What Works Clearinghouse

Read Naturally®

Program Description[1]

The *Read Naturally*® program is a supplemental reading program that aims to improve reading fluency, accuracy, and comprehension of students in elementary, middle, or high school or adults using a combination of texts, audio CDs, and computer software. The program uses one of four products that share a common fluency-building strategy: *Read Naturally*® *Masters Edition*, *Read Naturally*® *Encore*, *Read Naturally*® *Software Edition*, and *Read Naturally*® *Live*. The common strategy includes: modeling of story reading, repeated reading of text for developing oral reading fluency, and systematic monitoring of student progress by teachers and the students themselves. Students work at their own reading level, progress through the program at their own rate, and work (for the most part) on an independent basis. The program can be delivered in three ways: (1) students use audio CDs with hard-copy reading materials (*Read Naturally*® *Masters Edition*, *Read Naturally*® *Encore*), (2) students use the computer-based version (*Read Naturally*® *Software Edition*), or (3) students use the web-based version (*Read Naturally*® *Live*). This intervention report includes a study of *Read Naturally*® that appears to be *Read Naturally*® *Masters Edition*.

Research[2]

One study of *Read Naturally*® that falls within the scope of the Students with Learning Disabilities review protocol meets What Works Clearinghouse (WWC) evidence standards. The study includes 20 students with learning disabilities from the 4th to the 6th grade in one parochial elementary school in Washington State.[3]

Based on this study, the WWC considers the extent of evidence for *Read Naturally*® for students with learning disabilities to be small for reading fluency and writing. The one study that meets WWC evidence standards did not examine the effectiveness of *Read Naturally*® for students with learning disabilities in the alphabetics, reading comprehension, general reading achievement, math, science, social studies, or progressing in school domains.

* On September 16, 2013, the WWC modified this report in response to an independent review by a quality review team. Based on the review, the WWC changed the Program Description, Additional Program Information, and Cost sections of this report. The findings presented in the Effectiveness section were reordered to present the potentially promising effects first. The WWC has not added studies to the evidence base, updated the literature search, changed any study ratings, or changed values presented in the table.

1. The descriptive information for this program was obtained from a publicly available source: the program's website (http://www.readnaturally.com, downloaded May 2013). The WWC requests distributors review the program description sections for accuracy from their perspective. The program description was provided to the distributor in September 2013, and the WWC incorporated feedback from the distributor. Further verification of the accuracy of the descriptive information for this program is beyond the scope of this review.
2. The studies in this report were reviewed using WWC Evidence Standards, Version 2.0 (see the WWC Procedures and Standards Handbook, Chapter III), as described in protocol Version 2.0.
3. The literature search reflects documents publicly available by December 2009. The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

Effectiveness

Read Naturally® was found to have potentially positive effects on writing and no discernible effects on reading fluency for students with learning disabilities.

	Writing	*Reading fluency*
Rating of effectiveness	Potentially positive effects	No discernible effects
Improvement index[4]	+13 percentile points	Average: –6 percentile points
	na	Range: –9 to –4 percentile points

na = not applicable

Additional program information

Background

Developed by Candyce Ihnot, the four *Read Naturally*® products are distributed by Read Naturally, Inc. Address: 2945 Lone Oak Drive, Suite #190, Saint Paul, MN 55121. Email: info@readnaturally.com. Web: www.readnaturally.com. Telephone: (651) 425-4058 or (800) 788-4085. Fax: (651) 452-9204.

Scope of use

Read Naturally® was first published in 1991. According to the developer, it has been implemented with special education, Title I, and English language learner students throughout the United States.

Program details

The *Read Naturally*® program can be implemented using one of four products: *Read Naturally*® *Masters Edition*, *Read Naturally*® *Encore*, *Read Naturally*® *Software Edition*, and *Read Naturally*® *Live*. These products share a common fluency-building strategy and are designed to supplement a school's core language arts instruction. The program aims to improve fluency, accuracy, and comprehension by increasing the time students spend reading and can be used during class time as a pull-out intervention during the school day or as part of an after-school program. The core strategy in all *Read Naturally*® products includes:

(I) *Modeling of story reading*. Students listen to, and read along with, a recording of a fluent reader reading a story to help students model correct pronunciation, rate, and expression.

(II) *Repeated reading of text to develop oral reading fluency*. Students engage in 1-minute practice readings to build their mastery of the passage. Once students feel they can achieve their reading speed goal, they alert the teacher. The teacher then conducts a "pass timing" during which students are evaluated against four criteria: (1) student reaches goal rate, (2) student makes three or fewer errors, (3) passage is read with appropriate phrasing, and (4) comprehension questions are answered correctly. If students don't meet these criteria, they spend additional time practicing the reading of the passage, and then the teacher conducts the "pass timing" again.

(III) *Progress monitoring*. Students graph their scores to track their progress from the initial reading to the final reading of each story. The graphs also show students' progress over successive stories. These tools aim to ensure teacher and student awareness of each student's progress.

The four *Read Naturally*® products differ in (1) their delivery mode, (2) the specific sequenced texts used, and (3) whether phonics instruction is included. *Read Naturally*® *Masters Edition* and *Read Naturally*® *Encore* use audio CDs in conjunction with hard-copy reading materials. *Read Naturally*® *Software Edition* and *Read Naturally*® *Live* are computer- or web-based, respectively. The particular texts vary by product but all include

4. These numbers show the average and range of student-level improvement indices for all findings across the study.

a series of sequenced texts. *Read Naturally® Software Edition*, *Read Naturally® Encore*, and *Read Naturally® Live* also include instruction in phonics.

Each *Read Naturally®* product includes a teacher's manual that includes the rationale for the program, descriptions of materials needed to implement the program, instructions for implementing the program, and lesson plans for introducing the program to students.

Cost

Individual *Read Naturally®* materials vary in price. Products using audio CDs (*Read Naturally® Masters Edition* or *Read Naturally® Encore*) cost $129 per set. *Read Naturally® Software Edition* costs $125 per reading level for one computer and $399 per level for a school network version. *Read Naturally® Live*, the online software version, is priced per seat, ranging from $149 for one seat to $1,999 for 130 seats. Teacher training is available at an additional cost. Additional materials, including timers, posters, glossaries, crossword puzzles, and assessment materials, are also available.

Research

Forty-three studies reviewed by the WWC investigated the effects of *Read Naturally®* on students with learning disabilities. One study (Chenault et al., 2006) is a randomized controlled trial that meets WWC evidence standards. The remaining 42 studies do not meet either WWC evidence standards or eligibility screens.

Meets evidence standards

Chenault et al. (2006) examined the effects of *Read Naturally®* using a randomized controlled trial involving students with learning disabilities in the 4th, 5th, and 6th grades from one parochial elementary school in Washington State. All students in the study were identified by the researchers as dyslexic on the basis of a discrepancy of at least one standard deviation between their Verbal Comprehension Index on the Wechsler Intelligence Scale for Children (Second Edition) and their score on one or more measures of reading and writing. Twenty students who were eligible for the study were randomly assigned to one of two interventions: *Read Naturally®* or *Pay Attention!* Both interventions were implemented in ten 25-minute sessions. Pretest data were collected prior to the start of the interventions, and a first set of posttest data was collected after completion of the 10 sessions.[5]

Extent of evidence

The WWC categorizes the extent of evidence in each domain as small or medium to large (see the WWC Procedures and Standards Handbook, Appendix G). The extent of evidence takes into account the number of studies and the total sample size across the studies that meet WWC evidence standards with or without reservations.[6]

The WWC considers the extent of evidence for *Read Naturally®* to be small for students with learning disabilities in the reading fluency and writing domains. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *Read Naturally®* on students with learning disabilities in the alphabetics, reading comprehension, general reading achievement, math, science, social studies, or progressing in school domains.

5. After the first 10 sessions were completed, students from the two groups were combined and participated in 10 more sessions with a third intervention (*Writing Lessons with Attention Bridges*), after which a second posttest was administered. As the focus of this report is *Read Naturally®*, this review is based only on a comparison of pretest and first posttest data.
6. 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 size of studies. Additional factors associated with a related concept—external validity, such as the students' demographics and the types of settings in which studies took place—are not taken into account for the categorization. Information about how the extent of evidence rating was determined for *Read Naturally®* is in Appendix A5.

Effectiveness

Findings

The WWC review of interventions for students with learning disabilities addresses student outcomes in nine domains: alphabetics, reading fluency, reading comprehension, general reading achievement, writing, math, science, social studies, and progressing in school. The study included in this report covers two domains: reading fluency and writing. The findings below present the authors' estimates and WWC-calculated estimates of the size and the statistical significance of the effects of *Read Naturally*® on students with learning disabilities.[7]

Reading fluency. Chenault et al. (2006) found no statistically significant effects of *Read Naturally*® on either of two measures of reading fluency: the Reading Accuracy and Reading Rate subtests from the Gray Oral Reading Test–III. The WWC confirmed these findings. Furthermore, the WWC-calculated average effect size across the two outcomes was not large enough to be considered substantively important.

Writing. Chenault et al. (2006) found no statistically significant effects on the Written Expression subtest of the Wechsler Individual Achievement Test (Second Edition). The WWC confirmed this finding. However, the WWC-calculated average effect size was large enough to be considered substantively important (greater than 0.25).

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 design, the statistical significance of the findings, the size of the difference between participants in the intervention and the comparison conditions, and the consistency in findings across studies (see the WWC Procedures and Standards Handbook, Appendix E).

The WWC found *Read Naturally*® to have no discernible effects on reading fluency and potentially positive effects on writing for students with learning disabilities

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 the WWC Procedures and Standards Handbook, Appendix F). The improvement index represents the difference between the percentile rank of the average student in the intervention condition and the percentile rank of the average student in the comparison condition. Unlike the rating of effectiveness, the improvement index is entirely based 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 for the intervention group.

Based on one study, the average improvement index for reading fluency is –6 percentile points, with a range of –9 to –4 percentile points across two findings; the improvement index for writing is +13 percentile points based on one finding.

Summary

The WWC reviewed 43 studies on *Read Naturally*® for students with learning disabilities. One of these studies meets WWC evidence standards; the remaining 42 studies do not meet either WWC evidence standards or eligibility screens. Based on the one study, the WWC found that *Read Naturally*® has no discernible effects on reading fluency and potentially positive effects on writing for students with learning disabilities. The conclusions presented in this report may change as new research emerges.

7. The level of statistical significance was reported by the study authors or, when necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For the formulas the WWC used to calculate the statistical significance, see WWC Procedures and Standards Handbook, Appendix C for clustering and WWC Procedures and Standards Handbook, Appendix D for multiple comparisons. In the case of Chenault et al. (2006), no corrections for clustering or multiple comparisons were needed.

References

Meets WWC evidence standards

Chenault, B., Thomson, J., Abbott, R. D., & Berninger, V. W. (2006). Effects of prior attention training on child dyslexics' response to composition instruction. *Developmental Neuropsychology*, *29*(1), 243–260.

Additional source:

Chenault, B. M. (2004). Effects of prior attention training and a composition curriculum with attention bridgesfor students with dyslexia and/or dysgraphia (Doctoral dissertation, University of Washington). *Dissertation Abstracts International*, *65*(04A), 114–1246.

Studies that fall outside the Students with Learning Disabilities review protocol or do not meet WWC evidence standards

Arlt, K. L. C. (2001). *The effects of* Read Naturally *on the reading fluency and reading comprehension of students with mild learning disabilities*. Unpublished master's thesis, Wayne State College, NE. The study is ineligible for review because it does not use a comparison group.

Berkeley, S. (2007). Reading comprehension strategy instruction and attribution retraining for secondary students with disabilities (Doctoral dissertation, George Mason University). *Dissertation Abstracts International*, *68*(03A), 308–949. The study does not meet WWC evidence standards because it does not provide adequate information to determine whether it uses an outcome that is valid or reliable.

Berninger, V. W., Abbott, R. D., Abbott, S. P., Graham, S., & Richards, T. (2002). Writing and reading: Connections between language by hand and language by eye. *Journal of Learning Disabilities*, *35*(1), 39–56. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Browne, C. (2007). *The effect of the* Read Naturally *program on fluency and comprehension with special education students*. Unpublished master's thesis, Gratz College, Melrose Park, PA. The study is ineligible for review because it does not use a comparison group.

Busch, T. W., Pederson, K., Espin, C. A., & Weissenburger, J. W. (2001). Teaching students with learning disabilities: Perceptions of a first-year teacher. *Journal of Special Education*, *35*(2), 92. The study is ineligible for review because it does not use a comparison group.

Chavez-Amador, O. (2004). *Do computerized software programs improve reading fluency:* Read Naturally? Unpublished master's thesis, California State University, San Marcos. The study is ineligible for review because it does not use a comparison group.

Christ, T. J., & Davie, J. (2009). *Empirical evaluation of* Read Naturally *effects: A randomized controlled trial*. Unpublished manuscript. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Coleman, D. (2009). Read Naturally *and reading attitudes*. Retrieved February 12, 2009, from http://www.readnaturally.com. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Conderman, G., & Strobel, D. (2006). Problem solving with guided repeated oral reading instruction. *Intervention in School & Clinic*, *42*(1), 34–39. The study is ineligible for review because it does not use a comparison group.

Crawford, L. (2008). School profile: W. F. Burns Oak Hill Elementary. *Intervention News*, 2008 (February). Retrieved March 4, 2010, from http://www.fcrr.org/newsletter/InterventionNews_February08.pdf. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Davidson, M. R. (n.d.). Read Naturally, *scientific research, and* Reading First. Saint Paul, MN: Read Naturally, Inc. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

References *(continued)*

De la Colina, M. G. (1999). The effectiveness of repeated reading, teacher modeling, and self-monitoring for Spanish beginning readers (Doctoral dissertation, Texas A&M University). *Dissertation Abstracts International*, *60*(09A), 116–3254. The study is ineligible for review because it does not examine an intervention conducted in English.

Falk, A. G. (2008). *The impact of* Read Naturally *on oral reading fluency skills for first and second grade students participating in a response to intervention instructional model*. Unpublished master's thesis, California State University San Marcos. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Hasbrouck, J. E., Ihnot, C., & Rogers, G. H. (1999). *Read Naturally*: A strategy to increase oral reading fluency. *Reading Research and Instruction*, *39*(1), 27–39. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

Heise, K. (2004). The effects of the *Read Naturally* program on fluency, accuracy, comprehension, and student motivation in students with learning disabilities (Master's thesis, California State University, Fullerton). *Masters Abstracts International*, *42*(06), 70–1957. The study is ineligible for review because it does not use a comparison group.

Hinrichs, A. L. (2008). *The effects of* Read Naturally *on physical science achievement*. Unpublished master's thesis, Wayne State College, NE. The study is ineligible for review because it does not use a comparison group.

Hughes, A. F., & Adera, B. (2006). Education and day treatment opportunities in schools: Strategies that work. *Preventing School Failure*, *51*(1), 26–30. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

Ihnot, C. (n.d.). Read Naturally *case study 1: Original study, Minneapolis*. Retrieved December 22, 2009, from http://www.readnaturally.com. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Irvin, J. L. (2006). *A resource guide for adolescent literacy: Prepared for the Bill and Melinda Gates Foundation*. Tallahassee, FL: National Literacy Project. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

Johnson, G., & Weaver, J. (n.d.). Read Naturally *case study 4: Special education students, Huron County, MI*. Retrieved December 22, 2009, from http://www.readnaturally.com. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Johnsrud, B. L. A. (2005). *Impact of the* Read Naturally *program on elementary students*. Unpublished master's thesis, Minot State University, ND. The study is ineligible for review because it does not use a comparison group.

Kemp, S. C. (2006). Teaching to *Read Naturally*: Examination of a fluency training program for third grade students (Doctoral dissertation, University of California, Irvine and University of California, Los Angeles). *Dissertation Abstracts International*, *67*(07A), 95–2447. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Koehn, J. (2004). *The effects of the* Read Naturally *program on the fluency rate of third graders*. Unpublished master's thesis, Graceland University, Cedar Rapids, IA. The study is ineligible for review because it does not use a comparison group.

Linan-Thompson, S., Vaughn, S., Hickman-Davis, P., & Kouzekanani, K. (2003). Effectiveness of supplemental reading instruction for second-grade English language learners with reading difficulties. *Elementary School Journal*, *103*(3), 221. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

References *(continued)*

Mather, N. (1992). Whole language reading instruction for students with learning disabilities: Caught in the cross fire. *Learning Disabilities Research & Practice*, *7*(2), 87–95. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

McCarthy, A. L. (2006). *The impact of the use of* Read Naturally *with struggling readers to help increase oral reading fluency*. Unpublished master's thesis, Benedictine University, Lisle, IL. The study is ineligible for review because it does not use a comparison group.

Miller, C. (2006). *Will the* Read Naturally *program produce better results among elementary-aged students when comparing word per minute fluency probes than a multi-sensory, phonetic approach to reading?* Unpublished master's thesis, Winona State University, MN. The study is ineligible for review because it does not use a comparison group.

Moran, P. M. (2007). *Repeated reading: Effects on reading fluency and comprehension of elementary students with learning disabilities*. Unpublished master's thesis, Bethel University, St. Paul, MN. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

Onken, J. S. (2002). *The effects of the* Read Naturally *program on middle school students' oral reading fluency and reading comprehension skills in a residential treatment setting*. Unpublished master's thesis, Winona State University, MN. The study is ineligible for review because it does not use a comparison group.

Otaiba, S. A., & Rivera, M. O. (2006). Individualizing guided oral reading fluency instruction for students with emotional and behavioral disorders. *Intervention in School & Clinic*, *41*(3), 144–149. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

Reed, J. M., Marchand-Martella, N., Martella, R. C., & Kolts, R. L. (2007). Assessing the effects of the *Reading Success Level A* program with fourth-grade students at a Title I elementary school. *Education & Treatment of Children*, *30*(1), 45–68. The study is ineligible for review because it does not use a comparison group.

Sadler, C., & Sugai, G. (2009). Effective behavior and instructional support: A district model for early identification and prevention of reading and behavior problems. *Journal of Positive Behavior Interventions*, *11*(1), 35–46. The study is ineligible for review because it does not use a comparison group.

Stoll, S. R. (2007). *Effects of the* Read Naturally *program on student fluency*. Unpublished master's thesis, Graceland University, Cedar Rapids, IA. The study is ineligible for review because it does not use a comparison group.

Trahant, J. (2006). *The impact of the use of* Read Naturally *with junior high students with mild mental impairment*. Unpublished master's thesis, Benedictine University, Lisle, IL. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Treptow, M. A., Burns, M. K., & McComas, J. J. (2007). Reading at the frustration, instructional, and independent levels: The effects on students' reading comprehension and time on task. *School Psychology Review*, *36*(1), 159–166. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Valentine, S. E. (2003). *The effects of* Read Naturally *on reading fluency in a reading lab with fourth, fifth, and sixth grade students*. Unpublished master's thesis, California State University, Stanislaus, Turlock. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Vang, K. (2006). *The effects of using* Read Naturally *on reading fluency with struggling readers*. Unpublished master's thesis, California State University, Stanislaus, Turlock. The study is ineligible for review because it does not use a sample

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aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Viadero, D. (1997). Dealing with dyslexia. *Education Week*, *17*(12), 24. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

Wahl, M. (2006). Read Naturally. Tallahassee, FL: Florida Center for Reading Research. The study is ineligible for review because it is not a primary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

Williams, L. (2006). *Improving second grade students' oral reading fluency with* Read Naturally. Unpublished educational specialist's thesis, National-Louis University, Chicago, IL. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Wilson, M. L. (2008). *Building fluency through repeated readings*. Unpublished master's thesis, Hamline University, Saint Paul, MN. The study is ineligible for review because it does not use a comparison group.

Wright, S. A. (2006). *The effects of* Read Naturally *on students' oral reading fluency and reading comprehension*. Unpublished master's thesis, California State University, San Marcos, San Marcos, CA. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% students with learning disabilities.

Appendix

Appendix A1 Study characteristics: Chenault et al., 2006

Characteristic	Description
Study citation	Chenault, B., Thomson, J., Abbott, R. D., & Berninger, V. W. (2006). Effects of prior attention training on child dyslexics' response to composition instruction. *Developmental Neuropsychology*, *29*(1), 243–260.
Participants	The sample for this study included 20 English-speaking dyslexic children. The study's criterion for dyslexia was a discrepancy of at least one standard deviation between a student's Verbal Comprehension Index on the Wechsler Intelligence Scale for Children (Second Edition) and his or her score on one or more measures of reading and writing. Children with diagnosed neurological or psychiatric disorders or Wechsler Verbal Communication indices below 88 were excluded from the study sample. The 20 children in the study had a mean Wechsler Verbal Communication Index of 106.7. Ten of the children were in the 4th grade, six were in the 5th grade, and four were in the 6th grade; 12 of the children were boys and 8 were girls. The 20 children were randomly assigned to one of two interventions: 10 children to *Read Naturally®* and 10 children to *Pay Attention!* Pretest data were collected prior to the start of the interventions, and a first set of posttest data was collected after the completion of 10 sessions in *Read Naturally®* or *Pay Attention!* At that point, students from the two groups were combined, and they participated in 10 more sessions with a third intervention (*Writing Lessons with Attention Bridges*), after which a second posttest was administered. As the focus of this report is *Read Naturally®*, this review is based only on a comparison of pretest and first posttest data. There was no attrition of students between the pretest and first posttest.
Setting	The study was conducted with children from one parochial school in Washington State. The school serves children throughout the normal range of learning abilities, and teachers were trained to teach students with learning disabilities.
Intervention	Children in the *Read Naturally® Masters Edition* group participated in ten 25-minute individual sessions. This involved teacher modeling, repeated reading, and progress monitoring to increase fluency in reading. The students chose a story, were asked to recall what they knew about the book topic, read the story aloud while the teacher identified missing or unknown words, and students marked a graph showing how many words were read in one minute. Student and teacher then read the story aloud together several times with the teacher modeling fluent reading. The student then practiced individually. In the final step, the student read aloud again for one minute and graphed the number of words read.
Comparison	Children in the *Pay Attention!* group participated in ten 25-minute individual sessions. Students practiced attention-focusing and executive functions using cognitive operations such as understanding of information and instructions they heard, switching tasks flexibly, and maintaining focus despite distractions. Materials included cards and tapes with spoken words and distracting sounds. Students received feedback on mistakes, and they charted their progress to track growth.
Primary outcomes and measurement	The authors assessed students with a battery of tests at the pretest, first posttest, and second posttest time points. The domain of reading fluency was measured by administration of the Reading Accuracy and Reading Rate subtests of the Gray Oral Reading Test–III (GORT-III). The domain of writing was measured by administration of the Written Expression subtest of the Wechsler Individual Achievement Test (Second Edition). Other outcomes (executive functioning and handwriting) were reported in the study but were not included in this report because they were outside the scope of the Students with Learning Disabilities review. For a more detailed description of the included outcome measures, see Appendices A2.1–A2.2.
Staff/teacher training	Participants were instructed by the first or second author or a graduate student in school psychology who was supervised by those authors.

Appendix A2.1 Outcome measures for the reading fluency domain

Outcome measure	Description
Reading Accuracy subtest from the Gray Oral Reading Test–III (GORT–III)	The GORT-III Reading Accuracy subtest measures the number of word reading errors that occurred while reading a series of short paragraphs that increase in difficulty (as cited in Chenault et al., 2006) (http://psychcorp.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8116-577).
Reading Rate subtest from the Gray Oral Reading Test–III (GORT–III)	The GORT-III Reading Rate subtest measures the amount of time taken to read short paragraphs that increase in difficulty (as cited in Chenault et al., 2006) (http://psychcorp.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=015-8116-577).

Appendix A2.2 Outcome measures for the writing domain

Outcome measure	Description
Written Expression subtest from the Wechsler Individual Achievement Test (Second Edition) (WIAT)	In the WIAT Written Expression subtest, the student is asked to come up with examples in writing in specified categories, then combines short sentences into a single sentence, and finally is given a topic to write about for 10 minutes. Compositions are scored on organization, content, and mechanics of writing (as cited in Chenault et al., 2006). (http://www.pearsonassessments.com/haiweb/cultures/en-us/productdetail.htm?pid=015-8983-505).

Appendix A3.1 Summary of study findings included in the rating for the reading fluency domain[1]

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study: Mean outcome (standard deviation)[2] — *Read Naturally*® group[3]	Authors' findings from the study: Mean outcome (standard deviation)[2] — Comparison group	WWC calculations: Mean difference[4] (*Read Naturally*® – comparison)	WWC calculations: Effect size[5]	WWC calculations: Statistical significance[6] (at $\alpha = 0.05$)	WWC calculations: Improvement index[7]
Chenault et al., 2006[8]								
GORT–III Reading Accuracy subtest	Grades 4, 5, 6	20	6.70 (3.13)	7.40 (2.95)	–0.70	–0.22	ns	–9
GORT–III Reading Rate subtest	Grades 4, 5, 6	20	7.70 (3.31)	8.10 (3.84)	–0.40	–0.11	ns	–4
Domain average for reading fluency[8]						**–0.16**	**na**	**–6**

ns = not statistically significant
na = not applicable
GORT–III = Gray Oral Reading Test–III

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices for the reading fluency domain.
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. Each intervention group mean equals the unadjusted control mean plus the impact of the intervention, derived from an analysis that included the pretest as a control at the individual level. Standard deviations are unadjusted.
4. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group.
5. For an explanation of the effect size calculation, see WWC Procedures and Standards Handbook, Appendix B.
6. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
7. 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 for the intervention group.
8. The level of statistical significance was reported by the study authors or, when necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For the formulas the WWC used to calculate the statistical significance, see WWC Procedures and Standards Handbook, Appendix C for clustering and WWC Procedures and Standards Handbook, Appendix D for multiple comparisons. In the case of Chenault et al. (2006), no corrections for clustering or multiple comparisons were needed.

Appendix A3.2 Summary of study findings included in the rating for the writing domain[1]

Outcome measure	Study sample	Sample size (students)	Authors' findings from the study: Mean outcome (standard deviation)[2] — *Read Naturally*® group[3]	Authors' findings from the study: Mean outcome (standard deviation)[2] — Comparison group	WWC calculations: Mean difference[4] (*Read Naturally*® – comparison)	WWC calculations: Effect size[5]	WWC calculations: Statistical significance[6] (at $\alpha = 0.05$)	WWC calculations: Improvement index[7]
Chenault et al., 2006[8]								
WIAT Written Expression subtest	Grades 4, 5, 6	20	92.60 (9.14)	89.40 (9.10)	3.20	0.34	ns	+13

ns = not statistically significant

na = not applicable

WIAT = Wechsler Individual Achievement Test (Second Edition)

1. This appendix reports findings considered for the effectiveness rating and the average improvement indices for the writing domain.
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. Each intervention group mean is calculated as the unadjusted control mean plus the WWC-adjusted mean difference. Standard deviations are unadjusted.
4. Positive differences and effect sizes favor the intervention group; negative differences and effect sizes favor the comparison group.
5. For an explanation of the effect size calculation, see WWC Procedures and Standards Handbook, Appendix B.
6. Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups.
7. 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 for the intervention group.
8. The level of statistical significance was reported by the study authors or, when necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For the formulas the WWC used to calculate the statistical significance, see WWC Procedures and Standards Handbook, Appendix C for clustering and WWC Procedures and Standards Handbook, Appendix D for multiple comparisons. In the case of Chenault et al. (2006), no corrections for clustering or multiple comparisons were needed.

Appendix A4.1 *Read Naturally*® rating for the reading fluency domain

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

For the outcome domain of reading fluency, the WWC rated *Read Naturally*® as having no discernible effects on students with learning disabilities.

Rating received

No discernible effects: No affirmative evidence of effects.

- Criterion 1: No studies showing a statistically significant or substantively important effect, either *positive* or *negative*.

  Met. No study of *Read Naturally*® showed a statistically significant or substantively important effect, 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. No study of *Read Naturally*® showed a statistically significant positive effect.

AND

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

  Met. No study of *Read Naturally*® showed a statistically significant or substantively important negative effect.

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. No study of *Read Naturally*® showed a statistically significant positive effect.

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.

  Met. No study of *Read Naturally*® showed a statistically significant or substantively important negative effect, but one study showed an indeterminate effect.

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. No study of *Read Naturally*® showed a statistically significant or substantively important positive or negative effect.

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. No study of *Read Naturally*® showed a statistically significant or substantively important positive or negative effect, but one study showed an indeterminate effect.

(continued)

Appendix A4.1 *Read Naturally*® rating for the reading fluency domain *(continued)*

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

- Criterion 1: One study showing a statistically significant or substantively important *negative* effect and no studies showing a statistically significant or substantively important *positive* effect.

  Not met. No study of *Read Naturally*® showed a statistically significant or substantively important positive or negative effect.

OR

- Criterion 2: Two or more studies showing statistically significant or substantively important *negative* effects, at least one study showing a statistically significant or substantively important *positive* effect, and more studies showing statistically significant or substantively important *negative* effects than showing statistically significant or substantively important *positive* effects.

  Not met. No study of *Read Naturally*® showed a statistically significant or substantively important positive or negative effect.

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. No study of *Read Naturally*® showed a statistically significant negative effect.

AND

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

  Met. No study of *Read Naturally*® showed a statistically significant or substantively important positive effect.

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. For a complete description, see the WWC Procedures and Standards Handbook, Appendix E.

Appendix A4.2 *Read Naturally*® rating for the writing domain

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

For the outcome domain of writing, the WWC rated *Read Naturally*® as having potentially positive effects for students with learning disabilities. The remaining ratings (mixed effects, no discernible effects, potentially negative effects, negative effects) were not considered, as *Read Naturally*® 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 of *Read Naturally*® showed a substantively important positive effect.

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.

  Met. No study of *Read Naturally*® showed a statistically significant or substantively important negative effect, nor did any study show indeterminate effects.

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. No study of *Read Naturally*® showed statistically significant positive effects.

AND

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

  Met. No study of *Read Naturally*® showed statistically significant or substantively important negative 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. For a complete description, see the WWC Procedures and Standards Handbook, Appendix E.

Appendix A5 Extent of evidence by domain

Outcome domain	Number of studies	Sample size		Extent of evidence[1]
		Schools	Students	
Reading fluency	1	1	20	Small
Writing	1	1	20	Small
Alphabetics	0	na	na	na
Reading comprehension	0	na	na	na
General reading achievement	0	na	na	na
Math	0	na	na	na
Science	0	na	na	na
Social studies	0	na	na	na
Progressing in school	0	na	na	na

na = not applicable/not studied

1. A rating of "medium 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." For more details on the extent of evidence categorization, see the WWC Procedures and Standards Handbook, Appendix G.