers in my class	1 ☐	2 ☐	3 ☐	4 ☐
o. I know how to assess the progress of my students in reading	1 ☐	2 ☐	3 ☐	4 ☐
p. The parents of children in my class support my efforts to teach their children to read	1 ☐	2 ☐	3 ☐	4 ☐
q. The school day is organized to maximize instructional time	1 ☐	2 ☐	3 ☐	4 ☐

[2] Items on this page were borrowed from Joanne Carlisle's "Teacher's QUEST: Self-Administered Questionnaire" (Regents of the University of Michigan: Ann Arbor, MI, 2003), with minor modifications.

SECTION III. TEACHER REFLECTIONS

This section asks for your reflections.[3]

12. TEACHER REFLECTIONS

IN EACH ROW, CHECK ONE BOX ONLY	NOTHING	VERY LITTLE	SOME	QUITE A BIT	A GREAT DEAL
a. How much can you do to control disruptive behavior in the classroom?.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
b. How much can you do to motivate students who show low interest in school work?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
c. How much can you do to get students to believe they can do well in school work?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
d. How much can you do to help your students value learning?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
e. How much can you do to get children to follow classroom rules?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
f. How much can you do to calm a student who is disruptive or noisy?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
g. How much can you use a variety of assessment strategies?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
h. How much can you assist families in helping their children do well in school?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
*PLEASE NOTICE **DIFFERENT** RESPONSE CHOICES FOR THE ITEMS BELOW.*	NOT AT ALL	SMALL EXTENT	MODERATE EXTENT	QUITE A BIT	A GREAT EXTENT
i. To what extent can you craft good questions for your students?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
j. To what extent can you provide an alternative explanation or example when students are confused?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
*PLEASE NOTICE **DIFFERENT** RESPONSE CHOICES FOR THE ITEMS BELOW.*	NOT AT ALL	SLIGHTLY	MODERATELY	QUITE WELL	EXTREMELY WELL
k. How well can you establish a classroom management system with each group of students?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
l. How well can you implement alternative strategies in your classroom?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

[3] Items on this page were borrowed with permission from W.K. Hoy and A.E. Woolfolk's "Teachers' Sense of Efficacy Scale" (Elementary School Journal, 93, 355-372), with minor modifications.

SECTION IV. BACKGROUND

This section asks about your background.

13. **How many years have you taught, either full-time or part-time, at the elementary or secondary level (not counting the current school year)?** *Include years teaching in both public and private schools. Do not include time spent as a student teacher.*

_____TOTAL YEARS TEACHING

14. **How many years have you been teaching in THIS school (not counting the current school year)?** *If you have had a break in service of one year or more, please report the year that you returned to this school. Do not include time spent as a student teacher. Include years spent teaching both full- and part-time at this school.*

_____TOTAL YEARS TEACHING AT THIS SCHOOL

15. **What grade levels have you taught?** *CHECK ALL THAT APPLY*

1 ☐ 1st grade	6 ☐ 6th grade	11 ☐ 11th grade
2 ☐ 2nd grade	7 ☐ 7th grade	12 ☐ 12th grade
3 ☐ 3rd grade	8 ☐ 8th grade	13 ☐ Ungraded
4 ☐ 4th grade	9 ☐ 9th grade	14 ☐ Kindergarten
5 ☐ 5th grade	10 ☐ 10th grade	15 ☐ Prekindergarten

16. **Column A: For each degree below, please check YES or NO to indicate if you hold that degree. Columns B and C: For those degrees you hold, please specify your major field of study and the year you received the degree.**

IN EACH ROW, CHECK ONE BOX IN COLUMN A. IF YOU ANSWER YES IN COLUMN A, COMPLETE COLUMNS B AND C FOR THAT ROW..	A. DEGREE HELD		B. MAJOR	C. YEAR RECEIVED
	YES	NO		
a. Associate's degree	1 ☐	0 ☐	_____	_____
b. Bachelor's degree	1 ☐	0 ☐	_____	_____
c. Master's degree	1 ☐	0 ☐	_____	_____
d. Educational specialist or professional diploma (at least one year beyond a master's degree)	1 ☐	0 ☐	_____	_____
e. Certificate of Advanced Graduate Studies	1 ☐	0 ☐	_____	_____
f. Doctorate (Ph.D., Ed.D.)	1 ☐	0 ☐	_____	_____
g. Professional (M.D., D.D.S., J.D., L.L.B)	1 ☐	0 ☐	_____	_____

17. Which of the following describes the teaching certificate you currently hold in this state? *CHECK ONE ONLY*

1 ☐ Regular or standard state certificate or advanced professional certificate

2 ☐ Probationary certificate (the initial certificate issued after satisfying all requirements except the completion of a probationary period)

3 ☐ Provisional or other type given to persons who are still participating in an "alternative certification program"

4 ☐ Temporary certificate (requires some additional college coursework and/or student teaching before regular certification can be obtained)

5 ☐ Emergency certificate or waiver (issued to teachers who do not have regular certification who need to complete a regular certification program in order to continue teaching)

18. In what content area does the teaching certificate marked above allow you to teach in this state (e.g., elementary general, secondary general, special ed., a specific subject matter)?

_____ CONTENT AREA

19. Column A: Please indicate if you participated in any professional development activities listed below in the past 12 months.

Column B: If you mark "yes" in Column A, please indicate in Column B how many hours you spent on the activities. *Include courses you have taken for recertification or advanced certification, workshops sponsored by your district, conferences, or other training that is relevant to your teaching.*

IN EACH ROW, CHECK ONE BOX IN COLUMN A. IF YOU ANSWER YES, CHECK ONE BOX IN COLUMN B.	A. PARTICIPATED?		B. NUMBER OF HOURS			
	YES	NO	8 OR FEWER	9-16	17-32	33 OR MORE
a. Reading instruction	1 ☐	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐
b. Science instruction.....	1 ☐	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐
c. Social studies instruction	1 ☐	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐

20. Are you male or female?

1 ☐ Male

2 ☐ Female

21. Are you of Hispanic or Latino origin?

1 ☐ Yes

0 ☐ No

22. How do you describe yourself? (*PLEASE SELECT ONE OR MORE*)

1 ☐ American Indian or Alaska Native

2 ☐ Asian

3 ☐ Black or African American

4 ☐ Native Hawaiian or Other Pacific Islander

5 ☐ White

23. What is your year of birth?

_____ YEAR

CONTACT INFORMATION

Please provide your contact information and the best time to reach you in case we have questions about your responses.

MR./MS. FIRST NAME LAST NAME

STREET APT. NUMBER

CITY STATE ZIP

E-MAIL ADDRESS

(_____)
PHONE NUMBER (INCLUDE AREA CODE)

BEST TIME TO REACH YOU

THANK YOU FOR COMPLETING THIS SURVEY FOR THE U.S. DEPARTMENT OF EDUCATION.

TEACHER SURVEY (2006-07)

NATIONAL EVALUATION OF READING COMPREHENSION PROGRAMS

U.S. DEPARTMENT OF EDUCATION

ATTACH LABEL HERE
Teacher ID Teacher Name
School ID School Name

IF ABOVE INFORMATION IS INCORRECT,
PLEASE MAKE CORRECTIONS DIRECTLY ON LABEL.

This survey is part of the Evaluation of Reading Comprehension Programs, a national evaluation being conducted for the U.S. Department of Education. The questions ask about the professional culture at your school, your reflections, and your background. All information you provide will be kept confidential. While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive and accurate. Thank you.

Please return the completed form to:	**If you have questions, please contact:**
Mathematica Policy Research, Inc. 315 Enterprise Drive Plainsboro, NJ 08536 ATTN: Ms. Season Bedell-Boyle	Ms. Valerie Williams Phone: 888.535.0283 FAX: 202.863.1763 E-mail: VWilliams@mathematica-MPR.com

OMB NO.: 1850-0812
EXPIRATION DATE: 03/31/2009

SECTION I. PROFESSIONAL CULTURE

This section asks about the professional culture within your school.[1]

1-4. These items are intentionally skipped.

5. CONVERSATIONS ABOUT TEACHING

During the past school year, how often have you had conversations with colleagues about…

IN EACH ROW, CHECK ONE BOX ONLY	LESS THAN ONCE A MONTH	2 OR 3 TIMES A MONTH	ONCE OR TWICE A WEEK	DAILY
a. The goals of this school?	1 ☐	2 ☐	3 ☐	4 ☐
b. Development of new curriculum?	1 ☐	2 ☐	3 ☐	4 ☐
c. Managing classroom behavior?	1 ☐	2 ☐	3 ☐	4 ☐
d. What helps students learn best?	1 ☐	2 ☐	3 ☐	4 ☐

6. MY GRADE LEVEL

How much do you disagree or agree with each of the following?

IN EACH ROW, CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. Teachers in this grade level trust each other	1 ☐	2 ☐	3 ☐	4 ☐
b. It's OK in this grade level to discuss feelings, worries, and frustrations with other teachers	1 ☐	2 ☐	3 ☐	4 ☐
c. Teachers respect other teachers who take the lead in grade level improvement efforts	1 ☐	2 ☐	3 ☐	4 ☐
d. Teachers in this grade level respect those colleagues who are expert at their craft	1 ☐	2 ☐	3 ☐	4 ☐

*PLEASE NOTICE **DIFFERENT** RESPONSE CHOICES FOR THE ITEM BELOW.*	NOT AT ALL	A LITTLE	SOME	A GREAT EXTENT
e. To what extent do you feel respected by other teachers in this grade level?	1 ☐	2 ☐	3 ☐	4 ☐

*PLEASE NOTICE **DIFFERENT** RESPONSE CHOICES FOR THE ITEM BELOW.*	NONE	SOME	ABOUT HALF	MOST	NEARLY ALL
f. How many teachers in this grade level really care about each other?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐

[1] Questions 5 through 10 in this section are from The Consortium on Chicago School Research. (1999). "Improving Chicago's Schools: The Teachers' Turn, 1999; Elementary School Teacher Survey, 1999." Chicago, IL. Available at www.consortium-chicago.org.

7. ACCESS TO NEW IDEAS

How often have you…

IN EACH ROW, CHECK ONE BOX ONLY	NEVER	ONCE	TWICE	3 TO 4 TIMES	5 TO 9 TIMES	10 OR MORE TIMES
a. Taken courses at a college or university relative to improving your school?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
b. Participated in a network with other teachers outside your school?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
c. Discussed curriculum and instruction matters with an outside professional group or organization?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
d. Attended professional development activities organized by your school (include meetings that focus on improving your teaching)?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
e. Attended workshops or courses sponsored by your school district (exclude required in-services)?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
f. Attended professional development activities sponsored by the teachers' union?	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

8. MY EXPERIENCE OF CHANGE

How much do you disagree or agree with the following?

IN EACH ROW, CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. Most changes introduced at this school involve only a few teachers; rarely does the whole faculty become involved	1 ☐	2 ☐	3 ☐	4 ☐
b. We receive adequate professional development support for the changes we introduce at our school.....	1 ☐	2 ☐	3 ☐	4 ☐
c. Most changes introduced at this school gain little support among teachers.....	1 ☐	2 ☐	3 ☐	4 ☐

9. PROFESSIONAL DEVELOPMENT

How much do you disagree or agree with the following?

Overall, my professional development experiences over the past school year… *IN EACH ROW, CHECK ONE BOX ONLY*	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. …have included opportunities to work productively with teachers from other schools	1 ☐	2 ☐	3 ☐	4 ☐
b. …have included enough time to think carefully about, to try, and to evaluate new ideas	1 ☐	2 ☐	3 ☐	4 ☐
c. …have deepened my understanding of subject matter.....	1 ☐	2 ☐	3 ☐	4 ☐
d. …have helped me understand my students better	1 ☐	2 ☐	3 ☐	4 ☐
e. …have been sustained and coherently focused, rather than being short term and unrelated.....	1 ☐	2 ☐	3 ☐	4 ☐
f. …have included opportunities to work productively with colleagues in my school	1 ☐	2 ☐	3 ☐	4 ☐
g. …have led me to make changes in my teaching ..	1 ☐	2 ☐	3 ☐	4 ☐
h. …have been closely connected to my school's improvement plan	1 ☐	2 ☐	3 ☐	4 ☐

CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
i. Most of what I learn in professional development addresses the needs of the students in my classroom.....	1 ☐	2 ☐	3 ☐	4 ☐

10. LEADERSHIP AND SUPPORT

How much do you disagree or agree with the following?

IN EACH ROW, CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. The principal at this school is strongly committed to shared decision-making	1 ☐	2 ☐	3 ☐	4 ☐
b. The principal at this school works to create a sense of community in the school	1 ☐	2 ☐	3 ☐	4 ☐
c. The principal at this school promotes parent and community involvement in the school	1 ☐	2 ☐	3 ☐	4 ☐
d. The principal at this school supports and encourages teachers to take risks	1 ☐	2 ☐	3 ☐	4 ☐
e. The principal at this school is willing to make changes	1 ☐	2 ☐	3 ☐	4 ☐
f. Most changes introduced at this school receive strong support from the principal	1 ☐	2 ☐	3 ☐	4 ☐
g. The principal at this school encourages teachers to try new methods of instruction	1 ☐	2 ☐	3 ☐	4 ☐

11. THOUGHTS ABOUT TEACHING READING[2]

How much do you agree or disagree with the following?

IN EACH ROW, CHECK ONE BOX ONLY	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
a. I feel I need to make changes in the methods I use to teach children to read and spell	1 ☐	2 ☐	3 ☐	4 ☐
b. I get help from staff members to understand some children's difficulties learning to read	1 ☐	2 ☐	3 ☐	4 ☐
c. I have benefited from opportunities to learn more about methods for teaching reading	1 ☐	2 ☐	3 ☐	4 ☐
d. The children in my class are making satisfactory progress in learning to read	1 ☐	2 ☐	3 ☐	4 ☐
e. I do not have sufficient materials to teach reading effectively	1 ☐	2 ☐	3 ☐	4 ☐
f. I do not understand why some children learn to read easily while other children struggle to learn basic reading skills	1 ☐	2 ☐	3 ☐	4 ☐
g. The literacy coach supports my efforts to teach reading effectively *IF A LITERACY COACH IS NOT AVAILABLE FOR 5TH-GRADE STUDENTS, PLEASE SKIP THIS QUESTION AND CHECK THIS BOX* → ☐ 1	1 ☐	2 ☐	3 ☐	4 ☐
h. I have a good understanding of how children acquire language and literacy skills	1 ☐	2 ☐	3 ☐	4 ☐
i. I wish I had more opportunities to discuss how to teach reading with other teachers	1 ☐	2 ☐	3 ☐	4 ☐
j. I feel I am good at teaching reading and writing	1 ☐	2 ☐	3 ☐	4 ☐
k. The principal of my school supports my efforts to teach reading effectively	1 ☐	2 ☐	3 ☐	4 ☐
l. I would like to learn methods to help children develop their oral language	1 ☐	2 ☐	3 ☐	4 ☐
m. I look for opportunities to learn effective methods to teach reading and writing	1 ☐	2 ☐	3 ☐	4 ☐
n. I could do a better job teaching reading if I had more assistance from aides or volunteers in my class	1 ☐	2 ☐	3 ☐	4 ☐
o. I know how to assess the progress of my students in reading	1 ☐	2 ☐	3 ☐	4 ☐
p. The parents of children in my class support my efforts to teach their children to read	1 ☐	2 ☐	3 ☐	4 ☐
q. The school day is organized to maximize instructional time	1 ☐	2 ☐	3 ☐	4 ☐

[2] Items on this page were borrowed from Joanne Carlisle's "Teacher's QUEST: Self-Administered Questionnaire" (Regents of the University of Michigan: Ann Arbor, MI, 2003), with minor modifications.

SECTION II. TEACHER REFLECTIONS

This section asks for your reflections.[3]

12. TEACHER REFLECTIONS

IN EACH ROW, CHECK ONE BOX ONLY	NOTHING	VERY LITTLE	SOME	QUITE A BIT	A GREAT DEAL
a. How much can you do to control disruptive behavior in the classroom?.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
b. How much can you do to motivate students who show low interest in school work?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
c. How much can you do to get students to believe they can do well in school work?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
d. How much can you do to help your students value learning?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
e. How much can you do to get children to follow classroom rules?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
f. How much can you do to calm a student who is disruptive or noisy?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
g. How much can you use a variety of assessment strategies?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
h. How much can you assist families in helping their children do well in school?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
*PLEASE NOTICE **DIFFERENT** RESPONSE CHOICES FOR THE ITEMS BELOW.*	NOT AT ALL	SMALL EXTENT	MODERATE EXTENT	QUITE A BIT	A GREAT EXTENT
i. To what extent can you craft good questions for your students?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
j. To what extent can you provide an alternative explanation or example when students are confused?.....	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
*PLEASE NOTICE **DIFFERENT** RESPONSE CHOICES FOR THE ITEMS BELOW.*	NOT AT ALL	SLIGHTLY	MODERATELY	QUITE WELL	EXTREMELY WELL
k. How well can you establish a classroom management system with each group of students?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
l. How well can you implement alternative strategies in your classroom?	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

[3] Items on this page were borrowed with permission from W.K. Hoy and A.E. Woolfolk's "Teachers' Sense of Efficacy Scale" (Elementary School Journal, 93, 355-372), with minor modifications.

SECTION III. BACKGROUND

This section asks about your background.

13. How many years have you taught, either full-time or part-time, at the elementary or secondary level (not counting the current school year)? *Include years teaching in both public and private schools. Do not include time spent as a student teacher.*

_____TOTAL YEARS TEACHING

14. How many years have you been teaching in THIS school (not counting the current school year)? *If you have had a break in service of one year or more, please report the year that you returned to this school. Do not include time spent as a student teacher. Include years spent teaching both full- and part-time at this school.*

_____TOTAL YEARS TEACHING AT THIS SCHOOL

15. What grade levels have you taught? *CHECK ALL THAT APPLY*

1 ☐ 1st grade	6 ☐ 6th grade	11 ☐ 11th grade
2 ☐ 2nd grade	7 ☐ 7th grade	12 ☐ 12th grade
3 ☐ 3rd grade	8 ☐ 8th grade	13 ☐ Ungraded
4 ☐ 4th grade	9 ☐ 9th grade	14 ☐ Kindergarten
5 ☐ 5th grade	10 ☐ 10th grade	15 ☐ Prekindergarten

16. Column A: For each degree below, please check YES or NO to indicate if you hold that degree. Columns B and C: For those degrees you hold, please specify your major field of study and the year you received the degree.

IN EACH ROW, CHECK ONE BOX IN COLUMN A. IF YOU ANSWER YES IN COLUMN A, COMPLETE COLUMNS B AND C FOR THAT ROW..	A. DEGREE HELD		B. MAJOR	C. YEAR RECEIVED
	YES	NO		
a. Associate's degree	1 ☐	0 ☐	_____	_____
b. Bachelor's degree	1 ☐	0 ☐	_____	_____
c. Master's degree	1 ☐	0 ☐	_____	_____
d. Educational specialist or professional diploma (at least one year beyond a master's degree)	1 ☐	0 ☐	_____	_____
e. Certificate of Advanced Graduate Studies	1 ☐	0 ☐	_____	_____
f. Doctorate (Ph.D., Ed.D.)	1 ☐	0 ☐	_____	_____
g. Professional (M.D., D.D.S., J.D., L.L.B)	1 ☐	0 ☐	_____	_____

17. Which of the following describes the teaching certificate you currently hold in this state? *CHECK ONE ONLY*

1 ☐ Regular or standard state certificate or advanced professional certificate

2 ☐ Probationary certificate (the initial certificate issued after satisfying all requirements except the completion of a probationary period)

3 ☐ Provisional or other type given to persons who are still participating in an "alternative certification program"

4 ☐ Temporary certificate (requires some additional college coursework and/or student teaching before regular certification can be obtained)

5 ☐ Emergency certificate or waiver (issued to teachers who do not have regular certification who need to complete a regular certification program in order to continue teaching)

18. In what content area does the teaching certificate marked above allow you to teach in this state (e.g., elementary general, secondary general, special ed., a specific subject matter)?

_____ CONTENT AREA

19. Column A: Please indicate if you participated in any professional development activities listed below in the past 12 months.

Column B: If you mark "yes" in Column A, please indicate in Column B how many hours you spent on the activities. *Include courses you have taken for recertification or advanced certification, workshops sponsored by your district, conferences, or other training that is relevant to your teaching.*

IN EACH ROW, CHECK ONE BOX IN COLUMN A. IF YOU ANSWER YES, CHECK ONE BOX IN COLUMN B.	A. PARTICIPATED?		B. NUMBER OF HOURS			
	YES	NO	8 OR FEWER	9-16	17-32	33 OR MORE
a. Reading instruction	1 ☐	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐
b. Science instruction.....	1 ☐	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐
c. Social studies instruction	1 ☐	0 ☐	1 ☐	2 ☐	3 ☐	4 ☐

20. Are you male or female?

1 ☐ Male

2 ☐ Female

21. Are you of Hispanic or Latino origin?

1 ☐ Yes

0 ☐ No

22. How do you describe yourself? (*PLEASE SELECT ONE OR MORE*)

1 ☐ American Indian or Alaska Native

2 ☐ Asian

3 ☐ Black or African American

4 ☐ Native Hawaiian or Other Pacific Islander

5 ☐ White

23. What is your year of birth?

_____ YEAR

CONTACT INFORMATION

Please provide your contact information and the best time to reach you in case we have questions about your responses.

MR./MS. FIRST NAME LAST NAME

STREET APT. NUMBER

CITY STATE ZIP

E-MAIL ADDRESS

(_____)

PHONE NUMBER (INCLUDE AREA CODE)

BEST TIME TO REACH YOU

THANK YOU FOR COMPLETING THIS SURVEY FOR THE U.S. DEPARTMENT OF EDUCATION.

Expository Reading Comprehension Classroom Observation Instrument

Background Information (or Label)

Observer (Place your label here.)	Today's Date _____/_____/_____ mm dd yyyy
Check below to indicate your status at this observation: Assigned Observer _____ QC Observer _____ Reliability Observer_____	
Teacher (Place teacher label here.)	Start time a.m. p.m.
School	End time a.m. p.m.
District	Subject (check one)
State	_____Reading/LA _____Science
For high intensity intervention observations only:	_____Social Studies _____Other
Was this intervention observation prompted?	If this is an intervention observation, please check below
_____Yes _____No	____Project CRISS ____Read About (Scholastic)
	____Read for Knowledge ____Read for Real (SFA)

	NUMBER		NUMBER
Maximum number of students observed in classroom	_____	Maximum number of adults observed providing instruction or educational support in the classroom (including teacher)	_____

Any special circumstances that interrupted instruction? (Please explain below.)

_____

_____

_____

Note to Observer:

Focus on Primary Teacher for rating purposes. If a student teacher is leading class, please do not observe and reschedule the observation.

Part I 1st Interval

Time of Interval _____ to _____

COMPREHENSION

	A	B	C	
Before Reading	Teacher Models	Teacher Explains Reviews Provides Examples Elaborations	Student Practice	Notes
1. The teacher/student activates prior knowledge and/or previews text before reading (e.g., shares background information about the title, author, content, reviews relevant content from previous lessons, makes predictions, makes connections, addresses text features).				
Before, During, or After Reading	Teacher Models	Teacher Explains Reviews Provides Examples Elaborations	Student Practice	Notes
2. Explicit comprehension instruction that teaches students about text structure (compare-contrast, cause-effect, problem-solution, time-order, story grammar, etc.)				
3. Explicit comprehension instruction that teaches students how to use strategies such as, main idea, summarizing, drawing conclusions, visualizing events, making predictions during and after reading, evaluating predictions, identifying fact vs. opinion, monitoring for comprehension, other _____				
4. Explicit comprehension instruction that teaches students how to generate questions				
During or After Reading	Teacher Models	Teacher Explains Reviews Provides Examples Elaborations	Student Practice	Notes
5. Explicit comprehension instruction that teaches text features (sub-heads, captions, charts, maps, graphs, pictures, sidebars, bold & italicized words) to interpret text				
6. Teacher asks students to justify their responses (e.g., Teacher asks, "Why do you think/say that?" or, "How did you reach that conclusion?", etc.).				
7. Teacher asks questions based on material in the text that are beyond the literal level.				
8. Teacher elaborates, clarifies, or links concepts during and after text reading. May be an elaboration of a student response.				

Part I 1st Interval

VOCABULARY (Includes Concepts, Terminology, Ideas; May Be Technical Or Complex Content-Area Vocabulary)

	Tally	*Notes*
1. The teacher provides an explanation and/or a definition or asks a student to read a definition.		
2. The teacher provides: a) examples; b) contrasting examples; c) multiple meanings; d) immediate elaborations to students' responses.		
3. The teacher uses visuals/pictures, gestures related to word meaning, facial expressions, or demonstrations to discuss/demonstrate word meanings.		
4. The teacher teaches word learning strategies - using context clues, word parts, root meaning.		
5. Students do or are asked to do something that requires knowledge of words (e.g., answer questions; define words; make sentences; find words based on clues; physically demonstrate meaning).		
6. Students are given an opportunity to apply word learning strategies - using context clues, word parts, root meaning.		

Grouping Arrangements and Text Reading (Code during each 10 minute interval)

TEACHER IS WORKING WITH: (*Choose all that apply.*)	Text Reading (applies to reading connected text) (*Choose all that apply.*)
1. Whole class (≥75% of class) 2. Large group (> 6 students, < 75% of class) 3. Small groups (3-6 students) 4. Pairs 5. An individual 6. No direct student contact	1. Supported oral reading (includes choral and round robin reading) 2. Independent silent reading 3. Independent or buddy oral reading 4. Teacher reads aloud 5. Teacher reads aloud with students following along silently *OR* 6. Text not present 7. Text present but not being read.
1 2 3 4 5 6	1 2 3 4 5 OR 6 7

Note: Part I of the observation instrument can be repeated for up to 10 intervals within each class period, depending on the amount of time within each class period that the teacher is using informational text.

Part II Answer the following questions at the end of your observation.

Based on your overall observations, determine the effectiveness of the instruction you observed.

During/After instruction, the teacher:			Comments/Notes
1. Gave inaccurate and/or confusing explanations or feedback.	N	Y	
2. Missed opportunity to correct or address error.	N	Y	
3. Provided opportunities for most students to participate **actively** during teacher-led instruction.	N	Y	
4. Paced instruction so that the length of the comprehension or vocabulary activities was appropriate for this age group.	N	Y	
5. Taught using outlining and/or note taking.	N	Y	
6. Used graphic organizers (e.g., semantic map, Venn diagrams).	N	Y	
7. Kept students thinking for 2+ seconds before calling on a student to respond to complex questions.	N	Y	
8. Gave independent/pairs/small-group practice in answering comprehension questions or applying comprehension strategy(ies) with expected written product. (Can include response journals if a comprehension strategy is entailed.)	N	Y	
9. Used writing activities in response to reading (does not include fill in the blank or one word answers).	N	Y	

Based on your overall observations, rate the teacher's management/responsiveness to students*.

	Minimal/Poor		Fair	Good	Excellent
10. The teacher maximized the amount of time available for instruction.	1		2	3	4
11. The teacher managed student behavior effectively in order to avoid disruptions and provide productive learning environments.	1		2	3	4
12. The teacher redirected discussion if a student response was leading the group off topic/focus.	N/O	1	2	3	4

* Items are adapted from Teacher Competency Checklist (Foorman & Schatschneider, 2003). Used by permission of the publisher/authors for research purposes only in the Evaluation of Reading Comprehension Interventions.

Based on your overall observations, rate student engagement during the observation.

	Few engaged	Many engaged	Most engaged
13. Student engagement during the <u>first half</u> of the observation session.	1	2	3
14. Student engagement during the remainder of the observation session.	1	2	3

Intervention Specific Classroom Observation Form: CRISS

Background Information (or label)

Observer _____

School _____

District _____

Teacher _____

State _____

Today's Date_____/_____/_____
mm dd yyyy

Start time _____ a.m. p.m.

End time _____ a.m. p.m.

Intervention instruction took place during:

_____Social Studies _____ Science
_____Reading/LA _____Not clear

	Number		Number
Maximum number of students observed in classroom		**Maximum number of adults observed providing instruction or educational support in the classroom (including teacher)**	

Describe any special circumstances that interrupted instruction.

Notes to Rater:

1. Focus on the regular classroom teacher for rating purposes. If a student teacher or substitute is leading class, please do not observe and reschedule the observation.
2. Make sure that the teacher is teaching with expository text for your observation.

Star each section that you observe today. Answer the questions in that section only. Do *not* answer the questions in the sections that you do not observe.

Does the teacher…	
Section I. Preparing for Understanding	
1. Provide instruction or lead activities to generate background knowledge about (or review) a topic or concept before students read about it?	Y N
2. Help students set goals and determine a purpose before the students begin reading?	Y N
Section II. Engaging Students with Content and Transforming Information	
3. Have students read a written text?	Y N
4a. Lead students during and/or after reading in transforming information activities (e.g. graphic organizer, guided discussion)?	Y N
4b. Include in the transforming activities informal or formal writing? (Includes note-taking)	Y N
5. Use the transforming activities to teach the *content* of the lesson?	Y N
6. Discuss or reflect on students' metacognitive processes during the transforming activities?	Y N
Section III. Reflecting on Content and Learning Processes	
7. Lead the whole class in a reflection discussion at the end of the lesson using questions *such as*: **A) Metacognition: How did you evaluate your comprehension?** **B) Background knowledge: Did I assist you in thinking about what you already knew?** **C) Purpose Setting: Did you have clear purposes?** **D) Active Involvement: How were you actively engaged?** **E) Discussion: How did discussion clarify your thinking?** **F) Writing: How did you use writing to help you learn?** **G) Transformation: What were the different ways you transformed information? How did this help you?** **H) Teacher modeling: Did I do enough modeling?**	Y N

Please note: You may see all three Sections in one sitting. Or you may see Sections I and II, or Sections II and III, or Section II alone. You should never Sections I and III together. It is also unlikely that you will see I alone or III alone.

Intervention Specific Classroom Observation Instrument: ReadAbout

Background Information (or label)

Observer _____

School _____

District _____

Teacher _____

State _____

Grade _____

Today's Date_____/_____/_____
mm dd yyyy

Start time _____ a.m. p.m.

End time _____ a.m. p.m.

Intervention instruction took place during:

_____Reading/LA _____Science

_____Social Studies _____Not clear

_____Other

	Number		Number
Maximum number of students observed in classroom		**Maximum number of adults observed providing instruction or educational support in the classroom (including teacher)**	

Any special circumstances that interrupted instruction? **(please explain)**

Note to Observer:

1. Focus on the regular classroom teacher for rating purposes. If a student teacher or substitute teacher is leading the class, please do not observe and reschedule the observation.

Part I

- Observe one rotation of teacher-led differentiated instruction (small group).
- Place a star by components observed (comprehension, vocabulary and/or writing).
- Answer these questions while observing the lesson.

1. Length of small-group instruction rotation: _____minutes

2. Number of students participating: _____students

3. Did the teacher use ReadAbout materials? _____Yes _____No
Check which materials were used (check all that apply):
___SmartFiles ____Differentiated Skills Lesson

____Graphic Organizers/worksheets ___Paperback Library

Teacher-led small group, Comprehension: *Did the teacher*		
4. Provide direction instruction (explain and/or model) on the strategy or skill?	Y	N
5. Provide opportunities for students to apply the skill (guided practice)?	Y	N
6. What was the primary focus of the teacher-led comprehension instruction? o **Author's purpose** o **Main idea/details** o **Draw conclusions** o **Fact/opinion** o **Text structure (cause/effect; compare/contrast, sequence of events, problem/solution)** o **Make inferences** o **Summarizing** o **Visualizing** o **Setting purpose** o **Monitoring (including rereading and repairing)** o **Questioning**		
Teacher-led small group, Vocabulary: *Did the teacher*		
7. Provide direct instruction (explain and model) on a vocabulary strategy?	Y	N
8. Provide opportunities for students to apply the strategy (guided practice)?	Y	N
9. What was the primary focus of the teacher-led vocabulary instruction? o **Multiple meanings** o **Prefixes/suffixes** o **Using context clues** o **Synonym and antonyms** o **Idioms** o **Word origins**		
Teacher-led small group, Writing: *Did the teacher*		
10. Provide students instruction on the selected 6+1 Writing Trait?	Y	N
11. Provide opportunities to apply the 6+1 Trait model?	Y	N
12. What was the primary focus of writing instruction? o **Ideas** o **Organization** o **Voice** o **Word Choice** o **Sentence fluency** o **Conventions** o **Presentation**		

Part II

Computer workstation

(If more than one rotation is observed during the teacher-led instruction, note below the number of students/minutes for each rotation. Enter an average amount in the time after item 14 if multiple rotations are observed).

13. How many students were working on the ReadAbout software at the computer workstation?

_____students (total)

____students Rotation 1 _____students Rotation 2 _____students Rotation 3

14. How long did the computer workstation rotation last? _____minutes (average)

_____minutes Rotation 1 _____minutes Rotation 2 _____Rotation 3

15. Obtain from the teacher the class-specific Skills Performance Report for the day of the observation only.

16. Ask the teacher to highlight the names of students who were working at the computer workstation during the observation period (the rotation during which you observed the teacher-led small group). *Append the report to the completed observation protocol.*

Independent workstation

17. How many students were working independently on ReadAbout materials?

_____students

18. What materials were being used by students?

_____SmartFiles & Answer Sheets

_____Paperback library

Intervention Specific Classroom Observation Instrument: Read for Real
Phase: Learn

Background Information (or label)

Observer _____ Today's Date_____/_____/_____
mm dd yyyy

School _____

District _____ Start time _____ a.m. p.m.

Teacher _____ End time _____ a.m. p.m.

State _____

Intervention instruction took place during:

_____Reading/LA _____Science

_____Social Studies _____Not clear

_____Other

1. Indicate which level of Read for Real you observed (Check only one):

_____A _____B _____C _____D

2. Enter the Title of the Story:_____

3. Were multiple levels of Read for Real used during this observation? _____yes _____no

4. Instructional Grouping Arrangement (Check all that apply):

_____Whole Class _____Small Group (3 or more) _____Pairs

	Number		**Number**
Maximum number of students observed in classroom		*Maximum number of adults observed providing instruction or educational support in the classroom (including teacher)*	

Describe any special circumstances that interrupted instruction.

Note to Observer:

1. Focus on the regular classroom teacher for rating purposes. If a student teacher or substitute teacher is leading the class, please do not observe and reschedule the observation.
2. If multiple levels are used, observe the group to whom the teacher is providing instruction.
3. If an Apply lesson is being taught, reschedule the observation.

Phase: Learn

Check (√) the item that indicates where the lesson began. Follow along in the student book. As you observe, circle Yes (Y) or No (N) for the teaching behaviors. Star (*) the item that indicates where the lesson ended. All phases of Read for Real may not be addressed during the observation.

The teacher:

1. Before Reading	
a. Reads or asks a student to read the explanation of the Before Reading focus strategy.	Y N
b. Discusses the B*efore Reading* focus strategy with the students.	Y N
c. Reads or asks a student to read the information in the *My Thinking* box.	Y N
d. Asks students to apply the *Before Reading* focus strategy.	Y N

2. During Reading	
a. Reads or asks a student to read the explanation of the *During Reading* focus strategy.	Y N
b. Discusses the *During Reading* focus strategy with the students.	Y N
c. Reads or asks a student to read the information in the *My Thinking* box.	Y N
d. Asks students to share their thinking about the *During Reading* focus strategy	Y N
e. Stops and addresses the *My Thinking* notes at the "red strategy buttons." _____out of _____ (# addressed) (# possible)	Tally
f. Reads and/or asks students to read the selection aloud. _____Never _____Sometimes _____Always	

The teacher:

3. After Reading		
a. Reads or asks students to read the *After Reading* focus strategy.	Y	N
b. Discusses the *After Reading* focus strategy with the students.	Y	N
c. Reads or asks a student to read the information in the *My Thinking* box.	Y	N
d. Calls on students to implement the *After Reading* focus strategy.	Y	N

Comprehension		
e. Administers the open book comprehension test.	Y	N
f. Corrects tests with the class.	Y	N
g. Discusses responses.	Y	N

Organizing Information		
h. Read or asks a student to read the information from the reading partner.	Y	N
i. Discusses the graphic organizer.	Y	N

Writing for Comprehension		
j. Reads or asks a student to read the information from the reading partner.	Y	N
k. Reads or asks a student to read the summary.	Y	N
l. Identifies how the paragraphs and sentences in the summary correspond to the information on the graphic organizer.	Y	N
m. Discusses the three parts of a summary:		
Introduction	Y	N
Body	Y	N
Conclusion	Y	N

Vocabulary		
n. Instructs students in the vocabulary skill.	Y	N
o. Asks students to complete the vocabulary activity: _____as a whole class _____ in small groups _____in partners _____independently		

Fluency		
p. Asks a student to read the fluency tip.	Y	N
q. Asks a student to read the selection.	Y	N
r. Gives students time to practice the selection.	Y	N

Intervention Specific Classroom Observation Instrument: Read for Real
Phase: Practice

Background Information (or label)

Observer _____ Today's Date_____/_____/_____
mm dd yyyy

School _____

District _____ Start time _____ a.m. p.m.

Teacher _____ End time _____ a.m. p.m.

State _____ Intervention instruction took place during:
_____Reading/LA _____Science
_____Social Studies _____Not Clear
_____Other

1. Indicate which level of Read for Real you observed (Check only one):

_____A _____B _____C _____D

2. Enter the Title of the Story:_____

3. Were multiple levels of Read for Real used during this observation? _____yes _____no

4. Instructional Grouping Arrangement Check all that apply):

_____Whole Class _____Small Group (3 or more) _____Pairs

	Number		*Number*
Maximum number of students observed in classroom		*Maximum number of adults observed providing instruction or educational support in the classroom (including teacher)*	

Describe any special circumstances that interrupted instruction.

Note to Observer:

1. Focus on the regular classroom teacher for rating purposes. If a student teacher or substitute teacher is leading the class, please do not observe and reschedule the observation.
2. If multiple levels are used, observe the group to whom the teacher is providing instruction.
3. If an Apply lesson is being taught, reschedule the observation.

Phase: Practice

Check (√) the item that indicates where the lesson began. Follow along in the student book. As you observe, circle Yes (Y) or No (N) for the teaching behaviors. Star (*) the item that indicates where the lesson ended. All phases of Read for Real may not be addressed during the observation.

The Teacher:

1. Before Reading	
a. Reads or asks a student to read the *Before Reading* focus strategy.	Y N
b. Discusses the *Before Reading* focus strategy with the students.	Y N
c. Asks students to implement the *Before Reading* focus strategy.	Y N
d. Discusses students' comments.	Y N

2. During Reading	
a. Reads or asks a student to read the *During Reading* focus strategy.	Y N
b. Reads or asks a student to read the note from the reading partner.	Y N
c. Reminds students to write notes about the *During Reading* focus strategy.	Y N
d. Reads and/or asks students to read the selection:	Y N
e. Stops or reminds students to stop at the red buttons, and write notes on their paper. _____ _____ out of _____ _____ (# addressed) (# possible)	**Tally**

3. After Reading	
a. Reads or asks students to read the *After Reading* focus strategy.	Y N
b. Discusses or asks question about the *After Reading* focus strategy.	Y N
c. Gives a written assignment highlighting the *After Reading* focus strategy.	Y N

Comprehension	
d. Administers open book comprehension test.	Y N
e. Corrects tests with the class.	Y N
f. Discusses responses.	Y N

Organizing Information	
g. Asks students to complete graphic organizer.	Y N

Writing for Comprehension	
h. Asks students to write a summary based on their completed graphic organizer.	Y N

Vocabulary	
i. Instructs students in the vocabulary skill.	Y N
j. Asks students to complete the vocabulary activity: _____as a whole class _____ in small groups _____ in partners _____independently	

Fluency	
k. Asks a student to read the fluency tip.	Y N
l. Asks a student to read the selection.	Y N
m. Gives students time to practice the selection.	Y N

Intervention Specific Classroom Observation Form: Reading For Knowledge
Circle the Day Visited 1 2 3 4

Background Information (or label)

Observer _____ Today's Date_____/_____/_____
mm dd yyyy

School _____

District _____ Start time _____ a.m. p.m.

Teacher _____ End time _____ a.m. p.m.

State _____

Intervention instruction took place during:

_____Social Studies _____ Science

_____Reading/LA _____Not clear

	Number		Number
Maximum number of students observed in classroom		**Maximum number of adults observed providing instruction or educational support in the classroom (including teacher)**	

Describe any special circumstances that interrupted instruction.

Please record the following:

1. Unit #____ 2. Week #____ 3. Day #____ 4.Book Title_____

Notes to Rater:

1. Focus on the regular classroom teacher for rating purposes. If a student teacher or substitute teacher is leading class, please do not observe and reschedule the observation.
2. If today's class period includes testing, please do not observe and reschedule the observation.
3. Place a star to the left of the section when the lesson started and a star when it concluded

A. Answer these questions while observing the lesson.

Did the teacher…	
I. Set the Stage	
a. Post the reading goal?	Y N
b. Present the reading goal?	Y N
c. Present the cooperative learning goal?	Y N
d. Ask students to review vocabulary or provide practice and instruction? (Exception: This is not done on the first day of a new unit.)	Y N
II. Active Instruction—Days 1, 3	
a. Build background knowledge about the topic of text or about a skill/strategy?	Y N
b. Explain a skill/strategy OR remind the students of a skill/strategy recently learned?	Y N
c. Read aloud the text and (1) think-aloud or model a skill/strategy OR (2) ask the students to apply a skill/strategy?	Y N
II. Active Instruction—Days 2, 4	
a. Use a whole group or partner activity to discuss key points about the day's skill/strategy?	Y N
b. Provide feedback and prompts to partner pairs during partner reading?	Y N
c. Chart individual students' progress on the setting goals and charting progress forms during partner reading?	Y N
d. Review routines for Team Talk discussion?	Y N
e. Read aloud Team Talk questions?	Y N
f. Circulate the classroom and monitor team discussions and provide prompts?	Y N
g. Ask team members to share with the class their responses and reasoning to Team Talk questions?	Y N

B. Answer these two overall questions at the end of the lesson.

The teacher followed the recommended pacing for the lesson. (Recommended pacing is 35 minutes +/- 5 minutes.)	Y N
The teacher awarded cooperation and/or improvement points at some point in the lesson.	Y N

DEVELOPER INTERVIEWS: READING PROGRAM COSTS AND SERVICES
Evaluation of Reading Comprehension Programs

I. TEACHER PROFESSIONAL DEVELOPMENT – INITIAL TRAINING

1. I'd like to begin by asking you about the training teachers in the study received before beginning classroom instruction.

a. What type of **initial training** did your program provide to study teachers? *(Examples: in-person group training, in-person individual training)*
b. *For each type:* How long did the **initial training** last? *(Report hours—minus lunch time—to the nearest quarter hour.)*
c. *For each type:* How many staff provided **initial training** (per training session)?
d. *For each type:* What were the roles or positions of the staff providing the **initial training** *(e.g., lead trainer, assistant)?*

TABLE 1A-D. TYPICAL **INITIAL TRAINING** FOR STUDY DISTRICTS

*If there were differences in what you provided across study districts, please report here what was **typically** provided.*
The next question asks about differences across districts.

TYPE OF TRAINING (a)	LENGTH OF SESSION *(TO NEAREST 1/4 HR)* (b)	NUMBER OF STAFF PROVIDING SUPPORT (c)	STAFF POSITIONS (d)

e. Did any of the above **initial training** items (a-d) differ across study districts? *If yes, please note this in the table below:* What were the differences? Why did they differ? How many districts did the differences apply to?

TABLE 1E. DIFFERENCES IN **INITIAL TRAINING** ACROSS STUDY DISTRICTS

TYPE OF TRAINING (a)	LENGTH OF SESSION *(TO NEAREST 1/4 HR)* (b)	NUMBER OF STAFF PROVIDING TRAINING (c)	STAFF POSITIONS (d)

f. Did any of the above **initial training** items (a-d) differ from what nonstudy teachers would have received when a school or district purchased the reading program? *If yes, please note this in the table below:* What were the differences? Why did they differ?

TABLE 1F. DIFFERENCES IN **INITIAL TRAINING** COMPARED TO NONSTUDY DISTRICTS

TYPE OF TRAINING (a)	LENGTH OF SESSION *(TO NEAREST 1/4 HR)* (b)	NUMBER OF STAFF PROVIDING TRAINING (c)	STAFF POSITIONS (d)

g. Is the cost of **initial training** typically included in the purchase of the reading program?
___ YES ___ NO

If no: (1) What is the cost? $_____ PER _____ DISTRICT
$_____ PER _____ SCHOOL
$_____ PER _____ TEACHER
$_____ PER _____ STUDENT

(2) Is there a per-teacher discount for training large groups of teachers? __ YES __NO

If yes: (3) What is the discount?

h. Did you provide **initial training** for teachers who were not able to attend the original training?
___ YES ___ NO

If yes: (1) How did this differ from what nonstudy teachers would have received when a school or district purchased the reading program?

(2) What was the cost of providing this training?

i. Did you provide training for principals and other administrators?
___ YES ___ NO

If yes: (1) What kinds of training were provided?

(2) How did this differ from what nonstudy principals and administrators would have received when a school or district purchased the reading program?

(3) What were the costs involved, if any, for this training?

II. TEACHER PROFESSIONAL DEVELOPMENT – FOLLOW-UP TRAINING

2. Now let's discuss the training teachers in the study received after beginning classroom instruction.

a. What type of formal **follow-up training** did your program provide to study teachers? *(Examples: in-person individual training, in-person group training)*
b. *For each type:* How frequently did the formal **follow-up training** occur *(e.g., bimonthly, monthly, once a semester*)?
c. *For each type:* How many sessions of formal **follow-up training** did teachers receive per district?
d. *For each type:* How long did the formal **follow-up training** last? *Report hours (minus lunch time) to the nearest quarter hour.*
e. *For each type:* How many staff provided formal **follow-up training** per session?
f. *For each type:* What were the roles or positions of the staff providing the formal **follow-up training** *(e.g., lead trainer, assistant)?*

TABLE 2A-F. TYPICAL **FOLLOW-UP TRAINING** FOR STUDY DISTRICTS

*If there were differences in what you provided across study districts, please report here what was **typically** provided. The next question asks about differences across districts.*

TYPE OF TRAINING (a)	TRAINING FREQUENCY (b)	TOTAL NUMBER OF SESSIONS (c)	LENGTH OF SESSION *(TO NEAREST 1/4 HR)* (d)	NUMBER OF STAFF PROVIDING TRAINING (e)	STAFF POSITIONS (f)

g. Did any of the above formal **follow-up training** items (a-f) differ across study districts?
If yes, please note this in the table below: What were the differences? Why did they differ? How many districts did the differences apply to?

TABLE 2G. DIFFERENCES IN FORMAL **FOLLOW-UP TRAINING** ACROSS STUDY DISTRICTS

TYPE OF TRAINING (a)	TRAINING FREQUENCY (b)	TOTAL NUMBER OF SESSIONS (c)	LENGTH OF SESSION *(TO NEAREST 1/4 HR)* (d)	NUMBER OF STAFF PROVIDING TRAINING (e)	STAFF POSITIONS (f)

h. Did any of the above formal **follow-up training** items (a-f) differ from what nonstudy teachers would have received when a school or district purchased the reading program?
If yes, please note this in the table below: What were the differences? Why did they differ?

TABLE 2H. DIFFERENCES IN FORMAL **FOLLOW-UP TRAINING** COMPARED TO NONSTUDY DISTRICTS

TYPE OF TRAINING (a)	TRAINING FREQUENCY (b)	TOTAL NUMBER OF SESSIONS (c)	LENGTH OF SESSION *(TO NEAREST 1/4 HR)* (d)	NUMBER OF STAFF PROVIDING TRAINING (e)	STAFF POSITIONS (f)

i. Is the cost of follow-up training typically included in the purchase of the reading program? ___ YES ___ NO

If no: (1) What is the cost? $_____ PER _____ DISTRICT
$_____ PER _____ SCHOOL

$_____ PER _____ TEACHER
$_____ PER _____ STUDENT

(2) Is there a per-teacher discount for training large groups of teachers? __ yes __no

If yes: (3) What is the discount?

III. OTHER TEACHER SUPPORT

3. The next set of questions are about <u>other services or support</u> your program may have provided to teachers in the study (other than the formal follow-up training).

a. What <u>types</u> of **other services or support** did your program provide to study teachers? *(Examples: drop-in consulting to answer questions, address concerns, demonstrate strategies; e-mail or telephone helpdesk/consulting; conf. calls with teams of teachers)*
b. *For each type:* How <u>frequently</u> did the service or support occur *(e.g., bimonthly, monthly, once a semester*)
c. *For each type:* <u>How many hours overall</u> would you estimate were provided for this support? *Report hours (minus lunch time) to the nearest quarter hour.*
d. *For each type:* <u>How many staff</u> provided the service or support (per session)?
e. *For each type:* What were the <u>roles or positions</u> of the staff providing the service or support *(e.g., lead trainer, assistant)?*

TABLE 3A-E. **OTHER SERVICES OR SUPPORT** FOR STUDY DISTRICTS

*If there were differences in what you provided across study districts, please report here what was **typically** provided. The next question asks about differences across districts.*

TYPE OF SERVICE OR SUPPORT (a)	FREQUENCY (b)	TOTAL HOURS OF SUPPORT *(TO NEAREST 1/4 HR)* (c)	NUMBER OF STAFF PROVIDING SUPPORT (d)	STAFF POSITIONS (e)

f. Did any of the above **services or support** items (a-f) differ across study districts?
If yes, please note this in the table below: What were the differences? Why did they differ? How many districts did the differences apply to?

TABLE 3F. DIFFERENCES IN **SERVICES OR SUPPORT** ACROSS STUDY DISTRICTS

TYPE OF SERVICE OR SUPPORT (a)	FREQUENCY (b)	LENGTH OF SESSION *(TO NEAREST 1/4 HR)* (d)	NUMBER OF STAFF PROVIDING SUPPORT (e)	STAFF POSITIONS (f)

g. Did any of the above **services or support** items (a-f) differ from what nonstudy teachers would have received when a school or district purchased the reading program?
If yes: What were the differences? Why did they differ?

TABLE 3G. DIFFERENCES IN **SERVICES OR SUPPORT** COMPARED TO NONSTUDY DISTRICTS

TYPE OF SERVICE OR SUPPORT (a)	FREQUENCY (b)	LENGTH OF SESSION *(TO NEAREST 1/4 HR)* (d)	NUMBER OF STAFF PROVIDING SUPPORT (e)	STAFF POSITIONS (f)

h. Is the cost of these services or this support typically included in the purchase of the reading program? ___ YES ___ NO

If no: (1a) What is the cost for _____ (the *first* service/support)?

$_____ PER _____ DISTRICT
$_____ PER _____ SCHOOL
$_____ PER _____ TEACHER
$_____ PER _____ STUDENT

(2a) Is there a per-teacher discount for providing services or support to large groups of teachers? ___ YES ___ NO

If yes: (3a) What is the discount?

(1b) What is the cost for _____ (the *second* service/support)?

$_____ PER _____ DISTRICT
$_____ PER _____ SCHOOL
$_____ PER _____ TEACHER
$_____ PER _____ STUDENT

(2b) Is there a per-teacher discount for providing services or support to large groups of teachers? ___ YES ___ NO

If yes: (3b) What is the discount?

(1c) *Repeat as needed for additional services/supports.*

IV. MATERIALS PROVIDED

4. This set of questions asks about materials your program provided to study schools.

a. What **materials** did your program provide to study schools? *If there were differences in what you provided across study districts, please report here what was **typically** provided. The next question asks about differences across districts.*

(1) ____Teacher training materials

(2) ____Teacher instructional manuals

(3) ____Student instructional materials

(4) ____Other (specify):_____

b. Did the type or amount of **materials** differ across study districts? ___ YES ___ NO
If yes: What are the differences? Why did they differ? Note how many districts the differences apply to.

c. Did the type or amount of **materials** teachers received in the study differ from what they would have received when a school or district purchased the reading program? ___YES __ NO
If yes: What are the differences? Why did they differ?

d. Is the cost of these materials typically included in the purchase of the reading program?

___ YES ___ NO

If no: What is the cost?

$_____ PER ____DISTRICT

$_____ PER ____SCHOOL

$_____ PER ____TEACHER

$_____ PER ____ STUDENT

e. What additional materials or equipment should districts or schools or teachers provide to make the best use of your program?

V. READING PROGRAM PRICING

5. This set of questions asks about the price of the complete name of reading program program for a nonstudy district or school.

a. What was the typical price a district or school would pay to use the reading program in the 2006–07 school year? *Indicate both fixed and variable fees.*

1) Fixed fees

ITEM	COST	PER DISTRICT OR SCHOOL

2) Variable fees per teacher and/or per student (e.g., for teacher training materials, instructional support, classroom materials)

ITEM	COST	PER TEACHER OR STUDENT

b. Were bulk discounts available during the 2006-07 school year for schools and/or districts buying the reading program for a minimum number or classes or students?

If yes: What is the pricing structure for bulk discounts?

VI. DEVELOPERS' VIEWS OF IMPLEMENTATION*

6. The last set of questions asks about the quality of the implementation of name of reading program at schools participating in the study.

***Name of program:* Please complete Questions 6a-c before our scheduled interview.**

a. Please rate the quality of each school's implementation **relative to one another** by indicating which schools fall into the four categories below (indicate the school by entering in the first table below the number to the left of each school in the second table below).

TOP 1/4 OF SCHOOLS	SECOND BEST 1/4 OF SCHOOLS	SECOND WORST 1/4 OF SCHOOLS	WORST 1/4 SCHOOLS

DISTRICT(CITY, STATE)	SCHOOL
District 1 (City, State)	1 – SchoolName1 2 – SchoolName2 3 – SchoolName3
District 2 (City, State)	4 – SchoolName4 5 – SchoolName5
District 3 (City, State)	6 – SchoolName6 7 – SchoolName7
District 4 (City, State)	8 – SchoolName8
District 5 (City, State)	9 – SchoolName9 10 – SchoolName10
District 6 (City, State)	11 – SchoolName11 12 – SchoolName12
District 7 (City, State)	13 – SchoolName13
District 8 (City, State)	14 – SchoolName14 15 – SchoolName15
District 9 (City, State)	16 – SchoolName16 17 – SchoolName17
District 10 (City, State)	18 – SchoolName18

*Questions 6b, c, and d were adapted from the Vendor Perspective on Implementation in Study Schools survey from the Evaluation of the Effectiveness of Educational Technology Interventions, sponsored by the U.S. Department of Education.

b. How would you rate the quality of each school's implementation, **compared to the typical implementation for nonstudy schools**?

DISTRICT (CITY, STATE)	MUCH WORSE THAN AVERAGE	SOMEWHAT WORSE THAN AVERAGE	AVERAGE	SOMEWHAT BETTER THAN AVERAGE	MUCH BETTER THAN AVERAGE	DON'T KNOW
District 1 (City, State)						
1 – SchoolName1	☐1	☐2	☐3	☐4	☐5	☐9
2 – SchoolName2	☐1	☐2	☐3	☐4	☐5	☐9
3 – SchoolName3	☐1	☐2	☐3	☐4	☐5	☐9
District 2 (City, State)						
4 – SchoolName4	☐1	☐2	☐3	☐4	☐5	☐9
5 – SchoolName5	☐1	☐2	☐3	☐4	☐5	☐9
District 3 (City, State)						
6 – SchoolName6	☐1	☐2	☐3	☐4	☐5	☐9
7 – SchoolName7	☐1	☐2	☐3	☐4	☐5	☐9
District 4 (City, State)						
8 – SchoolName8	☐1	☐2	☐3	☐4	☐5	☐9
District 5 (City, State)						
9 – SchoolName9	☐1	☐2	☐3	☐4	☐5	☐9
10 – SchoolName10	☐1	☐2	☐3	☐4	☐5	☐9
District 6 (City, State)						
11 – SchoolName11	☐1	☐2	☐3	☐4	☐5	☐9
12 – SchoolName12	☐1	☐2	☐3	☐4	☐5	☐9
District 7 (City, State)						
13 – SchoolName13	☐1	☐2	☐3	☐4	☐5	☐9
District 8 (City, State)						
14 – SchoolName14	☐1	☐2	☐3	☐4	☐5	☐9
15 – SchoolName15	☐1	☐2	☐3	☐4	☐5	☐9
District 9 (City, State)						
16 – SchoolName16	☐1	☐2	☐3	☐4	☐5	☐9
17 – SchoolName17	☐1	☐2	☐3	☐4	☐5	☐9
District 10 (City, State)						
18 – SchoolName18	☐1	☐2	☐3	☐4	☐5	☐9

c. What source(s) of information did you use to determine your ratings in 6a and 6b?

DISTRICT (CITY, STATE)	DISTRICT STAFF COMMENTS	SCHOOL STAFF COMMENTS	CLASSROOM OBSERVATIONS BY YOUR PROGRAM STAFF	TRAINING OBSERVATIONS BY YOUR PROGRAM STAFF	OTHER (SPECIFY)
District 1 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 2 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 3 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 4 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 5 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 6 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 7 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 8 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 9 (City, State)	☐1	☐2	☐3	☐4	☐5 _____
District 10 (City, State)	☐1	☐2	☐3	☐4	☐5 _____

d. Please describe any specific aspects of the implementation and instructional conditions in particular study schools that you think the evaluation team should be aware of.

Thank you very much for your input.

APPENDIX K

UNADJUSTED MEANS

TABLE K.1

UNADJUSTED MEANS FOR TREATMENT AND CONTROL GROUPS

	Control Group	Project CRISS	ReadAbout	Read for Real	Reading for Knowledge	Combined Treatment Group
Baseline (Fall 2006) Test Scores						
TOSCRF Score	88.25	89.07	87.84	87.80	89.75	88.61
GRADE Score	99.83	100.84	99.59	99.23	101.17	100.21
Follow-up (Spring 2007) Test Scores						
Composite Test Score[a]	0.02	0.06	-0.04	-0.07	0.02	-0.01
GRADE Score	100.81	101.70	99.78	100.07	101.39	100.74
Social Studies Reading Comprehension Assessment Score	501.67	501.48	499.79	497.18	501.03	499.90
Science Reading Comprehension Assessment Score	501.51	502.55	499.94	498.20	499.39	500.06
Number of Students[b]	**1,367**	**1,319**	**1,246**	**1,227**	**1,191**	**4,983**

Source: Reading comprehension tests administered by study team.

Note: The social studies and science reading comprehension assessments were developed by ETS.

[a]The composite is based on the three tests presented in this table. Each test score is converted into a z-score by subtracting the mean and dividing by the standard deviation of the variable for students in the sample. The composite is the simple average of the three z-scores.

[b]The number of students presented in this row is the number participating in the study. The proportion of students in each experimental condition with follow-up test scores is reported in Appendix Table G.2.

ETS = Educational Testing Service.

GRADE = Group Reading Assessment and Diagnostic Evaluation.

TOSCRF = Test of Silent Contextual Reading Fluency.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