

What Works Clearinghouse™



Read Naturally®

Program Description¹

The *Read Naturally*® program is a supplemental reading program that aims to improve the 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 studies of *Read Naturally*® *Masters Edition* and *Read Naturally*® *Software Edition*.

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Research²

The What Works Clearinghouse (WWC) identified one study of *Read Naturally*® that both falls within the scope of the Adolescent Literacy topic area and meets WWC evidence standards. This study meets standards with reservations and included 156 adolescent readers in grades 3–5 in one location.³

The WWC considers the extent of evidence for *Read Naturally*® to be small for the outcome domain of general literacy achievement. There were no studies that meet standards in the three other domains, so we do not report on the effectiveness of *Read Naturally*® for those domains in this report. (See the Effectiveness Summary on p. 4 for further description of all domains.)

Effectiveness

Read Naturally® was found to have potentially positive effects on general literacy achievement for adolescent readers.

Table 1. Summary of findings⁴

Outcome domain	Rating of effectiveness	Improvement index (percentile points)		Number of studies	Number of students	Extent of evidence
		Average	Range			
General literacy achievement	Potentially positive effects	+10	na	1	156	Small

na = not applicable

Program Information

Background

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

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 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 Summary

The WWC identified 56 studies that investigated the effects of *Read Naturally*® on the literacy skills of adolescent readers. The WWC reviewed four of those studies against group design evidence standards. One study (Heistad, 2008) is a quasi-experimental design that meets WWC evidence standards with reservations. The study is summarized in this report. Three studies do not meet WWC evidence standards. The remaining 52 studies do not meet WWC eligibility screens for review in this topic area. Citations for all 56 studies are in the References section, which begins on p. 5.

Table 2. Scope of reviewed research

Grade	3, 4, 5
Delivery method	Individual/Small group
Program type	Supplement

Summary of studies meeting WWC evidence standards without reservations

No studies of *Read Naturally*® met WWC evidence standards without reservations.

Summary of study meeting WWC evidence standards with reservations

Heistad (2008) examined the effects of *Read Naturally*® on the reading achievement of students in grades 3–5 who were enrolled in elementary schools in the Minneapolis Public School district. Students in four elementary schools that were implementing *Read Naturally*® were matched with comparison students from other schools in the same district based on pretest score, grade, demographic variables, and the Adequate Yearly Progress (AYP) status of their school. *Read Naturally*® was implemented as a supplemental reading intervention with individual and small groups of students. Two schools implemented *Read Naturally*® as a pull-out intervention during the school day,⁵ while two schools used it as part of an after-school program. Students in the comparison group attended schools that were not implementing *Read Naturally*®. A total of 156 students were included in the study's analysis, with 78 students in each of the intervention and comparison groups.

Effectiveness Summary

The WWC review of *Read Naturally*® for the Adolescent Literacy topic area includes student outcomes in four domains: alphabetics, reading fluency, comprehension, and general literacy achievement. The one study of *Read Naturally*® that met WWC evidence standards reported findings in one of the four domains: general literacy achievement. The findings below present the authors' estimates and WWC-calculated estimates of the size and statistical significance of the effects of *Read Naturally*® on adolescent readers. For a more detailed description of the rating of effectiveness and extent of evidence criteria, see the WWC Rating Criteria on p. 16.

Summary of effectiveness for the general literacy achievement domain

One study that met WWC standards with reservations reported findings in the general literacy achievement domain.

Heistad (2008) reported, and the WWC confirmed, a statistically significant positive effect for the reading portion of the Northwest Achievement Levels Test (NALT). The WWC characterizes this study finding as a statistically significant positive effect.

Thus, for the general literacy achievement domain, one study showed a statistically significant positive effect. This results in a rating of potentially positive effects, with a small extent of evidence.

Table 3. Rating of effectiveness and extent of evidence for the general literacy achievement domain

Rating of effectiveness	Criteria met
Potentially positive effects <i>Evidence of a positive effect with no overriding contrary evidence.</i>	In the study that reported findings, the estimated impact of the intervention on outcomes in the <i>general literacy achievement</i> domain was positive and statistically significant.
Extent of evidence	Criteria met
Small	One study that included 156 students in at least four schools reported evidence of effectiveness in the <i>general literacy achievement</i> domain. The number of comparison schools was not reported in the study, so the exact number of schools included in the analysis cannot be determined.

References

Studies that meet WWC evidence standards without reservations

None

Study that meets WWC evidence standards with reservations

Heistad, D. (2008). *The effects of Read Naturally on fluency and reading comprehension: A supplemental service intervention (four-school study)* (Unpublished manuscript).

Additional sources:

Heistad, D. (2008b). *The effects of Read Naturally on fluency and reading comprehension: A supplemental service intervention (two-school study)* (Unpublished manuscript).

Heistad, D. (2008c). *The effects of Read Naturally on grade 3 reading* (Unpublished manuscript).

Read Naturally. (n.d.). *Case 3: Third-grade students, Minneapolis, MN*. St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com>

Read Naturally. (n.d.). *Case 4: Four-school study, Minneapolis, MN*. St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com>

Read Naturally. (n.d.). *Case 7: Two-school study, Minneapolis, MN*. St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com>

Studies that do not meet WWC evidence standards

Graves, A. W., Duesbery, L., Pyle, N. B., Brandon, R. R., & McIntosh, A. S. (2011). Two studies of Tier II literacy development: Throwing sixth graders a lifeline. *The Elementary School Journal*, 111(4), 641–661. The study does not meet WWC evidence standards because the measures of effectiveness cannot be attributed solely to the intervention—the intervention was combined with another intervention.

Gutman, T. E. (2011). *The effects of Read Naturally on reading fluency and comprehension for students of low socioeconomic status* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database (UMI No. 3479155) The study does not meet WWC evidence standards because it uses a quasi-experimental design in which the analytic intervention and comparison groups are not shown to be equivalent.

Tucker, C. N. (2010). *Response to intervention: Increasing fluency, rate, and accuracy for students at risk for reading failure* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3398871) The study does not meet WWC evidence standards because the measures of effectiveness cannot be attributed solely to the intervention—there was only one unit assigned to one or both conditions.

Studies that are ineligible for review using the Adolescent Literacy Evidence Review Protocol

Arvans, R. (2010). Improving reading fluency and comprehension in elementary students using Read Naturally. *Dissertation Abstracts International*, 71(1B), 649. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.

Baker, D. L., Stoolmiller, M., Good III, R. H., & Baker, S. K. (2011). Effect of reading comprehension on passage fluency in Spanish and English for second-grade English learners. *School Psychology Review*, 40(3), 331–351. The study is ineligible for review because it does not include an outcome within a domain specified in the protocol.

Begeny, J. C., Laugle, K. M., Krouse, H. E., Lynn, A. E., Tayrose, M. P., & Stage, S. A. (2010). A control-group comparison of two reading fluency programs: The Helping Early Literacy with Practice Strategies (HELPS) program and the Great Leaps K–2 reading program. *School Psychology Review*, 39(1), 137–155. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.

- Bender, W. N., & Larkin, M. J. (2009). *Reading strategies for elementary students with learning difficulties: Strategies for RTI (2nd ed.)*. Thousand Oaks, CA: Corwin Press. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Bergeron, S. D. (2010). *The effect of participation in the Read Naturally program on second graders' reading fluency* (Unpublished doctoral dissertation). California State University, Long Beach. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Bergeson, T., & Washington State Board of Education, Olympia. (2004). *Grades 4-12 reading intervention materials review. Washington state evaluation report*. Olympia, WA: Washington State Department of Education. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Berkeley, S., Mastropieri, M., & Scruggs, T. (2011). Reading comprehension strategy instruction and attribution retraining for secondary students with learning and other mild disabilities. *Journal of Learning Disabilities, 44*(1), 18–32. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% general education students.
- Additional source:**
- Berkeley, S. (2007). Reading comprehension strategy instruction and attribution retraining for secondary students with disabilities. *Dissertation Abstracts International: Section A. Humanities and Social Sciences, 68*(3A), 949.
- Case, L. P., Speece, D. L., Silverman, R., Ritchey, K. D., Schatschneider, C., Cooper, D. H., ... Jacobs, D. (2010). Validation of a supplemental reading intervention for first-grade children. *Journal of Learning Disabilities, 43*(5), 402–417. The study is ineligible for review because it does not implement the intervention in a way that falls within the scope of the review—the intervention is bundled with other components.
- Chenault, B. M. (2004). Effects of prior attention training and a composition curriculum with attention bridges for students with dyslexia and/or dysgraphia. *Dissertation Abstracts International, 65*(4A), 1246. The study is ineligible for review because it does not implement the intervention in a way that falls within the scope of the review—the intervention is bundled with other components.
- Cheung, A., & Slavin, R. E. (2005). Effective reading programs for English language learners and other language-minority students. *Bilingual Research Journal, 29*(2), 241–267. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Christ, T. J., & Davie, J. (2009). *Empirical evaluation of Read Naturally effects: A randomized control trial (RCT)*. Minneapolis: University of Minnesota. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Additional source:**
- Read Naturally. (n.d.). *Case 2: University of Minnesota study, Minneapolis, Minn.* St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com>
- Clark, R., Morrison, T. G., & Wilcox, B. (2009). Readers' theater: A process of developing fourth-graders' reading fluency. *Reading Psychology, 30*(4), 359–385. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Coleman, M. B., & Heller, K. W. (2010). The use of repeated reading with computer modeling to promote reading fluency with students who have physical disabilities. *Journal of Special Education Technology, 25*(1), 29–41. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% general education students.
- Cowden, P. A. (2010). Reading strategies for students with severe disabilities. *Reading Improvement, 47*(3), 162–165. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.

- De la Colina, M. G. (1999). *The effectiveness of repeated reading, teacher modeling, and self-monitoring for Spanish beginning readers* (Unpublished doctoral dissertation). Texas A&M University, College Station. The study is ineligible for review because it does not examine an intervention conducted in English.
- Denton, C. A., Anthony, J. L., Parker, R., & Hasbrouck, J. E. (2004). Effects of two tutoring programs on the English reading development of Spanish-English bilingual students. *The Elementary School Journal*, 104(4), 289–305. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% general education students.
- Dubert, L. A., & Laster, B. (2011). Technology in practice: Educators training in reading clinics/literacy labs. *Journal of Reading Education*, 36(2), 23–29. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Gibson, L., Jr. (2010). The effects of a computer assisted reading program on the oral reading fluency and comprehension of at-risk, urban first grade students. *Dissertation Abstracts International: Section A. Humanities and Social Sciences*, 70(10A), 3820. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Harwood, D. S. (2011). The efficacy of Read Naturally and Voyager programs on fluency within a response to intervention framework. *Dissertation Abstracts International*, 72(4A), 1179. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Hasbrouck, J. E., Ihnot, C., & Rogers, G. (1999). Read Naturally: A strategy to increase oral reading fluency. *Reading Research and Instruction*, Fall, 27–38. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Houchins, D. E., Jolivette, K., Krezmien, M. P., & Baltodano, H. M. (2008). A multi-state study examining the impact of explicit reading instruction with incarcerated students. *Journal of Correctional Education*, 59(1), 65–85. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Hudson, R. F., Lane, H. B., & Pullen, P. C. (2005). *Reading fluency assessment and instruction: What, why, and how?* Newark, DE: International Reading Association. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Jensen, M. (2004). *The effects of the Read Naturally program on reading fluency*. Cedar Rapids, Iowa: Graceland University. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Kamps, D., Abbott, M., Greenwood, C., Arreaga-Mayer, C., Wills, H., Longstaff, J., ... Walton, C. (2007). Use of evidence-based, small-group reading instruction for English language learners in elementary grades: Secondary-tier intervention. *Learning Disability Quarterly*, 30(3), 153–168. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Kemp, S. C. (2006). Teaching to Read Naturally: Examination of a fluency training program for third grade students. *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 is not within the specified age or grade range.
- Keyes, S. E. (2010). *The effects of a computer-assisted reading program on the oral reading fluency, comprehension, and generalization of at-risk, urban second-grade students* (Doctoral dissertation). ProQuest Dissertations and Theses database. (UMI No. 3429659) The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Lane, H. B., Hudson, R. F., Leite, W. L., Kosanovich, M. L., Strout, M. T., Fenty, N. S., & Wright, T. L. (2009). Teacher knowledge about reading fluency and indicators of students' fluency growth in Reading First schools. *Reading & Writing Quarterly*, 25(1), 57–86. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Legere, E. J., & Conca, L. M. (2010). Response-to-Intervention by a child with a severe reading disability. *Council for Exceptional Children*, 43(1), 32–39. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.

- Lo, Y., Cooke, N. L., & Starling, A. L. P. (2011). Using a repeated reading program to improve generalization of oral reading fluency. *Education & Treatment of Children, 34*(1), 115–140. The study is ineligible for review because it does not examine the effectiveness of an intervention.
- Malmgren, K. W., & Trezek, B. J. (2009). Literacy instruction for secondary students with disabilities. *Focus on Exceptional Children, 41*(6), 1–12. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Mather, N., & Urso, A. (2008). Teaching younger readers with reading difficulties. In R. J. Morris & N. Mather (Eds.), *Evidence-based interventions for students with learning and behavioral challenges* (pp. 163–192). New York: Routledge/Taylor & Francis Group. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Mellard, D. F., Stern, A., & Woods, K. (2011). RTI school-based practices and evidence-based models. *Focus on Exceptional Children, 43*(6), 1–15. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Miller, J. A. (2010). *The effects of an enhanced fluency intervention on fourth and fifth grade struggling readers* (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3414550) The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Owen, A. (2006). *The effects of the Read Naturally program on the fluency rate of fourth graders*. Cedar Rapids, Iowa: Graceland University. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Patel, R., & McNab, C. (2011). Displaying prosodic text to enhance expressive oral reading. *Speech Communication, 53*(3), 431–441. The study is ineligible for review because it does not include an outcome within a domain specified in the protocol.
- Pittman, R. T., & Hosp, J. (2008). *Effectiveness study of Read Naturally software as a method for increasing reading fluency and reading comprehension in third grade students (pilot study)*. Tallahassee: Florida State University. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Read Naturally. (n.d.). *Case 1: Original study, Minneapolis, MN*. St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com> The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Read Naturally. (n.d.). *Case 2: University of Minnesota study, Minneapolis, Minn.* St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com> The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Read Naturally. (n.d.). *Case 6: Special education students, Huron County, Mich.* St. Paul, MN: Author. Retrieved 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% general education students.
- Read Naturally. (n.d.). *Case 11: Second graders, Elk River, MN*. St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com> The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Read Naturally. (n.d.). *National Center on Response-to-Intervention posts statistically significant studies of Read Naturally*. St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com> The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Read Naturally. (n.d.). *Read Naturally and reading attitudes*. St. Paul, MN: Author. Retrieved from <http://www.readnaturally.com> The study is ineligible for review because it does not include an outcome within a domain specified in the protocol.

- Reed, J. M., Marchand-Martella, N. E., 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 design or a single-case design.
- Reichrath, E., de Witte, L. P., & Winkens, I. (2010). Interventions in general education for students with disabilities: A systematic review. *International Journal of Inclusive Education, 14*(6), 563–580. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Rivera, M. O., Moughamian, A. C., Lesaux, N. K., & Francis, D. J. (2008). *Language and reading interventions for English language learners and English language learners with disabilities*. Portsmouth, NH: RMC Research Corporation, Center on Instruction. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- 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 design or a single-case design.
- Stagliano, C., & Boon, R. T. (2009). The effects of a story-mapping procedure to improve the comprehension skills of expository text passages for elementary students with learning disabilities. *Learning Disabilities: A Contemporary Journal, 7*(2), 35–58. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample includes less than 50% general education students.
- Stine-Morrow, E., Noh, S. R., & Shake, M. C. (2010). Age differences in the effects of conceptual integration training on resource allocation in sentence processing. *Quarterly Journal of Experimental Psychology, 63*(7), 1430–1455. The study is ineligible for review because it does not examine the effectiveness of an intervention.
- Wahl, M. (2006). *Read Naturally*. Tallahassee, FL: Florida Center for Reading Research. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Weiser, B., & Mathes, P. (2011). Using encoding instruction to improve the reading and spelling performances of elementary students at risk for literacy difficulties: A best-evidence synthesis. *Review of Educational Research, 81*(2), 170–200. The study is ineligible for review because it is a secondary analysis of the effectiveness of an intervention, such as a meta-analysis or research literature review.
- Wexler, J., Vaughn, S., Roberts, G., & Denton, C. A. (2010). The efficacy of repeated reading and wide reading practice for high school students with severe reading disabilities. *Learning Disabilities Research & Practice, 25*(1), 2–10. The study is ineligible for review because it does not use a sample aligned with the protocol—the sample is not within the specified age or grade range.
- Zyburt, G. M. (2010). *Comprehensive school reform with a focus on literacy* (Doctoral dissertation). Claremont Graduate University, CA. Available from ProQuest Dissertations and Theses database. (UMI No. 3414047) The study is ineligible for review because it does not use a comparison group design or a single-case design.

Appendix A: Research details for Heistad (2008)

Heistad, D. (2008). *The effects of Read Naturally on fluency and reading comprehension: A supplemental service intervention (four-school study)* (Unpublished manuscript).

Table A. Summary of findings

Meets WWC evidence standards with reservations

Outcome domain	Sample size	Study findings	
		Average improvement index (percentile points)	Statistically significant
General literacy achievement	156 students	+10	Yes

Setting The study took place in the Minneapolis Public School district, in schools that were not on the *No Child Left Behind* list of schools failing to make adequate yearly progress in 2003.

Study sample *Read Naturally*® was implemented with students in grades 3–5 in four elementary schools in the Minneapolis Public School district. Comparison group students were drawn from the same grade in the same school district. The author does not specify the number of schools attended by comparison group students. Students were selected for the *Read Naturally*® intervention based on parent and teacher recommendations and, according to the author, were generally not considered to be “on course” for proficiency on the state assessments administered in the spring of grades 3–5. The analysis sample included 156 students in grades 3–5 (78 in *Read Naturally*® and 78 in the comparison group); 46 in grade 3, 66 in grade 4, and 44 in grade 5. The demographic characteristics of the *Read Naturally*® students were: 56% male, 12% classified as special education, 35% classified as English language learners (ELL), and 65% receiving free or reduced-price lunch. With respect to race and ethnicity, 39% of the intervention group students were Hispanic, 35% were African American, 22% were White, and 4% were Native American. No similar demographic information for the comparison sample was presented in the study.

Intervention group Two schools used the *Read Naturally*® *Masters* version that employed audio cassettes and hard-copy reading materials, while two schools used the *Read Naturally*® *Software Edition*. Two schools implemented *Read Naturally*® as a pull-out intervention during the school day, while two schools used it as part of an after-school program. No further information was provided in the study regarding the intervention condition.

Comparison group The study author created a matched comparison group from within the Minneapolis Public School district using students that were not receiving the *Read Naturally*® program. Students were first matched by a pretest score on the Northwest Achievement Levels Test (NALT)–Reading measure, followed by the following demographic factors: grade, ELL status, special education status, free or reduced-price lunch status, race/ethnicity, home language, and gender. *Read Naturally*® students were only matched to other students attending schools classified with the same AYP status as their own school.

Outcomes and measurement

The study included one eligible outcome measure, the reading portion of the NALT, a state-based adaptive assessment. The NALT is administered in the spring, with prior year's NALT scores used as a pretest measure in the study. For a more detailed description of this outcome measure, see Appendix B. The reading portion of the Minnesota Comprehensive Assessment (MCA) was also administered to the subsample of 88 students in grades 3 and 5 at posttest in the spring of 2004. However, the results for the subsample of students using this outcome measure are not included in this review because baseline equivalence for the analysis sample was not established.

Support for implementation

One teacher in each intervention group school was trained in *Read Naturally*[®] procedures by a *Read Naturally*[®] instructor. Training included: initial assessment of student level of instruction using curriculum-based measurement procedures, placement procedures, use of comprehension assessments and strategies, student goal setting, and progress monitoring procedures.

Appendix B: Outcome measure for the general literacy achievement domain

General literacy achievement

Northwest Achievement Levels Test (NALT)–Reading

The NALT–Reading is a multiple-choice, standardized test aligned with state reading standards. The NALT is an adaptive assessment, where the version of the test taken by the student is based on their reading achievement level as determined by prior assessment (as cited in Heistad, 2008).

Appendix C: Findings included in the rating for the general literacy achievement domain

Outcome measure	Study sample	Sample size	Mean (standard deviation)		WWC calculations			p-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
Heistad, 2008^a								
<i>Northwest Achievement Levels Test (NALT)–Reading</i>	Grades 3–5	156 students	195.40 (9.22)	192.90 (11.23)	2.51	0.24	+10	0.02
Domain average for general literacy achievement (Heistad, 2008)						0.24	+10	Statistically significant

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on student outcomes, representing the average change expected for all students who are given the intervention (measured in standard deviations of the outcome measure). The improvement index is an alternate presentation of the effect size, reflecting the change in an average student’s percentile rank that can be expected if the student is given the intervention.

^a For Heistad (2008), no corrections for clustering or multiple comparisons and no difference-in-differences adjustments were needed. The p-value presented here was reported in the original study. Note that, according to WWC standards, the Adolescent Literacy team computed effects by calculating a pooled standard deviation using individual standard deviations for each treatment arm in Table 3 in the study, as opposed to the pooled standard deviation from a paired sample t-test in Table 4. This study is characterized as having a statistically significant positive effect because, for a single outcome measure, the effect is positive and statistically significant. For more information, please refer to the WWC Standards and Procedures Handbook, version 2.1, p. 96.

Appendix D: Description of supplemental findings for the general literacy achievement domain

Outcome measure	Study sample	Sample size	Mean (standard deviation)		WWC calculations			p-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
Heistad, 2008b^a								
<i>Northwest Achievement Levels Test (NALT)—Reading</i>	Grades 3–5	102 students	195.80 (8.42)	193.40 (11.72)	2.40	0.23	+9	0.09

Table Notes: The supplemental findings presented in this table are subgroup findings from the study in this report that do not factor into the determination of the intervention rating. This subgroup consists of students that used *Read Naturally* as a pull-out intervention during the school day, along with their matched comparison group, which is a subsample of the full study analysis reported in Heistad (2008). For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on student outcomes, representing the average change expected for all students who are given the intervention (measured in standard deviations of the outcome measure). The improvement index is an alternate presentation of the effect size, reflecting the change in an average student’s percentile rank that can be expected if the student is given the intervention.

^a For Heistad (2008b), no corrections for clustering or multiple comparisons and no difference-in-differences adjustments were needed. The p-value presented here was reported in the original study.

Endnotes

* 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 WWC has not added studies to the evidence base, updated the literature search, changed any study ratings, or changed values presented in tables since the March 2013 report.

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 literature search reflects documents publicly available by April 2012.

³ At the WWC's request, the author provided separate results for only the subsample of students in third grade (Heistad, 2008c), which are reported separately in the WWC Beginning Reading intervention report.

⁴ For criteria used in the determination of the rating of effectiveness and extent of evidence, see the WWC Rating Criteria on p. 16. These improvement index numbers show the average and range of student-level improvement indices for all findings across the studies.

⁵ The additional citation of Heistad (2008b) presents outcome data only for the subset of students attending schools that used *Read Naturally*[®] as a pull-out intervention during the school day, along with their matched comparison group. These results are presented in Appendix D and do not factor into the determination of the intervention rating.

Recommended Citation

U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse. (2013, March). *Adolescent Literacy intervention report: Read Naturally*[®]. Retrieved from <http://whatworks.ed.gov>

WWC Rating Criteria

Criteria used to determine the rating of a study

Study rating	Criteria
Meets WWC evidence standards without reservations	A study that provides strong evidence for an intervention's effectiveness, such as a well-implemented RCT.
Meets WWC evidence standards with reservations	A study that provides weaker evidence for an intervention's effectiveness, such as a QED or an RCT with high attrition that has established equivalence of the analytic samples.

Criteria used to determine the rating of effectiveness for an intervention

Rating of effectiveness	Criteria
Positive effects	Two or more studies show statistically significant positive effects, at least one of which met WWC evidence standards for a strong design, AND No studies show statistically significant or substantively important negative effects.
Potentially positive effects	At least one study shows a statistically significant or substantively important positive effect, AND No studies show a statistically significant or substantively important negative effect AND fewer or the same number of studies show indeterminate effects than show statistically significant or substantively important positive effects.
Mixed effects	At least one study shows a statistically significant or substantively important positive effect AND at least one study shows 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, OR At least one study shows a statistically significant or substantively important effect AND more studies show an indeterminate effect than show a statistically significant or substantively important effect.
Potentially negative effects	One study shows a statistically significant or substantively important negative effect and no studies show a statistically significant or substantively important positive effect, OR Two or more studies show statistically significant or substantively important negative effects, at least one study shows a statistically significant or substantively important positive effect, and more studies show statistically significant or substantively important negative effects than show statistically significant or substantively important positive effects.
Negative effects	Two or more studies show statistically significant negative effects, at least one of which met WWC evidence standards for a strong design, AND No studies show statistically significant or substantively important positive effects.
No discernible effects	None of the studies shows a statistically significant or substantively important effect, either positive or negative.

Criteria used to determine the extent of evidence for an intervention

Extent of evidence	Criteria
Medium to large	The domain includes more than one study, AND The domain includes more than one school, AND The domain findings are based on a total sample size of at least 350 students, OR, assuming 25 students in a class, a total of at least 14 classrooms across studies.
Small	The domain includes only one study, OR The domain includes only one school, OR The domain findings are based on a total sample size of fewer than 350 students, AND, assuming 25 students in a class, a total of fewer than 14 classrooms across studies.

Glossary of Terms

Attrition	Attrition occurs when an outcome variable is not available for all participants initially assigned to the intervention and comparison groups. The WWC considers the total attrition rate and the difference in attrition rates across groups within a study.
Clustering adjustment	If intervention assignment is made at a cluster level and the analysis is conducted at the student level, the WWC will adjust the statistical significance to account for this mismatch, if necessary.
Confounding factor	A confounding factor is a component of a study that is completely aligned with one of the study conditions, making it impossible to separate how much of the observed effect was due to the intervention and how much was due to the factor.
Design	The design of a study is the method by which intervention and comparison groups were assigned.
Domain	A domain is a group of closely related outcomes.
Effect size	The effect size is a measure of the magnitude of an effect. The WWC uses a standardized measure to facilitate comparisons across studies and outcomes.
Eligibility	A study is eligible for review and inclusion in this report if it falls within the scope of the review protocol and uses either an experimental or matched comparison group design.
Equivalence	A demonstration that the analysis sample groups are similar on observed characteristics defined in the review area protocol.
Extent of evidence	An indication of how much evidence supports the findings. The criteria for the extent of evidence levels are given in the WWC Rating Criteria on p. 16.
Improvement index	Along a percentile distribution of students, the improvement index represents the gain or loss of the average student due to the intervention. As the average student starts at the 50th percentile, the measure ranges from -50 to +50.
Multiple comparison adjustment	When a study includes multiple outcomes or comparison groups, the WWC will adjust the statistical significance to account for the multiple comparisons, if necessary.
Quasi-experimental design (QED)	A quasi-experimental design (QED) is a research design in which subjects are assigned to intervention and comparison groups through a process that is not random.
Randomized controlled trial (RCT)	A randomized controlled trial (RCT) is an experiment in which investigators randomly assign eligible participants into intervention and comparison groups.
Rating of effectiveness	The WWC rates the effects of an intervention in each domain based on the quality of the research design and the magnitude, statistical significance, and consistency in findings. The criteria for the ratings of effectiveness are given in the WWC Rating Criteria on p. 16.
Single-case design	A research approach in which an outcome variable is measured repeatedly within and across different conditions that are defined by the presence or absence of an intervention.
Standard deviation	The standard deviation of a measure shows how much variation exists across observations in the sample. A low standard deviation indicates that the observations in the sample tend to be very close to the mean; a high standard deviation indicates that the observations in the sample tend to be spread out over a large range of values.
Statistical significance	Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The WWC labels a finding statistically significant if the likelihood that the difference is due to chance is less than 5% ($p < 0.05$).
Substantively important	A substantively important finding is one that has an effect size of 0.25 or greater, regardless of statistical significance.

Please see the [WWC Procedures and Standards Handbook \(version 2.1\)](#) for additional details.