IES Institute of Education Sciences

Reading Apprenticeship®

Intervention Report | English Language Arts Topic Area

WHAT WORKS CLEARINGHOUSE™
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Students need strong literacy skills to succeed in core academic subjects—English, mathematics, science, and social studies—and to be prepared for college and careers. *Reading Apprenticeship®* is a professional development program that aims to help teachers improve their students' literacy skills. The program also aims to improve student social-emotional learning outcomes such as belonging, social awareness, growth mindset, and self-efficacy. *Reading Apprenticeship®* trains teachers to model reading comprehension strategies and help students practice these strategies in their classrooms.

The What Works Clearinghouse (WWC) reviews existing research on educational interventions to identify evidence-based programs and practices. This WWC intervention report summarizes the available evidence on the effects of *Reading Apprenticeship®* on student achievement outcomes in middle and high school.

Goal: *Reading Apprenticeship®* aims to help teachers improve their instructional practices so that they can better develop student literacy skills and improve social-emotional learning outcomes.

Target population: Teachers in middle schools, high schools, and community colleges across content areas—including English, mathematics, science, and social studies—can use *Reading Apprenticeship®*.

Did *Reading Apprenticeship®* improve student outcomes?

Five studies of *Reading Apprenticeship®* meet WWC standards. Findings from these five studies are summarized in Table 1. The table includes rows for each outcome domain—a group of related outcome measures—that was studied in the research.

Table 1 indicates whether the evidence satisfies the WWC's requirements for strong, moderate, or promising tiers of evidence. Based on one study that meets WWC standards, there is moderate evidence that *Reading Apprenticeship®* positively impacted student science achievement and grade point average.

The WWC effectiveness rating indicates whether *Reading Apprenticeship®* resulted in improved outcomes for students whose teachers participated in the program compared with students whose teachers did not. Taken together, findings from all five studies meeting WWC standards suggest that *Reading Apprenticeship®* had *potentially positive effects* on science achievement and grade point average and *uncertain effects* on achievement in life sciences, social studies, literacy, reading comprehension, vocabulary, and mathematics. Findings and conclusions could change as new research becomes available.

Studies also measured the effects of *Reading Apprenticeship®* on school attendance, credit accumulation, engagement, happiness, belonging, positive identity, growth mindset, and suspensions. However, these findings are not summarized in Table 1 because this report is primarily focused on the effects of *Reading Apprenticeship®* on certain academic outcomes as pre-specified in the Systematic Review Protocol for English Language Arts Interventions. Findings for these other outcomes, all of which showed *uncertain effects*, are reported on the WWC website. The effects of *Reading Apprenticeship®* on other student outcomes not discussed here are unknown.

Table 1. Summary of findings on *Reading Apprenticeship*® from studies that meet WWC standards

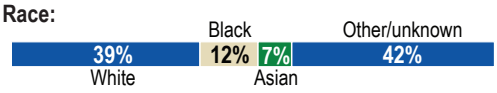
Outcome domain	Effectiveness rating	Sample size	Evidence tier	Summary
Science achievement	Potentially positive effects	1,151 students	TIER 2 MODERATE	One study provides strong evidence that *Reading Apprenticeship*® improved student science achievement. Because this assessment is based on only 1 study that meets WWC standards, the WWC effectiveness rating is potentially positive effects.
Academic achievement (grade point average)	Potentially positive effects	2,563 students	TIER 2 MODERATE	One study provides strong evidence that *Reading Apprenticeship*® improved student grade point average. Because this assessment is based on only 1 study that meets WWC standards, the WWC effectiveness rating is potentially positive effects.
Life sciences	Uncertain effects	1,172 students	NO TIER ASSIGNED	The research does not support claims that *Reading Apprenticeship*® improved life sciences achievement. This assessment is based on 1 study that meets WWC standards.
Social studies achievement	Uncertain effects	447 students	NO TIER ASSIGNED	The research does not support claims that *Reading Apprenticeship*® improved social studies achievement. This assessment is based on 1 study that meets WWC standards.
Literacy achievement	Uncertain effects	9,178 students	NO TIER ASSIGNED	The research does not support claims that *Reading Apprenticeship*® improved general literacy achievement. This assessment is based on 3 studies that meet WWC standards.
Reading comprehension	Uncertain effects	20,716 students	NO TIER ASSIGNED	The research does not support claims that *Reading Apprenticeship*® improved reading comprehension. This assessment is based on 5 studies that meet WWC standards.
Vocabulary	Uncertain effects	2,255 students	NO TIER ASSIGNED	The research does not support claims that *Reading Apprenticeship*® improved student vocabulary. This assessment is based on 1 study that meets WWC standards.
Mathematics achievement	Uncertain effects	7,819 students	NO TIER ASSIGNED	The research does not support claims that *Reading Apprenticeship*® improved mathematics achievement. This assessment is based on 2 studies that meet WWC standards.

FINDINGS FROM 5 STUDIES

22,176 students in California, Michigan, New York, Pennsylvania, Texas, and Wisconsin

STUDENTS IN GRADES 7–9

Race:



Hispanic/Latino: 39%

Free & Reduced-Price Lunch: 52%

Special Education: 11%

Female: 47%

HOW THE WWC REVIEWS AND DESCRIBES EVIDENCE

The WWC conducted a systematic review of interventions designed to improve teacher practice and selected and prioritized studies for review using the version 4.1 Systematic Review Protocol for English Language Arts Interventions. The WWC evaluated the quality and results of the selected studies using the criteria outlined in the version 4.1 Procedures and Standards Handbooks and the accompanying Study Review Protocol.

The WWC considers each study's research design, whether findings were statistically significant and positive, and the number of studies contributing to this report. The WWC synthesizes evidence across studies—using a weighted average—to determine the effectiveness rating for each outcome domain. The WWC defines outcome domains in the Study Review Protocol to group related outcome measures.

Effectiveness rating	Description of the evidence
Positive (or negative) effects	The evidence base primarily includes the strongest research designs, and the average effect across all high-quality research is statistically significant and positive (or negative).
Potentially positive (or negative) effects	The evidence base primarily includes research with some limitations, and the average effect across all high-quality research is statistically significant and positive (or negative).
Uncertain effects	The average effect across all high-quality research is not statistically significant, so the WWC does not classify it as a positive or a negative effect.

The WWC considers the effectiveness rating, the sample size, and the number of educational sites (states, districts, local education agencies, schools, postsecondary campuses) across studies to determine the evidence tier for each outcome domain. When the effectiveness rating is *uncertain*, *potentially negative*, or *negative* effects, there is no evidence tier.

Evidence tier		Criteria based on evidence synthesis
Strong evidence of effectiveness	TIER 1 STRONG	• Receives an effectiveness rating of positive effects, and • Includes at least 350 students in at least two educational sites
Moderate evidence of effectiveness	TIER 2 MODERATE	• Receives an effectiveness rating of potentially positive effects, and • Includes at least 350 students in at least two educational sites
Promising evidence of effectiveness	TIER 3 PROMISING	• Receives an effectiveness rating of potentially positive effects or positive effects • Includes fewer than 350 students or two educational sites

How was *Reading Apprenticeship*® implemented?

This section provides details of how districts and schools implemented *Reading Apprenticeship*® in the five studies that contribute to this intervention report. This information can help educators identify the requirements for implementing *Reading Apprenticeship*® and determine whether implementing this program would be feasible in their districts or schools.

Reading Apprenticeship® professional development is usually implemented along with a school-selected literacy curriculum. *Reading Apprenticeship*® began as a yearlong curriculum for struggling readers. The original program, called *Reading Apprenticeship Academic Literacy (RAAL)*, was implemented in the 1996–97 school year, before the introduction of the professional development program. The *Reading Apprenticeship*® professional development program, which includes a summer training series and coaching during the school year, was developed in 1999 and remains available today. Between 2010 and 2015, the developers designed three new program packages that emphasized different aspects of the program. *Reading Apprenticeship Improving Secondary Education (RAISE)* was designed to support a larger number of *Reading Apprenticeship*® teachers within schools by recruiting teacher leaders and providing other supports such as monthly school-based meetings for teachers. Another package, *Internet-*

Comparison condition: In the five studies that contribute to this intervention report, students in the comparison group were taught by teachers who did not participate in *Reading Apprenticeship*®. Comparison students received instruction in the same core subjects as students in the intervention group, except in one study (Somers et al., 2010), where comparison students participated in an elective course not related to English language arts. Teachers may have participated in other training or professional development programs offered by their schools or school districts.

based Reading Apprenticeship Improving Science Education (iRAISE), was developed for high school science teachers only and consists of online training. *Reading Apprenticeship Across the Disciplines (RAAD)* offers fewer professional development sessions by streamlining some content in the standard *Reading Apprenticeship®* professional development program.

The five studies summarized in this intervention report each implemented a different package:

- *RAAL* curriculum with professional development (Somers et al., 2010)
- *Reading Apprenticeship®* original professional development (Greenleaf et al., 2009)
- *RAISE* professional development (Fancsali et al., 2015)
- *iRAISE* professional development (Jaciw et al., 2016)
- *RAAD* professional development (Pyatigorsky et al., 2019)

Each package of *Reading Apprenticeship®* included virtual or in-person training, which was conducted on-site or off-site, as well as access to follow-up supports. In all packages, teachers implemented *Reading Apprenticeship®* instructional strategies with their students. The program was implemented over the course of 1 school year for each cohort of students, and in two studies (Fancsali et al., 2015, and Pyatigorsky et al., 2019), some students were exposed to the program for 2 years. Table 2 describes the components and implementation of *Reading Apprenticeship®* in more detail.

WWC standards assess the quality of the research, not the quality of the implementation. Studies that meet WWC standards vary in quality of implementation. However, a study must describe the relevant components of the program and how each was implemented with adequate detail to be included in an intervention report.

Table 2. Implementation of components of *Reading Apprenticeship®*

Component	Description of the component	How it was implemented
Professional development	Teachers and other school staff may participate in two professional development courses: the *Reading Apprenticeship® Essentials I* course, which introduces educators to *Reading Apprenticeship®* instructional strategies, and the *Reading Apprenticeship® Essentials II* course, which focuses on cognitive and knowledge-building routines. Teachers then may receive on-site coaching from professional coaches or trained staff within the school or district. Professional development for teachers and other school staff is available in person (both on-site and off-site) or online and is delivered in nine 2-hour online trainings, or in 3- to 10-day in-person trainings, depending on the type of training selected. Teacher leaders, coaches, and administrators can also receive on-site coaching from the developer and may take an online course called *Leading for Literacy Online* to learn strategies to help support and sustain *Reading Apprenticeship®* implementation.	In four of the five studies reviewed for this report, teachers, teacher leaders, and administrators received a 5-day introductory training in the summer before the start of the program. Training for coaches, who were hired by the developer or regional partners, was provided separately. In the fifth study (Pyatigorsky et al., 2019), which implemented the *RAAD* package, the training was delivered over a 3-day period. Professional development was delivered in person in four studies and online in one study. Follow-up training was provided in all five studies. In addition, monthly professional learning community meetings were held in two studies, monthly teacher leader meetings were held in one study, weekly calls or emails were sent to teachers in one study, and periodic interviews or calls were held with teachers in one study.
Instructional strategies	Teachers use *Reading Apprenticeship®* instructional strategies with the goal of helping students to build comprehension skills, overcome difficulties with reading, interact more deeply with text, gain interest in reading, and improve their confidence in reading. Every educator who receives *Reading Apprenticeship®* professional development is given a copy of the developer's e-book, *Reading for Understanding*, for reference. In *Reading Apprenticeship®*, the teacher (the "master reader") models comprehension strategies and helps students (the "reading apprentices") practice these strategies. Teachers mentor students in reasoning and problem-solving skills designed to help students handle more complex reading tasks. Through conversations between teachers and students, students are expected to become aware of specific reading processes and to understand the thought processes that guide their comprehension of the text.	All *Reading Apprenticeship®* packages that were studied implemented the instructional strategies.

Note: The descriptive information for this intervention comes from the program website, https://readingapprenticeship.org; the five studies that meet WWC standards; and from correspondence with the developer.

How much does *Reading Apprenticeship*® cost?

This section provides educators with an overview of the resources needed to implement *Reading Apprenticeship*®. Table 3 describes the major resources needed for implementation and approximate costs, based on information available as of August 2022.

Table 3. Resources needed to implement *Reading Apprenticeship*®

Resource	Description	Funding source
Personnel	The *Reading Apprenticeship*® *Essentials* series includes three courses: an introduction to *Reading Apprenticeship*®; advanced materials and additional practice; and training for becoming a coach, teacher leader, or supporting administrator. Each course can be purchased for $900 per participant for online instruction or $1,500 per participant for in-person instruction. All in-person training activities include additional travel and lodging costs. On-site or online small-group coaching for teachers is also available for up to 40 teachers in half-day sessions.	School districts or schools cover costs for training and professional development, although the developer may have grant funding available to support the cost. In the studies reviewed for this report, professional development costs were covered by grant funding or direct support by WestEd's Strategic Literacy Initiative.
Facilities	Professional development is delivered online or in school facilities.	School districts or schools provide the facilities, computers, and internet access.
Equipment and materials	A copy of the developer's e-book, *Reading for Understanding*, is provided with the *Reading Apprenticeship*® Essentials courses. If a school is adopting the optional Reading Apprenticeship Academic Literacy curriculum, the teacher materials bundle costs $495.95 per teacher and includes transparencies, DVDs, and binders for each of the three units in the curriculum. The student materials bundle costs $92.75 per student and includes student readers and interactive notebooks.	School districts or schools purchase *Reading Apprenticeship*® materials for their teachers and students.

For more information about the cost of *Reading Apprenticeship*®:

About *Reading Apprenticeship*®

WestEd/Strategic Literacy Initiative
730 Harrison Street
San Francisco, CA 94107
Email: readingapprenticeship@wested.org Web: https://readingapprenticeship.org/. Phone: (301) 997-1891

About the cost of the intervention

Web: https://readingapprenticeship.org/services/

What research did the WWC review about *Reading Apprenticeship®*?

This section provides details about the studies of *Reading Apprenticeship®* that the WWC identified in its systematic review. This section summarizes all of the studies reviewed by the WWC for this intervention report and the findings and the characteristics of the five studies that meet WWC standards.

The quality of evidence in the available research about *Reading Apprenticeship®*

The WWC identified nine studies that investigated the effectiveness of *Reading Apprenticeship®* from a literature search in the Education Resources Information Center (ERIC) and other databases in February 2022. Of these nine studies, five meet WWC standards and contribute to the summary of evidence in this intervention report. Studies that do not meet WWC standards do not contribute to this intervention report (Figure 1).

- **Three studies meet WWC standards without reservations.** All three studies are low-attrition randomized controlled trials that receive the highest WWC research rating. Two studies are cluster randomized controlled trials that assigned schools to the intervention or comparison conditions, and one study assigned students to intervention or comparison conditions.
- **Two studies meet WWC standards with reservations.** Both studies are cluster randomized controlled trials that analyzed intervention and comparison groups that appeared similar before introducing the intervention but do not meet the WWC's requirements for the highest WWC research rating. One study does not report the sample sizes needed to assess how many students remained in the study when outcomes were measured. In the other study, students were assigned to the *Reading Apprenticeship®* or comparison classrooms after random assignment, which poses a risk that the two groups might be dissimilar.
- **Four studies do not meet WWC standards.** Three of these studies do not satisfy the baseline equivalence requirement because there is inconclusive evidence that the intervention and comparison groups were similar before introducing the intervention. In the fourth study, there is a confounding factor: Because there was a single classroom in the comparison group, it is not possible to isolate the effectiveness of *Reading Apprenticeship®* from the effectiveness of the teacher.

The citations for these three groups of studies are included in the references. For information on how the WWC determines study ratings, see the version 4.1 Procedures and Standards Handbooks, WWC Standards Briefs, and the Study Review Protocol, available on the WWC website.

More details about the five studies of *Reading Apprenticeship®* that meet WWC standards

The five studies that meet WWC standards examined the effects of *Reading Apprenticeship®* on standardized measures of academic achievement. Table 4 on the following page lists, for each finding, the name of the outcome, when it was assessed, the sample and setting, the means and standard deviations in the *Reading Apprenticeship®* and comparison groups, the effect size, the improvement index, and whether the WWC determined the finding to be statistically significant. Table 5 provides more contextual information about the five studies of *Reading Apprenticeship®* that meet WWC standards, including the study setting and participants.

Reading Apprenticeship® had *potentially positive* effects on science achievement and grade point average. *Reading Apprenticeship®* had *uncertain effects* on reading comprehension and literacy achievement because the average effect across all outcomes and studies in each domain was not statistically significant. Although the program had a statistically significant and positive effect on one outcome measure in each of these domains, findings for the other outcome measures were not statistically significant. *Reading Apprenticeship®* also had *uncertain effects* on life sciences, social studies achievement, vocabulary, and mathematics achievement.

The WWC also reviewed findings in other outcome domains for these studies including intrapersonal competencies (happiness, belonging, growth mindset, positive identity), student behavior (in-class engagement), student discipline (ever suspended), progressing in secondary school (credits earned in high school), and school attendance. None of these findings was statistically significant. These additional findings, and supplemental findings such as for subgroups of

What is an effect size? The effect size is a standardized measure of the impact of an intervention that can be synthesized across outcome measures and studies. A positive effect size favors the intervention group and a negative effect size favors the comparison group. Effect sizes further away from 0 means there was a larger difference between the groups.

What is an improvement index? The improvement index is another measure of the intervention's impact on an outcome. The improvement index can be interpreted as the expected change in percentile rank for an average comparison group student if that student had received the intervention. For example, an improvement index of +5 means that a comparison group student at the 50th percentile would have scored at the 55th percentile if they had received the intervention. The effect size and improvement index measure the same concept in different units, similar to meters and feet for distance.

What is statistical significance? A finding is statistically significant if the difference between the intervention and comparison group means was large enough that it is unlikely to have been obtained for an intervention without a true impact. The WWC considers *p*-values less than 0.05 to be statistically significant.

English learners and students with low prior achievement, do not factor into the program's rating of effectiveness but can be viewed on the WWC website (https://ies.ed.gov/ncee/wwc/ReviewedStudies/). Links to each WWC study page are provided in the References. Other study findings that are not reported on the WWC website were either ineligible for review or did not meet WWC standards.

Table 4. Findings by outcome domain from five studies of *Reading Apprenticeship*® that meet WWC standards

Outcome	Timing of measurement and study	Study sample	Number of sites and program package	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (*p*-value)
Science achievement outcome domain								
State science assessments	End of second year of implementation (Somers et al., 2010)	1,151 students in grade 9	17 schools in four states—*RAAL*	--	--	0.11	+4	Yes (*p*=0.03)
Summary for science achievement: Potentially positive effects						**0.11**	**+4**	**Yes (*p*=0.03)**
Academic achievement outcome domain								
Grade point average in core subjects	End of second year of implementation (Somers et al., 2010)	2,563 students in grade 9	17 schools in four states—*RAAL*	1.54 (0.95)	1.47 (0.96)	0.07	+3	Yes (*p*=0.02)
Summary for academic achievement: Potentially positive effects						**0.07**	**+3**	**Yes (*p*=0.02)**
Life sciences outcome domain								
California Standards Test (CST) biology assessment	End of second year of implementation (Greenleaf et al., 2009)	1,172 students in grades 9 and 10	45 schools in California—Original professional development	338.07 (43.79)	330.10 (55.49)	0.16	+7	No (*p*=0.27))
Summary for life sciences: Uncertain effects						**0.16**	**+7**	**No (*p*=0.27)**
Social studies achievement outcome domain								
State social studies assessments	End of second year of implementation (Somers et al., 2010)	447 students in grade 9	17 schools in four states—*RAAL*	--	--	0.15	+6	No (*p*=0.09)
Summary for social studies achievement: Uncertain effects						**0.15**	**+6**	**No (*p*=0.09)**

Outcome	Timing of measurement and study	Study sample	Number of sites and program package	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (*p*-value)
Literacy achievement outcome domain								
California Standards Test (CST) English language arts assessment	End of second year of implementation (Greenleaf et al., 2009)	1,236 students in grades 9 and 10	45 schools in California—Original professional development	--	--	0.03	+1	No (*p*=0.74)
State English language arts assessments (standardized scores)	End of second year of implementation (Pyatigorsky et al., 2019)	6,889 students in grades 7 and 8	40 schools in California, New York, Texas, and Wisconsin—*RAAD*	--	--	-0.06	-2	No (*p*=0.30)
State English language arts assessments (standardized scores)	End of second year of implementation (Somers et al., 2010)	1,053 students in grade 9	17 schools in four states—*RAAL*	--	--	0.16	+6	Yes (*p*<0.01)
Summary for literacy achievement: Uncertain effects						**0.04**	**+2**	**No (*p*=0.23)**
Reading comprehension outcome domain								
Educational Testing Service (ETS) Global Integrated Scenario-Based Assessment	End of second year of implementation (Fancsali et al., 2015)	10,173 students in grades 9 to 12	42 schools in California and Pennsylvania—*RAISE*	--	--	0.14	+6	No (*p*=0.18)
CST Reading Comprehension	End of second year of implementation (Greenleaf et al., 2009)	1,111 students in grades 9 and 10	45 schools in California—Original program	--	--	0.04	+2	No (*p*=0.60)
ETS Global Integrated Scenario-Based Assessment for Biology	End of first year of implementation (Jaciw et al., 2016)	1,315 students in grades 9 to 12	27 schools in Michigan and Pennsylvania--*iRAISE*	--	--	0.01	0	No (*p*=0.79)
Degrees of Reading Power assessment	End of second year of implementation (Pyatigorsky et al., 2019)	5,862 students in grades 7 and 8	40 schools in California, New York, Texas, and Wisconsin—*RAAD*	58.67 (14.61)	60.11 (14.06)	-0.10	-4	No (*p*=0.14)
Group Reading Assessment and Diagnostic Examination (GRADE): Reading Comprehension subtest	End of second year of implementation (Somers et al., 2010)	2,255 students in grade 9	17 schools in four states—*RAAL*	90.00 (10.20)	88.80 (10.30)	0.12	+5	Yes (*p*<0.01)
Summary for reading comprehension: Uncertain effects						**0.04**	**+1**	**No (*p*=0.07)**

Outcome	Timing of measurement and study	Study sample	Number of sites and program package	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (*p*-value)
Vocabulary outcome domain								
GRADE: Vocabulary subtest	End of second year of implementation (Somers et al., 2010)	2,255 students in grade 9	17 schools in four states—*RAAL*	93.30 (10.40)	93.30 (10.00)	0.00	0	No (p>0.99)
Summary for vocabulary: Uncertain effects						**0.00**	**0**	**No (*p*>0.99)**
Mathematics achievement outcome domain								
State mathematics assessments (standardized scores)	End of second year of implementation (Pyatigorsky et al., 2019)	6,556 students in grades 7 and 8	39 schools in California, New York, Texas, and Wisconsin—*RAAD*	--	--	-0.13	-5	Yes (p=0.05)
State mathematics assessments (standardized scores)	End of second year of implementation (Somers et al., 2010)	1,263 students in grade 9	17 schools in four states—*RAAL*	--	--	0.05	+2	No (p=0.32)
Summary for mathematics achievement: Uncertain effects						**-0.01**	**-1**	**No (*p*>0.99)**

Note: The intervention and comparison group means and standard deviations are not displayed for some findings in the table because they were not reported in units that can be compared to scores on the same measures in other samples or settings. *RAAL=Reading Apprenticeship Academic Literacy*; *RAISE=Reading Apprenticeship Improving Secondary Education*; *iRAISE=Internet-based Reading Apprenticeship Improving Science Education*; *RAAD=Reading Apprenticeship Across the Disciplines*.

Table 5. Characteristics of the five studies of *Reading Apprenticeship*® that meet WWC standards

What was the study design?	All five studies used randomized controlled trial designs. One study (Somers et al., 2010) randomly assigned students to the intervention and comparison groups, while three studies randomly assigned schools (Fancsali et al., 2015; Greenleaf et al., 2009; Pyatigorsky et al., 2019), and one study randomly assigned teachers (Jaciw et al., 2016).
What was the WWC study rating?	Three studies—Fancsali et al. (2015), Pyatigorsky et al. (2019), and Somers et al. (2010)—are rated **Meets WWC Group Design Standards Without Reservations** because they are randomized controlled trials with low attrition. Two studies—Greenleaf et al. (2009) and Jaciw et al. (2016)—are rated **Meets WWC Group Design Standards With Reservations** because they are cluster randomized controlled trials that either had a risk of bias due to students who entered the clusters after they were randomly assigned (Jaciw et al. 2016) or the sample size of students was unknown at baseline and the WWC was unable to assess attrition (Greenleaf et al., 2009). In both studies, the analytic intervention and comparison groups satisfy the baseline equivalence requirement.
Where did the study occur?	**Fancsali et al. (2015)** • The study took place in 42 high schools in California and Pennsylvania with students in grades 9 to 12. The study included English, science, and history classrooms. • The intervention group received instruction from teachers who received professional development in *Reading Apprenticeship Improving Secondary Education (RAISE)*, and the comparison group received instruction from teachers who did not participate in *RAISE*. **Greenleaf et al. (2009)** • The study took place in science classrooms within 45 high schools in California with students in grades 9 and 10. • The intervention group received instruction from teachers who received the original *Reading Apprenticeship*® professional development program, and the comparison group received instruction from teachers who did not participate in *Reading Apprenticeship*®. **Jaciw et al. (2016)** • The study took place in science classrooms within 26 high schools in Michigan and Pennsylvania with students in grades 9 to 12. • The intervention group received instruction from teachers who received professional development in *Internet-based Reading Apprenticeship Improving Science Education (iRAISE)*, and the comparison group received instruction from teachers who did not participate in *iRAISE*. **Pyatigorsky et al. (2019)** • The study took place in 40 middle schools in eight school districts in California, New York, Texas, and Wisconsin in grades 7 and 8. The study included English language arts, social studies, and science classrooms. • The intervention group received instruction from teachers who received professional development in *Reading Apprenticeship Across the Disciplines (RAAD)*, and the comparison group received instruction from teachers who did not participate in *RAAD*. **Somers et al. (2010)** • The study took place in grade 9 elective courses within 17 high schools across 10 school districts in the United States. The four states in which the study took place are not named in the study. • The intervention group received instruction from teachers who delivered the *Reading Apprenticeship Academic Literacy (RAAL)* curriculum in a supplemental class, and the comparison group took other elective courses such as career and technical services, performing arts, physical education, health, and foreign languages.
Who participated in the study?	**Fancsali et al. (2015)** • The study included 10,173 students taught by 252 teachers. • Approximately 48% of students were White, 8% were Asian, 5% were Black, 55% were female, 14% were English learners, 11% received special education services, 47% were eligible for free or reduced-price lunch, and 38% scored in the bottom third on the grade 8 state reading or English language arts test. **Greenleaf et al. (2009)** • The study included 1,236 students taught by 54 science teachers. • Approximately 22% of students were White, 13% were Asian, 8% were Black, 45% were Hispanic or Latino, 45% were female, and 36% were English learners. **Jaciw et al. (2016)** • The study included 1,315 students taught by 82 science teachers. • Approximately 73% of students were White, 16% were Black, 8% were Hispanic or Latino, 50% were female, and 52% were eligible for free or reduced-price lunch. **Pyatigorsky et al. (2019)** • The study included 6,889 students taught by 158 teachers. • Approximately 28% of students were White, 12% were Black, 9% were Asian, 50% were Hispanic or Latino, 48% were female, 14% were English learners, 12% received special education services, 55% were eligible for free or reduced-price lunch, and 9% were overage for their grade level. **Somers et al. (2010)** • The study included 2,255 students taught by 17 *Reading Apprenticeship*® teachers and an unknown number of comparison teachers. • Approximately 47% of the students were Black, 17% were White, 6% were another race, 30% were Hispanic or Latino, 50% were female, and 46% of students spoke another language besides English at home.

Recommended Citation

What Works Clearinghouse, Institute of Education Sciences, U.S. Department of Education. (2023, January). *Reading Apprenticeship®*. https://whatworks.ed.gov

References

Studies that meet WWC standards without reservations

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Additional sources

The WWC examined additional sources (such as preliminary reports, working papers, or other associated publications) related to the citations in the references to complete its review of these studies. The additional sources are listed on the WWC pages for each study review.

* In February 2023 the WWC modified this report to correct an error in the percentage of students eligible to receive free and reduced-price lunch. The percentage on page 2 was corrected from 49% to 52%. This revised report replaces the original January 2023 report.