Institute of Education Sciences

Reading Recovery®

Intervention Report | English Language Arts Topic Area

WHAT WORKS CLEARINGHOUSE™
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U.S. DEPARTMENT OF EDUCATION

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Identifying and supporting students in early elementary grades with low literacy achievement is critical to help them achieve grade-level proficiency and stay on track academically. *Reading Recovery*® is an intervention that provides one-on-one tutoring to students in grade 1 with low literacy achievement. This supplemental program aims to improve student reading and writing skills by providing one-on-one tutoring, tailoring the content of each lesson to each student based on observations and analyses of the student strengths and weaknesses from prior lessons. Trained *Reading Recovery*® teachers deliver tutoring daily in 30-minute one-on-one sessions over the course of 12 to 20 weeks. *Reading Recovery*® teachers incorporate instruction in topics such as phonemic awareness, phonics, vocabulary, fluency, comprehension, writing, oral language, and motivation depending on student needs.

Goal: *Reading Recovery*® aims to improve the reading and writing skills of students in grade 1.

Target population: *Reading Recovery*® is typically used with students in grade 1 with low literacy achievement.

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 Recovery*® on student achievement in elementary school.

Did *Reading Recovery*® improve student outcomes?

Two studies of *Reading Recovery*® meet WWC standards. Findings from these two 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. The effects of *Reading Recovery*® on other student outcomes are unknown.

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 Recovery*® positively impacted student achievement in literacy immediately after the intervention. Based on a second study that meets WWC standards, there is promising evidence that *Reading Recovery*® positively impacted writing productivity and receptive communication skills immediately after the intervention and writing conventions skills 3 years after the intervention. *Reading Recovery*® had uncertain effects on student achievement in general secondary academic performance 10 years after the intervention and in mathematics achievement 3 years after the intervention.

The WWC effectiveness rating indicates whether *Reading Recovery*® resulted in improved outcomes for students who participated in the program compared with students who did not. Findings and conclusions could change as new research becomes available.

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

Outcome domain (Timing of measurement)	Effectiveness rating	Sample size	Evidence tier	Summary
Literacy achievement (End of implementation year)	Potentially positive effects	6,888 students	TIER 2 MODERATE	One study provides strong evidence that *Reading Recovery*® improved student literacy achievement. Because there is only one study that meets WWC standards, the intervention report provides moderate evidence that *Reading Recovery*® improved student literacy achievement.
Writing productivity (End of implementation year)	Potentially positive effects	234 students	TIER 3 PROMISING	One study provides promising evidence that *Reading Recovery*® improved student writing productivity. This assessment is based on one study that meets WWC standards and includes fewer than 350 students.

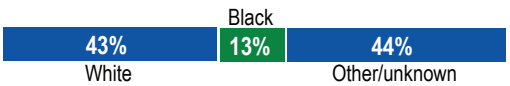
Outcome domain (Timing of measurement)	Effectiveness rating	Sample size	Evidence tier	Summary
Receptive communication (End of implementation year)	Potentially positive effects	234 students	TIER 3 PROMISING	One study provides promising evidence that *Reading Recovery®* improved students' skills in receptive communication. This assessment is based on one study that meets WWC standards and includes fewer than 350 students.
Writing conventions (3 years after implementation)	Potentially positive effects	241 students	TIER 3 PROMISING	One study provides promising evidence that *Reading Recovery®* improved students' skills in writing conventions. This assessment is based on one study that meets WWC standards and includes fewer than 350 students.
Academic achievement (Assessment on multiple subjects administered in regions across the United Kingdom 10 years after implementation)	Uncertain effects	271 students	NO TIER ASSIGNED	The research does not support claims that *Reading Recovery®* improved student academic achievement. This assessment is based on one study that meets WWC standards.
Mathematics achievement (3 years after implementation)	Uncertain effects	241 students	NO TIER ASSIGNED	The research does not support claims that *Reading Recovery®* improved student mathematics achievement. This assessment is based on one study that meets WWC standards.

FINDINGS FROM 2 STUDIES

7,171 students in the United States and United Kingdom

STUDENTS IN GRADE 1

Race:



Hispanic/Latino: 19%

Free & Reduced-Price Lunch: 55%

English Learner: 20%

Female: 40%

HOW THE WWC REVIEWS AND DESCRIBES EVIDENCE

The WWC conducted a systematic review of interventions designed to improve students' social, emotional, and behavioral outcomes and selected and prioritized studies for review using the version 4.1 Systematic Review Protocol for English Language Arts. 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 Recovery*® implemented?

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

In *Reading Recovery*®, specially trained teachers identify students with low literacy achievement and tailor interactive, one-on-one tutoring lessons to meet each student's needs. *Reading Recovery*® teachers work part of the day in *Reading Recovery*® and the remaining part of the day in other capacities, such as teaching small literacy groups or classrooms. *Reading Recovery*® lessons are discontinued when students can consistently read at the average level for their grade. This milestone is based on *Reading Recovery*® teachers' daily observations and student performance on the exit assessment, which typically occurs between weeks 12 and 20 of the program.

Comparison condition: One study (Burroughs-Lange & Douëtil, 2007) that contributes to this intervention report included two comparison groups. One group included students who attended the study schools that offered *Reading Recovery*® but they did not receive *Reading Recovery*®. The other group attended schools that did not offer *Reading Recovery*®. Students in both comparison groups had access to supplemental literacy interventions, including *Early Literacy Support*, *Ruth Miskin Library*, *Supported Reading*, and *15 Minutes a Day*, and approximately one-third of the comparison students used these supports.

In the second study (May et al., 2015), comparison group students attended the same schools as their peers in the intervention group. More than three-quarters of comparison group students received supplemental literacy instruction, typically in small-group settings.

Reading Recovery® is intended for students in grade 1, who are typically 6 or 7 years old. *Reading Recovery*® was implemented with students in grade 1 in May et al. (2015) and with students ages 5 and 6 in the United Kingdom's equivalent of kindergarten (Year 1) in Burroughs-Lange and Douëtil (2007).

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 Recovery*®

Component	Description of the component	How it was implemented
***Reading Recovery*® teacher training sites**	Teacher leaders train and provide ongoing support and professional development to *Reading Recovery*® teachers. Teacher leaders are selected by the school district or consortium of schools or districts implementing *Reading Recovery*® to be employed at a *Reading Recovery*® teacher training site. Teacher training sites are located in public schools and operated by the school districts and are affiliated with one of 12 partnering universities in the United States. Teacher training sites serve as the hub through which *Reading Recovery*® teacher leaders train, certify, and provide ongoing professional development for *Reading Recovery*® teachers. Teacher leaders, along with their district administrators, establish and maintain the teacher training sites.	Neither study provided details about the *Reading Recovery*® teacher training sites
***Reading Recovery*® teacher leaders**	Teacher leaders spend 100% of their time on *Reading Recovery*® activities. Teacher leaders must hold a master's degree and have teaching credentials. District staff also consider candidate teaching experience and leadership potential upon selection into the program. Teacher leaders receive their *Reading Recovery*® certification after completing a yearlong training. The yearlong training includes two components: completing graduate coursework and completing supervised practicums. First, teacher leader candidates complete about six graduate courses over one academic year in literacy assessment, literacy development, literacy research, program evaluation and data monitoring (including data collection, analyses, and reporting procedures), adult education and supervision, and administration of *Reading Recovery*® programs in elementary school settings. Universities with a two-semester academic year typically hold three graduate courses per semester for teacher leaders in training, with a possible additional course scheduled during a special session such as a summer semester. Second, teacher leader candidates complete practicum experiences supervised by university instructors that involve conducting the screening assessment and teaching students in *Reading Recovery*®. Through the practicum, they also participate in trainings to prepare them to train new *Reading Recovery*® teachers. During the training year, teacher leader candidates are released from most teaching responsibilities so they can attend the graduate courses and participate in the practicum experiences. Upon completing the yearlong training, teacher leaders fulfill several responsibilities set forth in the *Reading Recovery*® Standards and Guidelines. These include implementing *Reading Recovery*® with students, training teachers and maintaining the teacher training site, and participating in their own ongoing training and professional development activities. Teacher leaders spend about 40% of their time teaching *Reading Recovery*® to students in their district and spend their remaining time training or supporting *Reading Recovery*® teachers or participating in ongoing professional development. Teacher leaders are expected to provide initial training for up to 15 teacher candidates and provide ongoing support for 40 to 60 *Reading Recovery*® teachers or teachers in training annually. They conduct at least six group professional development training sessions per year as well as several individual coaching sessions in the teacher's instructional setting. Teacher leaders also receive ongoing professional development from university-based *Reading Recovery*® faculty, including attending four to six annual training sessions, an annual national Teacher Leader Institute, and an annual national or state *Reading Recovery*® literacy, language, and research conference. Teacher leaders also typically perform additional tasks in their district that fall within the scope of the *Reading Recovery*® teacher leader role. These additional tasks are determined by their administrators, the district's needs, and their professional certifications. For example, many teacher leaders are literacy specialists who oversee reading and language instruction provided in classrooms and in remedial settings. Teacher leaders may also support classroom and specialist teachers and monitor the schoolwide or districtwide literacy programs.	Neither study provided details about the training of *Reading Recovery*® teacher leaders. Based on survey results from one study, 46% of teacher leaders reported that they supported 1 to 20 teachers (including teachers in training), 28% supported 21 to 42 teachers, and 9% support 43 or more teachers (May et al., 2015). *Reading Recovery*® teacher leaders in this study met 87% of the *Reading Recovery*® implementation standards, as defined in their Standards and Guidelines, including attending 73% of training sessions and 98% of professional development sessions.

Component	Description of the component	How it was implemented
***Reading Recovery®* teachers**	Teachers generally spend 50% of their time on *Reading Recovery®* activities and their remaining time on typical duties not related to *Reading Recovery®*. Teachers selected for *Reading Recovery®* training must be certified, experienced teachers of early elementary students. Teachers complete a full academic year of *Reading Recovery®* training with graduate credit under the instruction of a registered *Reading Recovery®* teacher leader. Training takes place at a university-affiliated teacher training site located in a public school. As part of the yearlong training, *Reading Recovery®* teachers receive a weeklong training on administering, scoring, and interpreting the Observation Survey of Early Literacy Achievement, which is a screening assessment of reading and writing skills developed by *Reading Recovery®*. The weeklong training is followed by ongoing in-person professional development for the rest of the academic year, which focuses on program implementation and delivery, including learning how to design daily lessons individualized for each student. Ongoing professional development includes both group sessions with other trained *Reading Recovery®* teachers and individual coaching and observation sessions in the teacher's school. Teacher leaders provide the training and professional development. Professional development sessions take place at least six times a year. During their yearlong training, teachers implement *Reading Recovery®* with about four students daily to practice applying the teaching principles they learned. Teachers must implement *Reading Recovery®* in person to a minimum of eight students in total over the school year. After completing the training, teachers must maintain their registration as a *Reading Recovery®* teacher by meeting certain requirements, as described in the Standards and Guidelines, such as continuing to implement the intervention with at least eight students per year, collecting and submitting data on student progress to the teacher leader, and participating in ongoing professional development (typically no less than six sessions during the school year). Teachers must also participate in one *Reading Recovery®* conference approved by the *Reading Recovery®* Council of North America. Registration lapses after 1 year if teachers do not maintain these requirements.	*Reading Recovery®* teachers in training in both studies participated in a yearlong graduate course and were guided by a *Reading Recovery®* teacher leader at one of the training centers. Teachers in training also received on-site coaching and support from their teacher leaders. *Reading Recovery®* teachers in Burroughs-Lange and Douëtil (2007) had received this *Reading Recovery®* training at some point in the past. *Reading Recovery®* schools in this study had been implementing the program for an unspecified period of time before the start of the study. May et al. (2015) did not provide details about the timing of *Reading Recovery®* training and professional development for teachers.
One-on-one tailored lessons with *Reading Recovery®* teachers	Teachers use their training experiences and *Reading Recovery®* resources, such as the text *Literacy Lessons Designed for Individuals*, to plan and tailor one-on-one 30-minute daily lessons for each student. *Reading Recovery®* does not provide lesson plans. Teachers tailor lessons to each student's needs based on previous observations and analyses of the student's strengths and weaknesses during daily lessons and assessment activities, which teachers record using *Reading Recovery®* forms. Teachers tailor lessons by incorporating instruction as needed in topics such as phonemic awareness, phonics, vocabulary, fluency, comprehension, writing, oral language, and motivation. Lessons consist of reading familiar or novel stories, manipulating letters and words, writing stories, and assembling stories by identifying the correct sequence of events. Student lessons take place during school hours and require about 50% of each *Reading Recovery®* teacher's time. Teachers spend their remaining time on typical duties not related to *Reading Recovery®*. Students are pulled out of their regular non-literacy instruction at times established by the classroom teacher, administrators, and the *Reading Recovery®* teacher. *Reading Recovery®* students continue to participate in their classroom's typical literacy instruction.	Teachers in both studies implemented the *Reading Recovery®* instructional strategies in tailored lessons. Students were pulled out of their regular classroom instruction for daily 30-minute one-on-one lessons. Based on survey results, *Reading Recovery®* teachers in one study met 95% of the standards for implementing *Reading Recovery®* with fidelity, including having implemented 98% of the required lessons (May et al., 2015).

Component	Description of the component	How it was implemented
	Reading Recovery® is implemented with the students with the lowest achievement scores on the Observation Survey of Early Literacy Achievement. Classroom teachers typically identify a subset of students with low prior achievement in literacy to take the screening assessment. This assessment is administered to these students before the intervention, and, if selected, at the end of the intervention and at the end of the school year. Based on daily observations and formative assessments, *Reading Recovery*® teachers monitor student reading performance. When the student is reading consistently at grade level and demonstrates readiness to exit the program, typically within 12 to 20 weeks, the exit assessment is administered. A *Reading Recovery*® teacher other than the one working with the student, or the teacher leader if another *Reading Recovery*® teacher is not available, administers the exit assessment that determines whether the student should be discontinued from the program. Assessments at the other time points may be administered by the student's *Reading Recovery*® teacher.	Both studies screened students before the intervention using the Observation Survey of Early Literacy Achievement. Deviating from *Reading Recovery*® standards, in Burroughs-Lange and Douëtil (2007), research assistants trained in the assessment administered it at screening and follow up. In May et al. (2015), *Reading Recovery*® teachers administered the test after completing a weeklong summer training focused on administering, scoring, and interpreting the test. Follow-up assessments in this study were conducted by either a teacher leader or a *Reading Recovery*® teacher other than the one working with the student.

Note: The descriptive information for this intervention comes from the program website, https://readingrecovery.org/; the two studies that meet WWC standards; and from correspondence with *Reading Recovery*® Community, the developer. Practices, policies, and routines of both teachers and teacher leaders are described in the Reading Recovery Council of North America's Standards and Guidelines (last accessed May 2023).

How much does *Reading Recovery*® cost?

This section provides educators with an overview of the resources needed to implement *Reading Recovery*®. The intervention costs approximately $600 annually per teacher training site. For *Reading Recovery*® teachers, annual costs include 50% of their full salary and benefits, an $85 affiliation fee, and $200 to $250 for consumable materials required to administer lessons to students. One-time training and materials cost approximately $4,995 to $7,925 per teacher and one-time costs for reusable texts and supplies for administering lessons to students cost $2,750 to $2,850 per teacher. For *Reading Recovery*® teacher leaders, annual costs include 100% of their salary and benefits, $1,000 to $1,500 for ongoing professional development, and an $85 affiliation fee. One-time training and materials for teacher leaders cost approximately $6,800 to $8,000 per teacher leader. Table 3 describes the major resources needed for implementation and approximate costs, based on information available as of February 2023.

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

Resource	Description	Funding source
Training and professional development for *Reading Recovery*® teacher leaders	Costs associated with training a teacher leader include tuition for graduate-level coursework during the training year. Tuition varies by university but ranges from approximately $6,800 to $8,000 for three courses. Ongoing professional development ranges from $1,000 to $1,500 per teacher leader per year.	School districts or schools cover costs for teacher leader training and professional development.
Training and professional development for *Reading Recovery*® teachers	Costs associated with training a teacher include tuition for graduate-level coursework during the training year. Similar to the coursework for teacher leaders, tuition varies by the university providing the graduate credit and ranges from approximately $1,720 to $4,450 for one course. Additional training costs include professional textbooks ranging from $250 to $300 and training materials ranging from $275 to $325. There are no additional costs associated with ongoing professional development for teachers from the same district as the teacher leader. At times, teacher leaders provide ongoing training to teachers outside of their district; costs associated with training outside personnel can amount to as much as $1,200 per year per teacher.	School districts or schools cover costs for teacher training.

Resource	Description	Funding source
Personnel	Personnel resources include 100% of *Reading Recovery®* teacher leaders' salary and benefits and 50% of *Reading Recovery®* teachers' salary and benefits. Teacher leaders work full time on *Reading Recovery®* activities. According to the program developer, the annual salary and benefits for *Reading Recovery®* teacher leaders (teachers with at least 5 years of teaching experience and special *Reading Recovery®* training) vary widely and range from about $65,000 to $90,000 for one full-time teacher leader. Teachers spend about 50% of their time on *Reading Recovery®* activities. The annual salary and benefits for *Reading Recovery®* teachers vary widely by region, state, and level of education and experience but range from about $39,000 to $99,000 per full-time elementary school teacher as of May 2021, according to data reported by the U.S. Bureau of Labor Statistics. The number of teachers to be trained in *Reading Recovery®* varies by school population and need. According to the program developer, approximately 20% of early elementary students enrolled in participating schools would qualify for *Reading Recovery®*. An average *Reading Recovery®* teacher worked with eight *Reading Recovery®* students during the 2018–19 school year. Teaching students and fulfilling other obligations of *Reading Recovery®*, such as ongoing training and professional development, constituted about 50% of their time. Therefore, ongoing costs include 50% of the *Reading Recovery®* teachers' salaries and benefits.	School districts or schools cover costs for teacher and teacher leader salaries and benefits.
Books and other classroom materials	*Reading Recovery®* requires an extensive collection of short books for teachers implementing the intervention. Each teacher uses a set of reusable student books that cost approximately $2,500 per teacher. Other reusable materials required for instruction include a magnetic board, easel, magnetic letters, and erasable whiteboard, which typically cost $250 to $350. Consumable materials, including writing paper, pens, pencils, markers, art materials for children, and paper for teachers to copy forms for maintaining records of lessons, observations, and assessments, cost about $200 to $250 per year.	School districts or schools purchase *Reading Recovery®* materials for participating teachers and students.
Training site and other facilities	Teacher leaders complete their training and coursework at their site's affiliated university. They also complete a practicum during their training year, during which they instruct *Reading Recovery®* students in a school setting.	School districts provide designated space within schools for teacher training sites and cover related costs.
Training site fees	Each *Reading Recovery®* teacher training site pays two separate fees to the International Data Evaluation Center (IDEC), an ongoing research project at the College of Education and Human Ecology at The Ohio State University. The first fee is an annual $600 site fee. This fee covers IDEC's cost of updating the site's rosters of *Reading Recovery®* teachers and schools. The second fee is a teacher affiliation fee, which costs $85 per teacher and teacher leader and covers the cost of data entry on the IDEC website, the production of annual reports, and data dissemination at the end of the school year. Sites implementing the program also pay annual technical support fees, which vary by the university that provides the *Reading Recovery®* training.	School districts cover the costs of the annual site fees and teacher data entry fees.

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

About *Reading Recovery®*

Reading Recovery Council of North America
150 East Wilson Bridge Road
Suite 200
Worthington, OH 43085
Email: info@readingrecovery.org Web: https://readingrecovery.org
Phone: (614) 310-7323

About the cost of the program

Web: https://readingrecovery.org/reading-recovery/implementation/cost/

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

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

The quality of the available research about *Reading Recovery*®

The WWC identified 62 studies that investigated the effectiveness of *Reading Recovery*® from a literature search in the Education Resources Information Center (ERIC) and other databases in July 2022. Of these 62 studies, two meet WWC standards and contribute to the summary of evidence in this intervention report. Studies that either do not meet WWC standards or are ineligible for review do not contribute to this intervention report.

- **One study meets WWC standards without reservations.** This study is a low-attrition randomized controlled trial that received the highest WWC research rating. This study randomly assigned students to intervention or comparison conditions. The WWC does not have any reservations about attributing results of the study to the intervention.
- **One study meets WWC standards with reservations.** This study uses a quasi-experimental design that analyzed intervention and comparison groups that appeared similar before introducing the intervention. The WWC has some reservations about attributing results of the study to the intervention due to limitations of the quality of the research.
- **Eighteen studies do not meet WWC standards.** Sixteen studies use quasi-experimental designs but do not satisfy the baseline equivalence requirement. Two of these studies (May & Blakeney, 2022 and May et al., 2022) report using regression discontinuity designs, but the WWC determined that they were not eligible for review as regression discontinuity designs. The WWC requires that regression discontinuity designs analyze the actual measure that was used to assign students to the intervention or comparison conditions, called a forcing variable. However, these studies analyzed an alternative forcing variable that was not used to assign students to treatment conditions. Because these studies were not eligible for review as regression discontinuity designs, the WWC instead reviewed these two studies as quasi-experimental designs. Ten studies, including May and Blakeney (2022) and May et al. (2022), do not satisfy the baseline equivalence requirement because there is inconclusive evidence that the intervention and comparison groups were similar before introducing the intervention. For six studies, there is evidence that the intervention and comparison groups had different levels of achievement prior to the intervention. In one study, a statistical adjustment was required to account for differences at baseline, but the authors did not perform this adjustment. One study has a confounding factor: Because a single teacher provided all supplemental *Reading Recovery*® instruction for the intervention students and other teachers provided instruction to comparison students, it is not possible to isolate the effectiveness of *Reading Recovery*® from the effectiveness of the teacher.
- **Forty-two studies are ineligible for review.** These studies are ineligible for review because they do not use a study design eligible for review as described in the WWC Standards Handbook (Version 4.1). Typically these studies lack a comparison group, use a pretest-posttest design, or are case studies.

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 two studies of *Reading Recovery*® that meet WWC standards

The two studies that meet WWC standards examined the effects of *Reading Recovery*® on 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 Recovery*® 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 two studies of *Reading Recovery*® that meet WWC standards, including the study setting and participants.

Reading Recovery® had potentially positive effects on achievement in literacy, writing productivity, and receptive communication skills immediately after the intervention. *Reading Recovery*® also had potentially positive effects on writing convention skills 3 years after the intervention. *Reading Recovery*® had uncertain effects on general secondary academic performance 10 years after the intervention and on mathematics achievement 3 years after the intervention because the average effect across outcomes in each domain was not statistically significant.

The WWC also reviewed supplemental findings, such as for a subgroup of English learners, findings at additional follow-up time periods, and findings on subscale measures including measures in the domains of alphabetics (e.g., phonics, phonemic and phonological awareness), receptive communication, reading comprehension, and writing productivity. The subscale measures in these domains come from the Iowa Test of Basic Skills and Observation of Early Literacy Achievement reported in May et al. (2015). They were reviewed as supplemental findings because the study also reported findings for the assessments' composite measures in the general literacy achievement domain. The supplemental findings 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.

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.

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

				Mean (standard deviation)		Findings		
Outcome	Timing of measurement and study	Study sample	Number of sites	Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (*p*-value)
Literacy achievement outcome domain								
Iowa Test of Basic Skills: Total Reading Scale Score	End of implementation year (May et al., 2015)	6,888 students in grade 1	1,254 schools in multiple U.S. states	138.71 (7.50)	135.30 (7.20)	0.46	+18	Yes (*p*<0.01)
Observation Survey of Early Literacy Achievement: Total Score	End of implementation year (May et al., 2015)	6,888 students in grade 1	1,254 schools in multiple U.S. states	495.37 (44.20)	451.88 (49.00)	0.93	+32	Yes (*p*<0.01)
Summary for literacy achievement: potentially positive effects						**0.70**	**+26**	**Yes (*p*<0.01)**
Writing productivity outcome domain								
Observation Survey of Early Literacy Achievement: Writing Vocabulary Subtest	End of implementation year (Burroughs-Lange & Douëtil, 2007)	234 students in UK Year 1 (comparison: students in schools with no *Reading Recovery*®)	42 schools in 10 boroughs in London, United Kingdom	45.70 (19.00)	20.60 (13.00)	1.61	+45	Yes (*p*<0.01)
Summary for writing productivity: potentially positive effects						**1.61**	**+45**	**Yes (*p*<0.01)**
Receptive communication outcome domain								
Observation Survey of Early Literacy Achievement: Hearing and Recording Sounds in Words Subtest	End of implementation year (Burroughs-Lange & Douëtil, 2007)	234 students in UK Year 1 (comparison: students in schools with no *Reading Recovery*®)	42 schools in 10 boroughs in London, United Kingdom	35.20 (0.40)	25.90 (9.90)	1.18	+38	Yes (*p*<0.01)
Summary for receptive communication: potentially positive effects						**1.18**	**+38**	**Yes (*p*<0.01)**

Outcome	Timing of measurement and study	Study sample	Number of sites	Mean (standard deviation)		Findings		
				Intervention group	Comparison group	Effect size	Improvement index	Statistically significant (*p*-value)
Writing conventions outcome domain								
National Curriculum Assessment: Writing	3 years after implementation (Burroughs-Lange & Douëtil, 2007)	193 students in UK Year 4 (comparison: students in schools with no *Reading Recovery*®)	42 schools in 10 boroughs in London, United Kingdom	18.75 (3.94)	16.43 (4.55)	0.48	+19	Yes ($p<0.01$)
National Curriculum Assessment: Writing	3 years after implementation (Burroughs-Lange & Douëtil, 2007)	121 students in UK Year 4 (comparison: students in *Reading Recovery*® schools)	21 schools in 10 boroughs in London, United Kingdom	18.75 (3.94)	17.38 (5.39)	0.12	+5	No ($p=0.45$)
Summary for writing conventions: potentially positive effects						**0.30**	**+12**	**Yes ($p=0.05$)**
Academic achievement outcome domain								
General Certificate of Secondary Education, Regional Assessment Composite Score for Multiple Subjects	10 years after implementation (Burroughs-Lange & Douëtil, 2007)	222 students in UK Year 11 (comparison: students in schools with no *Reading Recovery*®)	42 schools in 10 boroughs in London, United Kingdom	42.50 (19.30)	32.00 (19.80)	0.52	+20	Yes ($p<0.01$)
General Certificate of Secondary Education, Regional Assessment Composite Score for Multiple Subjects	10 years after implementation (Burroughs-Lange & Douëtil, 2007)	133 students in UK Year 11 (comparison: students in *Reading Recovery*® schools)	21 schools in 10 boroughs in London, United Kingdom	42.50 (19.30)	40.20 (25.90)	0.03	+1	No ($p=0.86$)
Summary for academic achievement: uncertain effects						**0.27**	**+11**	**No ($p=0.11$)**
Mathematics achievement outcome domain								
National Curriculum Assessment: Mathematics	3 years after implementation (Burroughs-Lange & Douëtil, 2007)	121 students in UK Year 4 (comparison: students in *Reading Recovery*® schools)	21 schools in 10 boroughs in London, United Kingdom	18.92 (3.44)	17.46 (5.19)	0.25	+10	No ($p=0.19$)
National Curriculum Assessment: Mathematics	3 years after implementation (Burroughs-Lange & Douëtil, 2007)	193 students in UK Year 4 (comparison: students in schools with no *Reading Recovery*®)	42 schools in 10 boroughs in London, United Kingdom	18.92 (3.44)	18.39 (4.49)	0.07	+3	No ($p=0.65$)
Summary for mathematics achievement: Uncertain effects						**0.16**	**+6**	**No ($p=0.34$)**

Table 5. Characteristics of the two studies of *Reading Recovery*® that meet WWC standards

What was the study design?	One study (May et al., 2015) randomly assigned students to the intervention and comparison groups, whereas the other study (Burroughs-Lange & Douëtil, 2007) used a quasi-experimental design to compare students who received *Reading Recovery*® with those who did not.
What was the WWC study rating?	One study (May et al., 2015) is rated **Meets WWC Group Design Standards Without Reservations** because it is a randomized controlled trial with low attrition. The other study (Burroughs-Lange & Douëtil, 2007) is rated **Meets WWC Group Design Standards With Reservations** because it uses a quasi-experimental design in which the analytic intervention and comparison groups satisfy the baseline equivalence requirement.
Where did the study occur?	**May et al. (2015)** • The study took place in 1,254 elementary schools across the United States with students in grade 1. • The intervention group received *Reading Recovery*®, and the comparison group received regular classroom literacy instruction and had access to literacy supports that were normally provided in small-group settings to grade 1 students with low literacy achievement. **Burroughs-Lange and Douëtil (2007)** • The study took place in 42 elementary schools in London, United Kingdom, with 5- and 6-year-old students in Year 1, the United Kingdom's equivalent of kindergarten. • The intervention group received *Reading Recovery*®, and the comparison groups received other interventions deemed appropriate for 5- and 6-year-old students with low literacy achievement, including *Early Literacy Support, Ruth Miskin Library*, *Supported Reading*, and *15 Minutes a Day*.
Who participated in the study?	**May et al. (2015)** • The study included 6,888 students. • Approximately 40% were female, 19% were English learners, 43% were White, 13% were Black, 44% were another race, and 19% were Hispanic or Latino. **Burroughs-Lange and Douëtil (2007)** • The study included 283 students. • Approximately 39% were female, 48% were English learners, and 54% were eligible to receive free or reduced-price lunch. The study did not report race or ethnicity information about the participating students.

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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 August 2023 the WWC modified this report to correct an error in the number of schools included in May et al. (2015). The number of schools in Table 4 and Table 5 was corrected from 184 to 1,254 for May et al. (2015). This revised report replaces the original June 2023 report.