

The Impact of the Reading Apprenticeship Improving Secondary Education (RAISE) Project on Academic Literacy in High School

A REPORT OF A RANDOMIZED EXPERIMENT IN PENNSYLVANIA AND CALIFORNIA SCHOOLS

Nationally, two-thirds of high school students are unable to read and comprehend complex academic materials, think critically about texts, and synthesize information from multiple sources, or communicate what they have learned (NAEP, 2013). Without a substantial change in their academic literacy, U.S. high school students face continued academic problems in high school and college because they are unable to handle the quantity and complexity of assigned reading (ACT, 2012). Further, literacy instruction that fosters the skills and dispositions required for reading comprehension of complex materials is seldom found in U.S. high schools (Duschl, Schweingruber, & Shouse, 2007; Reisman, 2011). Recent research suggests that disciplinary literacy and reasoning skills are rarely a focus of secondary instruction (ACT Inc., 2009, 2013a, 2013b). Teachers report that little time is devoted to supporting reading comprehension (Ness, 2008, 2009; Vaughn et al., 2013). Instead, literacy instruction and activities tend to center on using texts for basic reading comprehension and summary of information (Kiuahara, Graham, & Hawken, 2009), rather than as a core resource for constructing new knowledge (Banilower et al., 2013; Smith & Ochoa-Angrino, 2012).

The Reading Apprenticeship instructional framework was developed by WestEd's Strategic Literacy Initiative (SLI) two decades ago to help teachers provide the literacy support students need to be successful readers in the content areas. It has since reached over 100,000 teachers in schools across the country at the middle school, high school, and college levels. The Reading Apprenticeship framework focuses on four interacting dimensions of classroom learning culture: Social, Personal, Cognitive, and Knowledge-Building. These four dimensions are woven into subject-area teaching through metacognitive conversation—conversations about the thinking processes students and teachers engage in as they read. The context in which this all takes place is extensive reading—increased in-class opportunities for students to practice reading complex academic texts in more skillful ways. Teachers also work with students on explicit comprehension strategy instruction, vocabulary and academic language development techniques, text-based discussion, and writing. Reading Apprenticeship is designed to help teachers create classroom cultures in which students feel safe to share reading processes, problems, and solutions.

In 2010, WestEd received a “Validation” grant from the Department of Education’s Investing in Innovation Fund (i3) competition to scale-up and conduct a randomized controlled trial of the intervention through a project called Reading Apprenticeship Improving Secondary Success (RAISE). RAISE took place in California, Michigan, Utah, Pennsylvania, and Indiana and worked with nearly 2,000 teachers who served approximately 630,000 students during the grant period. This report presents findings from the randomized controlled trial conducted in two of those states: California and Pennsylvania.

OVERVIEW OF THE INTERVENTION. For the RAISE project, WestEd’s Strategic Literacy Initiative (SLI) provided high school English language arts, science, and U.S. history teachers in the study with 65 hours of inquiry-based Reading Apprenticeship professional development over the course of 12 months. The professional development was designed to transform teachers’ understanding of their role in adolescent literacy development and build enduring capacity for literacy instruction in the academic disciplines. These changes in teacher attitudes and instructional approaches are hypothesized to change student attitudes, motivation, and behavior, while simultaneously building skills and knowledge in subject-specific literacy tasks; strengthening students’ views of themselves as readers and learners and yielding gains in student achievement.

SLI developed a number of new elements for the RAISE project to support the dissemination and implementation of the Reading Apprenticeship intervention at a broad scale. They 1) recruited and trained professional development facilitators, 2) appointed state site coordinators to provide support and resources to schools, 3) recruited teacher leaders at each school who held monthly meetings to support teachers throughout implementation, and 4) provided support and resources to school administrators including an online course on the framework.

RESEARCH DESIGN. The i3 impact evaluation of RAISE, conducted by IMPAQ International and Empirical Education Inc., employed a cluster randomized controlled trial (RCT) in which 42 schools were randomly assigned to a treatment group (22 schools) or a control group (20 schools). English Language Arts (ELA), science, and history teachers recruited from treatment schools received 65 hours of professional development and ongoing support, while control schools conducted business as usual. The schools were recruited and randomized in two waves. In wave 1, 32 schools (17 treatment, 15 control) in California and Pennsylvania were recruited and randomized in 2011, with implementation beginning in fall 2011.

We collected three years of data from these wave 1 schools. In wave 2, an additional 10 schools (5 treatment, 5 control) in California were recruited in 2012 to increase the number of schools in our sample serving English learners; implementation began in fall 2012. We collected two years of data from these wave 2 schools.

This was an intent-to-treat design, with impact estimates generated by comparing average outcomes in schools randomly assigned to treatment status with average outcomes in schools assigned to control group status, regardless of the level of participation in or implementation of RAISE instructional approaches after random assignment.

This report presents key implementation and impact findings from the i3 impact evaluation of the RAISE project. Most of the findings in this report are from the sample of students and data collected during teachers’ second year in the study, after treatment teachers had received the full “dose” of professional development delivered over 12 months and could therefore be expected to fully implement Reading Apprenticeship. We used the data from the first and third years to conduct supplemental analyses.

Data sources for this report include principal, teacher, and student surveys; professional development observations and attendance records; school district student records; and an assessment of students’ literacy skills.

KEY FINDINGS ABOUT RAISE IMPLEMENTATION. Implementation fidelity and contextual factors that may have facilitated or hindered implementation of RAISE were measured through professional development observations and attendance records, teacher surveys, and principal surveys. These data indicated that RAISE professional development and in-school support was delivered as intended.

- Over 85% of the observed sessions exhibited the key professional development design characteristics including: a focus on practices and collaboration that facilitate metacognitive inquiry and conversations, content focused on disciplinary literacy, and active learning for teachers.
- More than three quarters of teachers met the fidelity threshold set by SLI for attending the RAISE professional development; however, the teachers who met this threshold tended to be clustered in the same schools. Ten out of the 22 (45%) RAISE schools did not meet the school-level professional development attendance fidelity threshold.

- Over 90% of the RAISE schools had a RAISE-trained teacher leader who facilitated monthly team meetings and provided on-site support. A total of 67% of RAISE teachers attending at least 4 of the 10 on-site team meetings per year met the fidelity threshold set by SLI.
- While the program-level fidelity thresholds were met for attendance at the RAISE on-site monthly meetings, attendance varied greatly at the school level, suggesting that building coherence and communities of practice may have been more challenging at certain schools.

Feedback on the training was positive, with teachers who attended reporting that it prepared them to implement the Reading Apprenticeship approach.

- Over 90% of teachers who responded to survey questions about the RAISE professional development felt that it “moderately”, “more than moderately”, or “completely” prepared them to use the set of literacy practices modeled during the training.

Treatment teachers reported more support for literacy instruction than their control peers and generally held positive views of Reading Apprenticeship and its efficacy. Their survey responses indicated buy-in and commitment to implementing the framework.

- RAISE teachers reported receiving support for literacy instruction at a greater frequency than control teachers, and they rated this support as “very” or “more than moderately” helpful at higher levels than control teachers.
- Over 50% of teachers across subject areas reported believing that Reading Apprenticeship would be “highly” or “more than moderately” effective at improving students’ reading comprehension.
- 61% of teachers reported being fully committed to Reading Apprenticeship at the end of year 2.

However, implementation was not without challenges, with most teachers (over 60%) reporting experiencing competing priorities that hampered implementation, such as standardized test preparation or addressing content standards. Contextual factors may also have challenged implementation in some schools. For example, five schools (three treatment, two control) were reorganized into a single school under one principal. Though we have no evidence that the reorganization caused “contamination” between treatment and control schools, the disruption likely affected student and teacher data response rates and may have hindered treatment teachers’ ability to implement Reading Apprenticeship.

KEY FINDINGS ON TEACHER MEDIATING OUTCOMES. Monthly teacher surveys measured the extent to which RAISE had an impact on teacher mediating outcomes including shifts in instructional practice and confidence in literacy instruction. Measured during the second year of implementation, RAISE had statistically significant impacts on teachers’ use of core Reading Apprenticeship practices and on their confidence in delivering literacy instruction with effect sizes ranging from 0.41 to 0.62. The following were areas of impact.

- Employing practices that foster student independence
- Providing opportunities for students to practice metacognitive conversations
- Providing opportunities for students to practice comprehension strategies
- Providing opportunities for student collaboration
- Teacher confidence in literacy instruction

The analyses of teacher survey data suggest RAISE had an impact on reported attitudes and instructional practices in key areas emphasized by the Reading Apprenticeship framework. These areas of impact indicate a substantive shift in teachers’ practices away from the tendency to focus on basic reading comprehension and summary of information to focus on close reading and deep engagement with texts to build knowledge—the type of complex disciplinary literacy instruction envisioned by the Common Core State Standards. RAISE teachers were more likely than control teachers to encourage student-directed learning by using practices that foster student independence, providing opportunities for students to practice various reading strategies, and offering opportunities for peer-to-peer learning and collaboration. There were positive, but not statistically significant, differences in two other areas of practice: 1) providing extensive reading opportunities that reflect a variety of genres and text types and 2) promoting and employing instruction that promotes engagement, student-centered learning, and inquiry-based learning.

Among science teachers, we found an additional area of impact on instructional practices emphasized by Reading Apprenticeship: teachers modeling comprehension strategies. Further, in each of the areas where we found positive impacts of RAISE, the effect size for the impacts was larger for science teachers than for ELA and history teachers.

We hypothesize that the additional area of impact and larger effect sizes for science teachers are related to the fact that ELA and history teachers were likely employing some of these practices prior to the intervention, to a greater extent than their science educator peers. Thus, for science teachers, the uptake of Reading Apprenticeship required a larger transformation in their instructional and pedagogical approach, and yielded a larger effect size. Supporting this conjecture, we found that science teachers in the control group did, in fact, report less frequent use of practices indicative of the Reading Apprenticeship approach than ELA and history teachers.

The size of the effects on teacher practice increased between year 1 and 2, especially for teachers' confidence in providing literacy instruction, suggesting that the additional professional development received by teachers in the summer following their first year of implementation, along with the on-site support during year 2, increased teachers' comfort level and ability to implement Reading Apprenticeship.

KEY FINDINGS ON STUDENT MEDIATING OUTCOMES. Changes in teacher practices as a result of RAISE are hypothesized to change students' classroom experiences, attitudes, and behaviors. These mediating student outcomes were measured through a year-end student survey.

- RAISE produced positive and statistically significant impacts on the full sample of students in the following two student mediating outcome domains that are hallmarks of the Reading Apprenticeship framework.
 - o Increased integration of reading instruction into content-area teaching
 - o Increased metacognitive inquiry
- The size of the impacts on student mediating outcomes increased over time.

The effect sizes of the impacts were 0.21 and 0.18 respectively. Impacts in other areas were positive but not statistically significant including outcomes related to collaboration in a community of readers and writers; use of comprehension strategies; reader identity; and participation in metacognitive conversations.

There was also a statistically significant impact on participation and contribution to class discussions, class time spent reading among science students, and variety of reading material among history students. The effects on ELA students were smaller and not statistically significant.

KEY FINDINGS ON STUDENT LITERACY ACHIEVEMENT OUTCOMES.

Student literacy achievement was measured through an online, scenario-based assessment developed by Educational Testing Service (ETS) for this study. The assessment was designed to measure the strategic reading processes that are primary targets of Reading Apprenticeship and closely aligned with the Common Core State Standards. The assessment was designed to be a more rigorous measure of complex reading comprehension than typical state ELA tests.

- By the end of the second year of implementation, RAISE had a positive and statistically significant impact on student literacy in science classes. The effect size of the impact was 0.32.

This effect size translates into an improvement index of 12.6 percentage points: that is, we would expect control students to move from the 50th percentile to the 62.6th percentile if they were exposed to RAISE. Results for the other two subjects were not statistically significant but with a meaningful effect for ELA classrooms (effect size = 0.22) and a non-meaningful result for history classrooms.

The impact in science is particularly impressive given that implementing the Reading Apprenticeship framework may require a more dramatic change in science teachers' core practices and routines than is needed by ELA and history teachers.

- For the full sample and for key subgroups, including English language learners, low-income students, low prior performers, non-white students, and students in Pennsylvania schools, we found positive but not statistically significant impacts, with effect sizes ranging from 0.11 to 0.25. These results may reflect the study's limited ability to detect a modest size effect.

CONCLUSIONS

Findings from this study demonstrate the success of the RAISE project in providing teachers with training and support at scale to help them change their instructional practices in order to foster metacognitive inquiry and support comprehension, particularly in science. These findings are consistent with positive findings from other studies of Reading Apprenticeship. The primarily positive, yet not statistically significant results for the full sample and subgroups of students, including English language learners, indicate that the study's sample size may not have been large enough to detect a modest size impact.

The results from this study point to several areas in need of further investigation. Specifically, the differences in impact by subject area and state need to be better understood. Further, SLI and the larger field would benefit from additional research on those factors that support bringing the model to scale and generating meaningful classroom-level changes in instruction, particularly for ELA and history teachers. Overall, the study's findings demonstrate the potential of RAISE to address the paucity of content-specific reading instruction in U.S. secondary schools—especially in science, where the need may be greatest.