

# What Works Clearinghouse



## Reading Mastery<sup>1</sup>/SRA/McGraw-Hill

**Program description**

*Reading Mastery* is a direct instruction program designed to provide explicit, systematic instruction in English language reading. *Reading Mastery* is available in two versions, *Reading Mastery Classic* levels I and II (for use in grades K–3) and *Reading Mastery Plus*, an integrated reading-language program for grades K–6. The program begins by teaching phonemic awareness and sound-letter correspondence and moves into word and passage reading, vocabulary development, comprehension, and building oral reading fluency. Later lessons

continue to emphasize accurate and fluent decoding while teaching students the skills necessary to read and comprehend and to learn from expository text. Lessons are designed to be fast-paced and interactive. Students are grouped by similar reading level, based on program placement tests. The program includes placement assessments and a continuous monitoring system. Although not designed exclusively for English language learners, *Reading Mastery* can be used with this group of students.

**Research**

One study of *Reading Mastery* met the WWC evidence standards.<sup>2</sup> This study included both English language learners and English speaking students in grades K–4 in Oregon. The investigators used the *Reading Mastery* program as a supplement to

normal reading instruction for Spanish speaking students who were markedly behind expected reading achievement. The WWC reports only the outcomes pertaining to the English language learner subsample.

**Effectiveness**

*Reading Mastery* was found to have potentially positive effects on the reading achievement of English language learners.

	Reading achievement	Mathematics achievement	English language development
Rating of effectiveness	Potentially positive effects	Not reported	Not reported
Improvement index <sup>3</sup>	Average: +28 percentile points <sup>4</sup> Range: +21 to +35 percentile points	Not reported	Not reported

1. This program is sometimes known as *Direct Instruction* using the *Reading Mastery* texts or *SRA Direct Instruction—Reading Mastery*.

2. The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

## Additional program information

### Developer and contact

Developed by Dr. Siegfried Engelmann under the title *Distar*® *Reading* for use in Project Follow Through as part of the Direct Instruction teaching model. Distributed by SRA/McGraw Hill. 220 East Danieldale Road, DeSoto, TX 75115-2490. Web: [www.sraonline.com](http://www.sraonline.com). Email: SRA\_CustomerService@mcgraw-hill.com. Telephone: (201) 512-0909

### Scope of use

Early versions of *Reading Mastery* were developed during the 1960s and 1970s, and have since been widely used. The *Reading Mastery* program has been updated throughout the years and now exists in two forms: *Reading Mastery Classic* (K–3) and *Reading Mastery Plus* (K–6). More than 1 million students in one-third of the nation’s schools use a direct instruction program.

### Teaching

*Reading Mastery* uses 30- to 45-minute lessons designed to facilitate teacher-student interactions and active student participation. A typical lesson includes seven to nine short activities that encompass multiple strands of content, such as phonemic

awareness, letter-sound correspondence, sounding out words, word recognition, vocabulary, oral reading fluency, and comprehension. The overarching teaching routine repeated throughout the curriculum is composed of the following steps: modeling new content, providing guided practice, and implementing individual practice and application. Lesson scripts act as a guide for teachers. Signals and group responses are used to keep students involved and on task—and to control lesson pacing.

### Cost

Student materials include nonconsumable storybooks or textbooks and workbooks. The cost per student ranges from \$100 to \$150 for the first year of implementation. Replacement workbooks cost between \$15 and \$25 a student in subsequent years. A full set of teaching materials—a one time purchase—costs between \$600 and \$900 for each grade level. Additional components include literature collections (\$80–\$140), Independent Readers (approximately \$400 a grade level), and seatwork blackline masters (\$57). A videotape series of 12 tapes (\$145) supplements consultant-led professional development (\$1,500 a day).

## Research

One study (Gunn, Biglan, Smolkowski, & Ary, 2000) reviewed by the WWC investigated the effects of supplemental reading instruction using *Reading Mastery* on English language learners. It is part of a larger study that includes both English language learners and English speaking students. The English language learner subsample is the focus of this WWC report. The study was a randomized controlled trial that met WWC evidence standards.<sup>5</sup> The intervention group received their usual reading instruction supplemented by *Reading Mastery* if they were beginning readers in grades 1 or 2. Students below grade level in grades 3 or 4 were put into an appropriate level of *SRA Corrective Reading*.<sup>6</sup> Both programs include components that facilitate

the development of beginning reading skills, but the programs differ in instructional methodology. *Reading Mastery* and *Corrective Reading* both entail explicit instruction in phonemic awareness, sound-letter correspondence, and blending. New sounds were introduced to students assigned to the *Corrective Reading* group at a faster pace than to students in the *Reading Mastery* group, and stories used for the *Corrective Reading* group were selected based on their appeal to older students.

Gunn and colleagues (2000) was a two-year study that included a one-year follow-up. This WWC report focuses on a subsample of the larger study, addressing students classified as English language learners (17 of 122 K–3 students).

3. These numbers show the average and range of improvement indices for all findings across the study.

4. Due to a very small sample size, these results should be interpreted with caution. See the [WWC Reading Mastery Technical Appendices](#) for further details.

5. The study also investigated the impact of *Corrective Reading*, which is also a direct instruction program intended for struggling readers in grade 3 to adulthood. The findings from this program did not apply to the current report because the English language learner subsample received instruction with *Reading Mastery* only. This was determined after corresponding with the first author of the study.

6. Students were in kindergarten, first, and second grades during Time 1 screening, prior to intervention implementation, so they were in first, second, and third grades at the start of the intervention year.

## Effectiveness Findings

The WWC review of English language learner interventions addresses student outcomes in three domains: reading achievement, mathematics achievement, and English language development.<sup>7</sup>

*Reading achievement.* Gunn et al. (2000) found that the intervention had statistically significant effects on reading achievement. According to WWC criteria, *Read Mastery* had substantively important effects for four of the five measures immediately after implementation of the program (oral reading fluency, letter/word identification, word attack, and reading vocabulary but not passage comprehension). After one year, three of the five outcome measures showed substantively important effects (word attack, reading

vocabulary, and passage comprehension but not oral reading fluency or letter/word identification). This one study, which used a strong design, met WWC criteria for potentially positive effects.

### Rating of effectiveness

The WWC rates interventions as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative. The rating of effectiveness takes into account four factors: the quality of the research design, the statistical significance of the findings (as calculated by the WWC), the size of the difference between participants in the intervention condition and the comparison condition, and the consistency in findings across studies (see the [WWC Intervention Rating Scheme](#)).

## The WWC found *Reading Mastery* to have potentially positive effects on English language learners' reading achievement

### Improvement index

For each outcome domain, the WWC computed an improvement index based on the effect size (see the [Technical Details of WWC-Conducted Computations](#)). The improvement index represents the difference between the percentile rank of the average student in the intervention condition versus the percentile rank of the average student in the comparison condition. Unlike the rating of effectiveness, the improvement index is based entirely on the size of the effect, regardless of the statistical significance of the effect, the study design, or the analysis. The improvement

index can take on values between -50 and +50, with positive numbers denoting favorable results. The average improvement index for reading achievement is +27 percentile points, with a range of +21 to +35 percentile points across findings.

### Summary

The one study on *Reading Mastery* reviewed by the WWC met WWC evidence standards. This study found potentially positive effects in the reading achievement domain. The evidence presented in this report is limited and may change as new research emerges.

## References

### Met WWC evidence standards

Gunn, B., Biglan, A., Smolkowski, K., & Ary, D. (2000). The efficacy of supplemental instruction in decoding skills for Hispanic and non-Hispanic students in early elementary school. *The Journal of Special Education, 34*, 90–103.

### Additional source:

Gunn, B., Smolkowski, K., Biglan, A., & Black, C. (2002). Supplemental instruction in decoding skills for Hispanic and non-Hispanic students in early elementary school: A follow-up. *The Journal of Special Education, 36*, 69–79.

**For more information about specific studies and WWC calculations, please see the [WWC Reading Mastery Technical Appendices](#).**

7. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation, see the [WWC Tutorial on Mismatch](#). See the [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate the statistical significance.

# Appendix

## Appendix A1 Study characteristics: Gunn, Biglan, Smolkowski, & Ary, 2000 (randomized controlled trial)

Characteristic	Description
<b>Study citation</b>	Gunn, B., Biglan, A., Smolkowski, K., & Ary, D. (2000). The efficacy of supplemental instruction in decoding skills for Hispanic and Non-Hispanic students in early elementary school. <i>The Journal of Special Education, 34</i> , 90–103.
<b>Participants</b>	The original study involved 156 students in grades K–3. Students in kindergarten, first, and second grades were assessed during the spring prior to beginning the first year of the intervention (Time 1), assessed again one year later (Time 2), and assessed a final time the following year (Time 3). Students were selected for participation in the study on the basis of low reading achievement and aggressive tendencies. Specifically, students who scored below grade level on reading assessments and high on aggression (as rated by teachers) were included in the study to examine the effect of supplemental reading instruction on students meeting these criteria. A post hoc analysis was conducted on a small portion of these students (n=17) who were English language learners and for whom pre- and posttest data were available (there were 19 of these students at the beginning of the study). All estimates of intervention effects are based on this subsample. The English language learners were included in the process of randomly assigning all participants (limited and fluent English proficient) to a condition. All students were grouped by ethnicity and then rank-ordered by reading ability. Participants were matched, beginning with poorest readers, and randomly assigned to a condition. That is, students from each pair were randomly assigned to the intervention or comparison condition.
<b>Setting</b>	The study was part of a larger evaluation of a program in nine elementary schools across three school districts in Oregon.
<b>Intervention</b>	The intervention group received their usual reading instruction supplemented by <i>Reading Mastery</i> if they were beginning readers in grades 1 or 2. <sup>1</sup> Students below grade level in grades 3 or 4 were put into an appropriate level of <i>SRA Corrective Reading</i> . <sup>2</sup> Both programs include components that facilitate the development of beginning reading skills, but the programs differ in instructional methodology. <i>Reading Mastery</i> and <i>Corrective Reading</i> both entail explicit instruction in phonemic awareness, sound-letter correspondence, and blending. New sounds were introduced to students assigned to the <i>Corrective Reading</i> group at a faster pace than to students in the <i>Reading Mastery</i> group, and stories used for the <i>Corrective Reading</i> group were selected based on their appeal to older students. Relative to English speaking peers, English language learning students were provided additional time per lesson if assistants needed to explain English vocabulary. Most instruction was conducted in groups of two to three students, though some one-to-one instruction was provided. The program was delivered as a pull-out lasting 25–30 minutes a day.
<b>Comparison</b>	The comparison group of English language learning students had the same regular reading instruction but did not participate in the supplemental instruction programs.
<b>Primary outcomes and measurement</b>	A series of reading subtests from Woodcock-Johnson were administered four times in the course of the two-year intervention. (See Appendix A2 for more detailed descriptions of outcome measures.) Outcomes reported here are drawn from the spring of the second year (that is, after two years of the intervention; reported in Appendix A3). In addition, a follow-up assessment was conducted one year after the conclusion of the study. It is reported in Appendix A4.
<b>Teacher training</b>	Project assistants delivered the intervention to students, supplementing the normal reading instruction delivered by the classroom teacher. In all cases except one, instruction took place as a pull-out program. All assistants received 10 hours of preservice training in testing, student-grouping, general instructional skills, and the theoretical approach of the program. To ensure program delivery met program standards, assistants were observed weekly in the first month of the program and twice a month thereafter.

1. Students were in kindergarten, first, and second grades during Time 1 screening, prior to intervention implementation, so they were in first, second, and third grades at the start of the intervention year.
2. The English Language Learners subsample received instruction with *Reading Mastery* only. This was determined after corresponding with the first author of the study.

## Appendix A2 Outcome measures in the reading achievement domain

Outcome measure	Description
<b>Oral Reading Fluency</b>	To calculate total number of words correctly read per minute, students read aloud three 1-minute grade-level reading samples. Mean scores were recorded; note that this measure is not a Woodcock-Johnson subtest (as cited in Gunn et al., 2000).
<b>Woodcock-Johnson, Letter-Word Identification subtest</b>	This is a standardized subtest from the Woodcock-Johnson Tests of Achievement that assessed a student's word reading skills. Students identified a list of letters and then read a list of words. Scores were available as raw scores, standard scores, Normal Curve Equivalent scores (NCES), age equivalencies, or grade-level equivalencies (as cited in Gunn et al., 2000).
<b>Woodcock-Johnson, Word Attack subtest</b>	This is a standardized subtest from the Woodcock-Johnson Tests of Achievement that is part of a broad reading cluster score. This subtest assessed the student's phonemic awareness skills. Students read a list of nonsense words. Scores were available as raw scores, standard scores, Normal Curve Equivalent scores (NCES), age equivalencies, or grade-level equivalencies (as cited in Gunn et al., 2000).
<b>Woodcock-Johnson, Reading Vocabulary subtest</b>	This is a standardized subtest from the Woodcock-Johnson Tests of Achievement that is part of a broad reading comprehension cluster score. This subtest assessed the student's overall skill at understanding text. Students were asked to identify antonyms, synonyms, and analogies. Scores were available as raw scores, standard scores, Normal Curve Equivalent scores (NCES), age equivalencies, or grade-level equivalencies (as cited in Gunn et al., 2000).
<b>Woodcock-Johnson, Passage Comprehension subtest</b>	This is a standardized subtest from the Woodcock-Johnson Tests of Achievement that is part of a broad reading comprehension cluster score. This subtest assesses the student's overall skill at understanding text. Students silently read a short passage and then filled in the missing word. Scores were available as raw scores, standard scores, Normal Curve Equivalent scores (NCES), age equivalencies, or grade-level equivalencies (as cited in Gunn et al., 2000).

## Appendix A3 Summary of study findings included in the rating for the reading achievement domain<sup>1</sup>

Outcome measure <sup>3</sup>	Study sample	Sample size <sup>4</sup> (students)	Author's findings from the study		WWC calculations			
			Mean outcome (standard deviation <sup>2</sup> )		Mean difference <sup>6</sup> (Reading Mastery – comparison)	Effect size <sup>7</sup>	Statistical significance <sup>8</sup> (at $\alpha = 0.05$ )	Improvement index <sup>9</sup>
			Reading Mastery group <sup>5</sup>	Comparison group				
Gunn et al., 2000 (randomized controlled trial)								
Oral Reading Fluency	Grades K–3	16	51.75 (30.07)	24.92 (17.63)	26.83	1.03	ns	+35
Letter-Word Identification	Grades K–3	17	19.63 (12.21)	14.11 (4.81)	5.52	0.55	ns	+21
Word Attack	Grades K–3	17	11.63 (10.43)	5.33 (5.50)	6.30	0.70	ns	+26
<b>Domain average<sup>10</sup> for reading achievement</b>						0.76		+28

ns = not statistically significant

1. This appendix reports findings considered for the effectiveness rating and the improvement index. Follow-up findings from the same study are not included in these ratings, but are reported in Appendix A4.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes.
3. Reading Vocabulary and Passage Comprehension were not included because of severe overall attrition on these outcome measures.
4. Small sample sizes decrease the power of the analysis to accurately detect differences. The effects from a small number of participants can be magnified and so results may not reflect the likely effect of the program, given a larger sample. These results should be interpreted with caution.
5. The WWC requested and received means and standard deviations for the English language learner subgroup because they were not reported separately in the original paper.
6. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group.
7. For an explanation of the effect size calculation, please see the [Technical Details of WWC-Conducted Computations](#).
8. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation about the clustering correction, see the [WWC Tutorial on Mismatch](#). See the [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of *Reading Mastery*, a correction for multiple comparisons was needed.
9. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and that of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting favorable results.
10. This row provides the study average, which is also the domain average in this case. The WWC-computed domain average effect size is a simple average rounded to two decimal places. The domain improvement index is calculated from the average effect size.

## Appendix A4 Summary of subgroup findings for the reading achievement domain: Follow-up data one year after the conclusion of the intervention<sup>1</sup>

Outcome measure	Study sample	Sample size <sup>3</sup> (students)	Author's findings from the study					
			Mean outcome (standard deviation <sup>2</sup> )		Mean difference <sup>5</sup> ( <i>Reading Mastery</i> – comparison)	WWC calculations		
			<i>Reading Mastery</i> group <sup>4</sup>	Comparison group		Effect size <sup>6</sup>	Statistical significance <sup>7</sup> (at $\alpha = 0.05$ )	Improvement index <sup>8</sup>
Gunn et al., 2002 (randomized controlled trial)								
Oral Reading Fluency	Grades K–3	16	67.38 (32.24)	60.12 (24.40)	7.26	0.24	ns	+9
Letter-Word Identification	Grades K–3	17	33.88 (27.75)	24.11 (14.24)	9.77	0.43	ns	+17
Word Attack	Grades K–3	17	27.25 (25.56)	2.89 (19.81)	24.36	1.02	Statistically significant	+35
Reading Vocabulary	Grades K–3	17	22.88 (16.40)	12.44 (11.73)	10.44	0.70	ns	+26
Passage Comprehension	Grades K–3	16	34.13 (21.54)	23.38 (11.75)	10.75	0.59	ns	+22

ns = not statistically significant

1. This appendix presents follow-up findings for measures that fall in the reading achievement domain. Immediate posttest scores were used for rating purposes and are presented in Appendix A3.
2. The standard deviation across all students in each group shows how dispersed the participants' outcomes are: a smaller standard deviation on a given measure would indicate that participants had more similar outcomes.
3. Small sample sizes decrease the power of the analysis to accurately detect differences. The effects from a small number of participants can be magnified and so results may not reflect the likely effect of the program, given a larger sample. These results should be interpreted with caution.
4. The WWC requested and received means and standard deviations for the English language learner subgroup because they were not reported separately in the original paper. With the exception of Oral Reading Fluency, all outcomes for this table were reported as Normal Curve Equivalent scores.
5. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group.
6. For an explanation of the effect size calculation, please see the [Technical Details of WWC-Conducted Computations](#).
7. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools. For an explanation about the clustering correction, see the [WWC Tutorial on Mismatch](#). See the [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of *Reading Mastery*, no corrections were needed.
8. The improvement index represents the difference between the percentile rank of the average student in the intervention condition and that of the average student in the comparison condition. The improvement index can take on values between –50 and +50, with positive numbers denoting favorable results.

## Appendix A5 Reading Mastery rating for the reading achievement domain

The WWC rates interventions as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.<sup>1</sup>

For the outcome domain of reading achievement, the WWC rated *Reading Mastery* as having potentially positive effects. It did not meet the criteria for positive effects because it had only one study. The remaining ratings (mixed effects, no discernible effects, potentially negative effects, and negative effects) were not considered because *Reading Mastery* was assigned the highest applicable rating.

### Rating received

**Potentially positive effects:** Evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect.

**Met.** One study reviewed by the WWC reported an average effect size that is substantively important.

- Criterion 2: No studies showing a statistically significant or substantively important *negative* effect. Fewer or the same number of studies showing *indeterminate* effects than showing statistically significant or substantively important *positive* effects.

**Met.** The WWC analysis found no indeterminate, statistically significant negative, or substantively important negative effects in this domain.

### Other ratings considered

**Positive effects:** Strong evidence of a positive effect with no overriding contrary evidence.

- Criterion 1: Two or more studies showing statistically significant *positive* effects, at least one of which met WWC evidence standards for a strong design.

**Not met.** Reading Mastery only one study meeting WWC evidence standards.

- Criterion 2: No studies showing statistically significant or substantively important *negative* effects.

**Met.** The WWC analysis found no statistically significant or substantively important negative effects in this domain.

1. For rating purposes, the WWC considers the statistical significance of individual outcomes and the domain level effect. The WWC also considers the size of the domain level effect for ratings of potentially positive effects. See the [WWC Intervention Rating Scheme](#) for a complete description.