

What Works Clearinghouse



Ready, Set, Leap!®

Program description *Ready, Set, Leap!*® is a comprehensive preschool curriculum that focuses on early reading skills such as phonemic awareness, letter knowledge, and letter-sound correspondence using multi-sensory technology that incorporates touch, sight, and sound. The *Ready, Set, Leap!*® curriculum is available in English and Spanish.

Research One study of *Ready, Set, Leap!*® met the What Works Clearinghouse (WWC) evidence standards.¹ The study included 254 low-income preschool children enrolled in 17 inner-city schools in Newark, New Jersey. This report focuses on immediate posttest findings to determine the effectiveness of the intervention.² The WWC considers the extent of evidence for *Ready, Set, Leap!*® to be small for oral language, print knowledge, phonological processing, and early reading/writing. No studies that met WWC evidence standards with or without reservations addressed cognition or math.

Effectiveness *Ready, Set, Leap!*® was found to have no discernible effects on oral language, print knowledge, phonological processing, and early reading/writing skills.

	Oral language	Print knowledge	Phonological processing	Early reading/writing	Cognition	Math
Rating of effectiveness	No discernible effects	No discernible effects	No discernible effects	No discernible effects	na	na
Improvement index³	Average: 0 percentile points	Average: +1 percentile point Range: -3 to +5 percentile points	Average: +8 percentile points Range: +6 to +11 percentile points	Average: +3 percentile points	na	na

na = not applicable

1. To be eligible for the WWC’s review, the Early Childhood Education (ECE) intervention had to be implemented in English in center-based settings with children aged three to five or in preschool. The study included in this report implemented *Ready, Set, Leap!*® in combination with the existing curriculum used in the preschools (High/Scope).
2. The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available. *Ready, Set, Leap!*® is being studied under the Preschool Curriculum Evaluation Research (PCER) Grants administered through the U.S. Department of Education’s Institute of Education Sciences. The final PCER reports were not released in time to be reviewed for this report.
3. These numbers show the average and range of student-level improvement indices for all findings across the study.

Additional program information

Developer and contact

Ready, Set, Leap![®] was developed and is distributed by LeapFrog SchoolHouse. Address: LeapFrog SchoolHouse, 6401 Hollis Street, Suite 100, Emeryville, CA 94608. Email: info@LeapFrogSchoolHouse.com. Web: www.leapfrogschoolhouse.com. Telephone: (800) 883-7430.

Scope of use

Information is not available on the number or demographics of children or centers using this program.

Teaching

Ready, Set, Leap![®] can be implemented in varied early childhood settings, and children can be taught individually or in small groups. Teachers may adopt either a theme-based or literature-based teaching approach; both options are included with the curriculum. Each approach includes lesson plans, learning objectives, and assessment tools for a full year of instruction. In addition to language and literacy, the curriculum incorporates other academic, music, visual arts, and social/emotional development skills. The program has numerous components, including books, music, and multi-sensory technology such as the LeapPad[®] books, LeapMat[™], and the LeapDesk[™] workstations. The 19 LeapPad[®] interactive books provide opportunities

for read-alouds and shared reading. The LeapMat[™] is an electronic pliable surface that displays the alphabet and can be used on the floor, wall, or table to teach letter-names and letter-sound recognition. The LeapDesk[™] workstation is a compact desktop system with components such as letter manipulatives, headphones, and various system cards that teach spelling and decoding. The workstation also assesses student progress and offers customized lessons based on student need.

Cost

The complete *Ready, Set, Leap!*[®] program (English edition) costs \$1,995 a class and includes two teacher's manuals, a teacher's resource guide, 20 teaching strategy cards, four Big books, 19 read-aloud books, 18 interactive LeapPad[®] books, one colorful flip book, 14 poem and alphabet posters, four plush interactive learning aids, the Link to Lessons software, one LeapDesk[™] workstation, 110 LeapDesk[™] teaching and assessment system cards, three LeapPad[®] personal learning tools, one LeapMat[™] learning surface, three Imagination Desk[®] learning centers, 12 Imagination Desk[®] interactive coloring books, and one phonemic awareness music CD and cassette. Pricing for the English and Spanish editions and the School and Home editions are also available on the website (see www.leapfrogschoolhouse.com).

Research

One study reviewed by the WWC investigated the effects of *Ready, Set, Leap!*[®] in a center-based setting. The study (RMC Research Corporation, 2003) was a randomized controlled trial that met WWC evidence standards. The study included 254 preschool children from 17 inner-city schools in Newark, New Jersey. RMC Research Corporation compared oral language, print knowledge, phonological processing, and early reading/writing outcomes for children in the intervention group that

participated in *Ready, Set, Leap!*[®] as well as the standard preschool curriculum (High/Scope) to a comparison group that participated only in High/Scope.⁴

Extent of evidence

The WWC categorizes the extent of evidence in each domain as small or moderate to large (see the [What Works Clearinghouse Extent of Evidence Categorization Scheme](#)). The extent of

4. High/Scope is a curriculum intended to be used as an open framework that adults adapt to the needs of their group. Active learning, rather than direct teaching or sequenced exercises, is its central tenet.

Research *(continued)*

evidence takes into account the number of studies and the total sample size across the studies that met WWC evidence standards with or without reservations.⁵

The WWC considers the extent of evidence for *Ready, Set, Leap!*[®] to be small for oral language, print knowledge, phonological processing, and early reading/writing. No studies that met WWC evidence standards with or without reservations addressed cognition or math.

Effectiveness Findings

The WWC review of interventions for Early Childhood Education addresses children's outcomes in six domains: oral language, print knowledge, phonological processing, early reading/writing, cognition, and math. The findings below present the authors' and the WWC-calculated estimates of the size and statistical significance of the effects of *Ready, Set, Leap!*[®] on children's performance.⁶

Oral language. RMC Research Corporation (2003) analyzed findings for one measure in this outcome domain [Peabody Picture Vocabulary Test-III (PPVT-III)] but did not find a statistically significant difference between the intervention and comparison groups, and the effect was not large enough to be considered substantively important according to the WWC standards (that is, at least 0.25). In the oral language domain, this study showed no discernible effects, according to WWC criteria.

Print knowledge. RMC Research Corporation (2003) analyzed findings for two measures in this outcome domain [Woodcock-Johnson III (W-J III) Letter-Word Identification subtest and the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Letter Naming Fluency subtest] but did not find a statistically significant difference between the intervention and comparison groups for either measure. The average effect size across the two outcomes was not large enough to be considered substantively important

according to the WWC standards (that is, at least 0.25). In the print knowledge domain, this study showed no discernible effects, according to WWC criteria.

Phonological processing. RMC Research Corporation (2003) analyzed findings for three measures in this outcome domain [Comprehensive Test of Phonological Processing (CTOPP) Blending Words subtest; DIBELS Initial Sound Fluency subtest; and W-J III Sound Awareness-Rhyming subtest] but did not find a statistically significant difference between the intervention and comparison groups for any of the measures. The average effect size across the three outcomes was not large enough to be considered substantively important according to the WWC standards (that is, at least 0.25). In the phonological processing domain, this study showed no discernible effects, according to WWC criteria.

Early reading/writing. RMC Research Corporation (2003) analyzed findings for one measure in this outcome domain (W-J III Passage Comprehension subtest) but did not find a statistically significant difference between the intervention and comparison groups. The effect size was not large enough to be considered substantively important according to the WWC standards (that is, at least 0.25). In the early reading/writing domain, this study showed no discernible effects, according to WWC criteria.

5. The Extent of Evidence Categorization was developed to tell readers how much evidence was used to determine the intervention rating, focusing on the number and sizes of studies. Additional factors that are associated with a related concept, external validity, such as students' demographics and the types of settings in which studies took place, are not taken into account for categorization.
6. 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 [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of *Ready, Set, Leap!*[®], a correction for clustering was needed. Because the study authors corrected only for clustering within classrooms, the WWC applied a correction for clustering within the schools because school was the unit of assignment in the study reviewed.

Effectiveness *(continued)*

The WWC found *Ready, Set, Leap!*[®] to have no discernible effects for oral language, print knowledge, phonological processing, or early/reading writing

Rating of effectiveness

The WWC rates the effects of an intervention in a given outcome domain 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

Improvement index

The WWC computes an improvement index for each individual finding. In addition, within each outcome domain, the WWC computes an average improvement index for each study and an average improvement index across studies (see [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 analyses. The improvement index can take on values between -50 and +50, with positive numbers denoting results favorable to the intervention group.

Reference **Met WWC evidence standards**

RMC Research Corporation. (2003). *Ready, Set, Leap! program: Newark prekindergarten study 2002–2003 final report*. Retrieved from Leap Frog Schoolhouse Web site: http://www.leapfrogschoolhouse.com/content/research/RMC_RSLreport.pdf

For more information about specific studies and WWC calculations, please see the [WWC Ready, Set, Leap!](#)[®] Technical Appendices.

design, the statistical significance of the findings,⁶ the size of the difference between participants in the intervention and the comparison conditions, and the consistency in findings across studies (see the [WWC Intervention Rating Scheme](#)).

The improvement index for oral language is 0 percentile points for the single outcome in the study. The average improvement index for print knowledge is +1 percentile point in the study, with a range of -3 to +5 percentile points across findings. The average improvement index for phonological processing is +8 percentile points in the study, with a range of +6 to +11 percentile points across findings. The improvement index for early reading/writing is +3 percentile points for the single outcome in the study.

Summary

The WWC reviewed one study on *Ready, Set, Leap!*[®] and it met the WWC evidence standards. Based on this single study, the WWC found no discernible effects for oral language, print knowledge, phonological processing, or early reading/writing. The evidence presented in this report may change as new research emerges.

Appendix

Appendix A1 Study characteristics: RMC Research Corporation, 2003 (randomized controlled trial)

Characteristic	Description
Study citation	RMC Research Corporation. (2003). <i>Ready, Set, Leap! program: Newark prekindergarten study 2002–2003 final report</i> . Retrieved from Leap Frog Schoolhouse Web site: http://www.leapfrogschoolhouse.com/content/research/RMC_RSLreport.pdf
Participants	Seventeen schools were randomly assigned to either an intervention (N = 8) or a comparison (N = 9) group. The study began with 308 inner-city, low-income preschool children enrolled in 34 classrooms in these 17 schools. The researchers excluded seven of the 34 classrooms because they included only children with moderate to severe disabilities. An additional 20 children were lost to attrition, resulting in a final sample of 254 children. ¹ The final sample included 129 children in the intervention group and 125 children in the comparison group. At posttest, the mean age of the children in the intervention group was 4.5 years; 57% were female; and 51% were African-American, 42% Hispanic, 5% Caucasian, and 2% Asian or other race/ethnicity. At posttest, the mean age of the children in the comparison group was 4.5 years; 53% were female; and 37% were African-American, 32% Hispanic, 24% Caucasian, and 7% Asian or other race/ethnicity. The intervention group had significantly more minority students than the comparison group.
Setting	The study took place in 17 inner-city preschools in Newark, New Jersey.
Intervention	<i>Ready, Set, Leap!</i> [®] is a comprehensive prekindergarten curriculum that focuses on early reading skills such as phonemic awareness, letter knowledge, and letter-sound correspondence. The curriculum was integrated into the existing High/Scope framework, which is a set of guiding principles and practices intended as an “open framework” that teams of adults can adapt to the special needs and conditions of the children in their group, as well as to their setting and their community. “Active learning” is a central tenet of the High/Scope approach for all age levels. The intervention was administered from September 2002 through June 2003. No information about intervention implementation was provided.
Comparison	Children in the comparison group participated in the High/Scope curriculum. No information about the implementation of the High/Scope curriculum was provided.
Primary outcomes and measurement	The primary outcome domains assessed were children’s oral language, print knowledge, phonological processing, and early reading/writing. Oral language was assessed with one standardized measure, the Peabody Picture Vocabulary Test-III (PPVT-III). Print knowledge was assessed with two standardized measures: the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Letter Naming Fluency subtest and the Woodcock-Johnson III (W-J III) Letter-Word Identification subtest. Phonological processing was assessed with three standardized measures: the DIBELS Initial Sound Fluency subtest, the W-J III Sound Awareness-Rhyming subtest, and the Comprehensive Test of Phonological Processing (CTOPP) Blending Words subtest. Early reading/writing was assessed with one standardized measure, the W-J III Passage Comprehension subtest (see Appendices A2.1–A2.4 for more detailed descriptions of outcome measures). ²
Teacher training	The intervention group teachers received three days of training on the <i>Ready, Set, Leap!</i> [®] curriculum over the course of the year.

1. Information about the numbers of children included in the classrooms who were excluded from the analysis was provided by the study authors upon the WWC request.
2. The authors also developed a phonological awareness composite (based on average raw scores from the tests of initial sound fluency, blending, and rhyming) and a letter identification composite (based on average raw scores from tests of letter-word identification, passage comprehension, and letter naming fluency). However, the WWC does not include these composites in this intervention report because the WWC includes each of the individual measures used to develop the composites. The authors also administered a Teacher Knowledge and Attitude Scale to teachers to assess teachers’ knowledge about various domains of language and literacy; however, the WWC excluded this measure from the intervention report because it is not a child outcome. For further details about the outcomes included in the Early Childhood Education topic review, please see the [Early Childhood Education Protocol](#).

Appendix A2.1 Outcome measure in the oral language domain

Characteristic	Description
Peabody Picture Vocabulary Test-III (PPVT-III)	A standardized measure of children's receptive vocabulary that requires children to identify pictures that correspond to spoken words (as cited in RMC Research Corporation, 2003).

Appendix A2.2 Outcome measures in the print knowledge domain

Characteristic	Description
Woodcock-Johnson III (W-J III) Letter-Word Identification subtest	A standardized measure of children's ability to name printed letters and words (as cited in RMC Research Corporation, 2003).
Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Letter Naming Fluency subtest	A timed standardized measure to assess children's ability to name printed upper- and lowercase letters in about one minute (as cited in RMC Research Corporation, 2003).

Appendix A2.3 Outcome measures in the phonological processing domain

Characteristic	Description
Comprehensive Test of Phonological Processing (CTOPP) Blending Words subtest	A standardized measure of children's ability to blend orally presented sounds to form words (as cited in RMC Research Corporation, 2003).
DIBELS Initial Sound Fluency subtest	A timed standardized measure to assess children's ability to recognize and produce the initial sound in an orally presented word in about one minute (as cited in RMC Research Corporation, 2003).
W-J III Sound Awareness–Rhyming subtest	A standardized measure of children's ability to identify word sounds and rhymes when presented orally (as cited in RMC Research Corporation, 2003).

Appendix A2.4 Outcome measure in the early reading/writing domain

Characteristic	Description
W-J III Passage Comprehension subtest	A standardized measure of children's listening and reading comprehension skills that use a cloze procedure (as cited in RMC Research Corporation, 2003).

Appendix A3.1 Summary of study findings included in the rating for the oral language domain¹

Outcome measure	Study sample	Sample size (schools/ children)	Authors' findings from the study		WWC calculations			
			Mean outcome (standard deviation ²)		Mean difference ³ (Ready, Set, Leap! [®] – comparison)	Effect size ⁴	Statistical significance ⁵ (at $\alpha = 0.05$)	Improvement index ⁶
			Ready, Set, Leap! [®] group	Comparison group				
RMC Research Corporation, 2003 (randomized controlled trial)⁷								
PPVT III	4 year olds	17/254	56.73 (16.13)	56.59 (13.82)	0.14	0.01	ns	0
Domain average⁸ for oral language						0.01	ns	0

ns = not statistically significant

PPVT III = Peabody Picture Vocabulary Test-III

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices.
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. The standard deviations were provided by the study authors upon the WWC request.
3. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. The means are regression adjusted.
4. For an explanation of the effect size calculation, see [Technical Details of WWC-Conducted Computations](#).
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
6. 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. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.
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 about the clustering correction, see the [WWC Tutorial on Mismatch](#). See [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of RMC Research Corporation (2003), a correction for clustering was needed, so the significance levels may differ from those reported in the original study. Because the study authors corrected only for clustering within classrooms, the WWC applied a correction for clustering within the schools because the school was the unit of assignment in the study reviewed.
8. This row provides the study average, which in this instance is also the domain average. 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 A3.2 Summary of study findings included in the rating for the print knowledge domain¹

Outcome measure	Study sample	Sample size (schools/ children)	Authors' findings from the study		WWC calculations			
			Mean outcome (standard deviation ²)		Mean difference ³ (Ready, Set, Leap! [®] – comparison)	Effect size ⁴	Statistical significance ⁵ (at $\alpha = 0.05$)	Improvement index ⁶
			Ready, Set, Leap! [®] group	Comparison group				
RMC Research Corporation, 2003 (randomized controlled trial)⁷								
W-J III Letter-Word Identification subtest	4 year olds	17/254	13.59 (5.70)	12.94 (5.06)	0.65	0.12	ns	+5
DIBELS Letter Naming Fluency subtest	4 year olds	17/254	23.63 (14.94)	24.76 (14.72)	-1.13	-0.08	ns	-3
Domain average⁸ for print knowledge						0.02	ns	+1

ns = not statistically significant

W-J III = Woodcock-Johnson III

DIBELS = Dynamic Indicators of Basic Early Literacy Skills

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices.
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. The standard deviations were provided by the study authors upon the WWC request.
3. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. The means are regression adjusted.
4. For an explanation of the effect size calculation, see [Technical Details of WWC-Conducted Computations](#).
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
6. 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. The improvement index can take on values between -50 and +50, with positive numbers denoting results favorable to the intervention group.
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 about the clustering correction, see the [WWC Tutorial on Mismatch](#). See [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of RMC Research Corporation (2003), a correction for clustering was needed, so the significance levels may differ from those reported in the original study. Because the study authors corrected only for clustering within classrooms, the WWC applied a correction for clustering within the schools because the school was the unit of assignment in the study reviewed.
8. This row provides the study average, which in this instance is also the domain average. 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 A3.3 Summary of study findings included in the rating for the phonological processing domain¹

Outcome measure	Study sample	Sample size (schools/ children)	Authors' findings from the study		WWC calculations			
			Mean outcome (standard deviation ²)		Mean difference ³ (Ready, Set, Leap! [®] – comparison)	Effect size ⁴	Statistical significance ⁵ (at $\alpha = 0.05$)	Improvement index ⁶
			Ready, Set, Leap! [®] group	Comparison group				
RMC Research Corporation, 2003 (randomized controlled trial)⁷								
CTOPP Blending Words subtest	4 year olds	17/254	4.24 (4.17)	3.18 (3.38)	1.06	0.28	ns	+11
DIBELS Initial Sound Fluency subtest	4 year olds	17/254	11.03 (8.24)	9.58 (6.48)	1.45	0.20	ns	+8
W-J III Sound Awareness-Rhyming subtest	4 year olds	17/254	5.49 (4.10)	4.92 (3.72)	0.57	0.15	ns	+6
Domain average⁸ for phonological processing						0.21	ns	+8

ns = not statistically significant

CTOPP = Comprehensive Test of Phonological Processing

DIBELS = Dynamic Indicators of Basic Early Literacy Skills

W-J III = Woodcock-Johnson III

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices.
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. The standard deviations were provided by the study authors upon the WWC request.
3. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. The means are regression adjusted.
4. For an explanation of the effect size calculation, see [Technical Details of WWC-Conducted Computations](#).
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
6. 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. The improvement index can take on values between -50 and +50, with positive numbers denoting results favorable to the intervention group.
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 about the clustering correction, see the [WWC Tutorial on Mismatch](#). See [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of RMC Research Corporation (2003), a correction for clustering was needed, so the significance levels may differ from those reported in the original study. Because the study authors corrected only for clustering within classrooms, the WWC applied a correction for clustering within the schools because the school was the unit of assignment in the study reviewed.
8. This row provides the study average, which in this instance is also the domain average. 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 A3.4 Summary of study findings included in the rating for the early reading/writing domain¹

Outcome measure	Study sample	Sample size (schools/ children)	Authors' findings from the study		WWC calculations			
			Mean outcome (standard deviation ²)		Mean difference ³ (Ready, Set, Leap! [®] – comparison)	Effect size ⁴	Statistical significance ⁵ (at $\alpha = 0.05$)	Improvement index ⁶
			Ready, Set, Leap! [®] group	Comparison group				
RMC Research Corporation, 2003 (randomized controlled trial)⁷								
W-J III Passage Comprehension subtest	4 year olds	17/254	5.89 (2.43)	5.69 (2.24)	0.20	0.09	ns	+3
Domain average⁸ for early reading/writing						0.09	ns	+3

ns = not statistically significant

W-J III = Woodcock-Johnson III

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices.
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. The standard deviations were provided by the study authors upon the WWC request.
3. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group. The means are regression adjusted.
4. For an explanation of the effect size calculation, see [Technical Details of WWC-Conducted Computations](#).
5. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
6. 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. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group.
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 about the clustering correction, see the [WWC Tutorial on Mismatch](#). See [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate statistical significance. In the case of RMC Research Corporation (2003), a correction for clustering was needed, so the significance levels may differ from those reported in the original study. Because the study authors corrected only for clustering within classrooms, the WWC applied a correction for clustering within the schools because the school was the unit of assignment in the study reviewed.
8. This row provides the study average, which in this instance is also the domain average. 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 A4.1 *Ready, Set, Leap!*[®] rating for the oral language domain

The WWC rates an intervention's effects in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.¹

For the outcome domain of oral language, the WWC rated *Ready, Set, Leap!*[®] as having no discernible effects. It did not meet the criteria for positive effects, potentially positive effects, mixed effects, potentially negative effects, or negative effects because no studies showed statistically significant or substantively important effects, either positive or negative.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: None of the studies shows a statistically significant or substantively important effect, either *positive* or *negative*.

Met. The study did not show statistically significant or substantively important effects, either positive or negative.

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. Only one study examined effects of *Ready, Set, Leap!*[®] on oral language.

AND

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

Met. The study did not show statistically significant or substantively important negative effects.

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.

Not met. The study did not show statistically significant or substantively important positive effects.

AND

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

Not met. The study showed did not show statistically significant or substantively important effects, either positive or negative.

Mixed effects: Evidence of inconsistent effects as demonstrated through either of the following criteria.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect, and at least one study showing a statistically significant or substantively important *negative* effect, but no more such studies than the number showing a statistically significant or substantively important *positive* effect.

Not met. The study did not show statistically significant or substantively important effects, either positive or negative.

OR

- Criterion 2: At least one study showing a statistically significant or substantively important effect, and more studies showing an *indeterminate* effect than showing a statistically significant or substantively important effect.

Not met. The study did not show statistically significant or substantively important effects, either positive or negative.

(continued)

Appendix A4.1 *Ready, Set, Leap!*[®] rating for the oral language domain (continued)

Potentially negative effects: Evidence of a negative effect with no overriding contrary evidence

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

Not met. The study did not show statistically significant or substantively important negative effects.

AND

- Criterion 2: No studies showing a statistically significant or substantively important *positive* effect, or more studies showing statistically significant or substantively important *negative* effects than showing statistically significant or substantively important *positive* effects.

Met. The study did not show statistically significant or substantively important positive effects.

Negative effects: Strong evidence of a negative effect with no overriding contrary evidence.

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

Not met. Only one study examined effects of *Ready, Set, Leap!*[®] on oral language.

AND

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

Met. The study did not show statistically significant or substantively important positive effects.

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 or potentially negative effects. See the [WWC Intervention Rating Scheme](#) for a complete description.

Appendix A4.2 Ready, Set, Leap!® rating for the print knowledge domain

The WWC rates an intervention's effects in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.¹

For the outcome domain of print knowledge, the WWC rated *Ready, Set, Leap!*® as having no discernible effects. It did not meet the criteria for positive effects, potentially positive effects, mixed effects, potentially negative effects, or negative effects because no studies showed statistically significant or substantively important effects, either positive or negative.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: None of the studies shows a statistically significant or substantively important effect, either *positive* or *negative*.

Met. The study did not show statistically significant or substantively important effects, either positive or negative.

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. Only one study examined effects of *Ready, Set, Leap!*® on print knowledge.

AND

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

Met. The study did not show statistically significant or substantively important negative effects.

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.

Not met. The study did not show statistically significant or substantively important positive effects.

AND

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

Not met. The study showed did not show statistically significant or substantively important effects, either positive or negative.

Mixed effects: Evidence of inconsistent effects as demonstrated through either of the following criteria.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect, and at least one study showing a statistically significant or substantively important *negative* effect, but no more such studies than the number showing a statistically significant or substantively important *positive* effect.

Not met. The study did not show statistically significant or substantively important effects, either positive or negative.

OR

- Criterion 2: At least one study showing a statistically significant or substantively important effect, and more studies showing an *indeterminate* effect than showing a statistically significant or substantively important effect.

Not met. The study did not show statistically significant or substantively important effects, either positive or negative.

(continued)

Appendix A4.2 *Ready, Set, Leap!*[®] rating for the print knowledge domain (continued)

Potentially negative effects: Evidence of a negative effect with no overriding contrary evidence

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

Not met. The study did not show statistically significant or substantively important negative effects.

AND

- Criterion 2: No studies showing a statistically significant or substantively important *positive* effect, or more studies showing statistically significant or substantively important *negative* effects than showing statistically significant or substantively important *positive* effects.

Met. The study did not show statistically significant or substantively important positive effects.

Negative effects: Strong evidence of a negative effect with no overriding contrary evidence.

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

Not met. Only one study examined effects of *Ready, Set, Leap!*[®] on print knowledge.

AND

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

Met. The study did not show statistically significant or substantively important positive effects.

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 or potentially negative effects. See the [WWC Intervention Rating Scheme](#) for a complete description.

Appendix A4.3 Ready, Set, Leap!® rating for the phonological processing domain

The WWC rates an intervention's effects in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.¹

For the outcome domain of phonological processing, the WWC rated *Ready, Set, Leap!*® as having no discernible effects. It did not meet the criteria for positive effects, potentially positive effects, mixed effects, potentially negative effects, or negative effects because no studies showed statistically significant or substantively important effects, either positive or negative.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: None of the studies shows a statistically significant or substantively important effect, either *positive* or *negative*.

Met. The study did not show statistically significant or substantively important effects, either positive or negative.

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. Only one study examined effects of *Ready, Set, Leap!*® on phonological processing.

AND

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

Met. The study did not show statistically significant or substantively important negative effects.

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.

Not met. The study did not show statistically significant or substantively important positive effects.

AND

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

Not met. The study showed did not show statistically significant or substantively important effects, either positive or negative.

Mixed effects: Evidence of inconsistent effects as demonstrated through either of the following criteria.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect, and at least one study showing a statistically significant or substantively important *negative* effect, but no more such studies than the number showing a statistically significant or substantively important *positive* effect.

Not met. The study did not show statistically significant or substantively important effects, either positive or negative.

OR

- Criterion 2: At least one study showing a statistically significant or substantively important effect, and more studies showing an *indeterminate* effect than showing a statistically significant or substantively important effect.

Not met. The study did not show statistically significant or substantively important effects, either positive or negative.

(continued)

Appendix A4.3 *Ready, Set, Leap!*[®] rating for the phonological processing domain (continued)

Potentially negative effects: Evidence of a negative effect with no overriding contrary evidence

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

Not met. The study did not show statistically significant or substantively important negative effects.

AND

- Criterion 2: No studies showing a statistically significant or substantively important *positive* effect, or more studies showing statistically significant or substantively important *negative* effects than showing statistically significant or substantively important *positive* effects.

Met. The study did not show statistically significant or substantively important positive effects.

Negative effects: Strong evidence of a negative effect with no overriding contrary evidence.

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

Not met. Only one study examined effects of *Ready, Set, Leap!*[®] on phonological processing.

AND

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

Met. The study did not show statistically significant or substantively important positive effects.

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 or potentially negative effects. See the [WWC Intervention Rating Scheme](#) for a complete description.

Appendix A4.4 Ready, Set, Leap!® rating for the early reading/writing domain

The WWC rates an intervention's effects in a given outcome domain as positive, potentially positive, mixed, no discernible effects, potentially negative, or negative.¹

For the outcome domain of early reading/writing, the WWC rated *Ready, Set, Leap!*® as having no discernible effects. It did not meet the criteria for positive effects, potentially positive effects, mixed effects, potentially negative effects, or negative effects because no studies showed statistically significant or substantively important effects, either positive or negative.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: None of the studies shows a statistically significant or substantively important effect, either *positive* or *negative*.

Met. The study did not show statistically significant or substantively important effects, either positive or negative.

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. Only one study examined effects of *Ready, Set, Leap!*® on early reading/writing.

AND

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

Met. The study did not show statistically significant or substantively important negative effects.

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.

Not met. The study did not show statistically significant or substantively important positive effects.

AND

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

Not met. The study showed did not show statistically significant or substantively important effects, either positive or negative.

Mixed effects: Evidence of inconsistent effects as demonstrated through either of the following criteria.

- Criterion 1: At least one study showing a statistically significant or substantively important *positive* effect, and at least one study showing a statistically significant or substantively important *negative* effect, but no more such studies than the number showing a statistically significant or substantively important *positive* effect.

Not met. The study did not show statistically significant or substantively important effects, either positive or negative.

OR

- Criterion 2: At least one study showing a statistically significant or substantively important effect, and more studies showing an *indeterminate* effect than showing a statistically significant or substantively important effect.

Not met. The study did not show statistically significant or substantively important effects, either positive or negative.

(continued)

Appendix A4.4 *Ready, Set, Leap!*[®] rating for the early reading/writing domain (continued)

Potentially negative effects: Evidence of a negative effect with no overriding contrary evidence

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

Not met. The study did not show statistically significant or substantively important negative effects.

AND

- Criterion 2: No studies showing a statistically significant or substantively important *positive* effect, or more studies showing statistically significant or substantively important *negative* effects than showing statistically significant or substantively important *positive* effects.

Met. The study did not show statistically significant or substantively important positive effects.

Negative effects: Strong evidence of a negative effect with no overriding contrary evidence.

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

Not met. Only one study examined effects of *Ready, Set, Leap!*[®] on early reading/writing.

AND

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

Met. The study did not show statistically significant or substantively important positive effects.

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 or potentially negative effects. See the [WWC Intervention Rating Scheme](#) for a complete description.

Appendix A5 Extent of evidence by domain

Outcome domain	Number of studies	Sample size		Extent of evidence ¹
		Schools	Children	
Oral language	1	17	254	Small
Print knowledge	1	17	254	Small
Phonological processing	1	17	254	Small
Early reading/writing	1	17	254	Small
Cognition	0	0	0	na
Math	0	0	0	na

na = not applicable/not studied

1. A rating of “moderate to large” requires at least two studies and two schools across studies in one domain and a total sample size across studies of at least 350 students or 14 classrooms. Otherwise, the rating is “small.”