

Reading Mastery

No studies of *Reading Mastery* that fall within the scope of the Beginning Reading review protocol meet What Works Clearinghouse (WWC) evidence standards. The lack of studies meeting WWC evidence standards means that, at this time, the WWC is unable to draw any conclusions based on research about the effectiveness or ineffectiveness of *Reading Mastery* on beginning readers in grades K–3. Additional research is needed to determine the effectiveness or ineffectiveness of this intervention.

Program Description¹

Reading Mastery, one of several curriculum components that constitute the *Direct Instruction* program from SRA/McGraw-Hill, is designed to provide systematic instruction in reading to students in grades K–6. *Reading Mastery*, which can be used as an intervention program for struggling readers, as a supplement to a core reading program, or as a stand-alone reading program, is available in three versions:

1. *Reading Mastery Classic* (for grades pre-K–3) aims to help beginning readers identify letter sounds, segment words into sounds, blend sounds into words, develop vocabulary, and begin to learn comprehension strategies.
2. *Reading Mastery Plus* (for grades K–6) has a language arts focus with an emphasis on reading, writing, spelling, and language.
3. *Reading Mastery Signature Edition* (for grades K–5) includes three strands: (a) a Reading strand that addresses phonemic awareness, phonics, word analysis, fluency, vocabulary, comprehension, spelling, decoding, and word recognition skills; (b) an Oral Language/Language Arts strand that addresses oral language, communication, and writing skills; and (c) a Literature strand that is designed to provide students with opportunities to read a variety of texts and to develop their vocabulary.

During the implementation of *Reading Mastery*, students are grouped with other students at a similar reading level, based on program placement tests. The program includes a continuous monitoring component.

A typical 30- to 45-minute *Reading Mastery* lesson includes seven to nine short activities that encompass multiple strands of content, such as phonemic awareness, letter–sound correspondence, sounding out words, word recognition, vocabulary, oral reading fluency, or comprehension. The teaching routine repeated throughout the curriculum is composed of the following steps: modeling new content, providing guided practice, and implementing individual practice and application. Lesson scripts act as a guide for teachers. Signals and group responses are used to keep students involved and on task and to control lesson pacing. The program typically spans 1 academic year.

This review of *Reading Mastery* for Beginning Reading focuses on students in grades K–3.

Research²

The WWC identified 166 studies of *Reading Mastery* for beginning readers that were published or released between 1983 and 2012.

Thirty-four studies are within the scope of the Beginning Reading review protocol but do not meet WWC evidence standards.

- Fifteen studies used a quasi-experimental design that did not establish that the comparison group was comparable to the intervention group prior to the start of the intervention.
- Ten studies could not attribute the measures of the effects solely to *Reading Mastery* because the intervention was combined with another intervention, the effects were not reported separately for the intervention, or the intervention was not implemented as designed.
- Seven studies had only one unit assigned to the intervention condition or one unit assigned to the comparison condition.
- One study used a single-case design that did not have at least three attempts to demonstrate an intervention effect at three different points in time.
- One study only included outcomes that were measured in a way that is inconsistent with the protocol.

Eighty-four studies are out of the scope of the Beginning Reading review protocol because they have an ineligible study design.

- Sixty-nine studies did not use a comparison group design, a regression discontinuity design, or a single-case design.
- Fifteen studies were literature reviews or meta-analyses.

Forty-eight studies are out of the scope of the Beginning Reading review protocol for reasons other than study design.

- Nineteen studies did not include students in grades K–3, as specified in the protocol.
- Nine studies included fewer than 50% general education students.
- Eight studies did not disaggregate findings for the age or grade range specified in the protocol.
- Seven studies did not examine the effectiveness of an intervention.
- Three studies did not include an outcome within a domain specified in the protocol.
- Two studies did not implement the intervention in a way that falls within the scope of the review because the intervention was bundled with other components.

References

Studies that do not meet WWC evidence standards

- Algozzine, B., Wang, C., White, R., Cooke, N., Marr, M. B., Algozzine, K., Helf, S. S., & Duran, G. Z. (2012). Effects of multi-tier academic and behavior instruction on difficult-to-teach students. *Exceptional Children, 79*(1), 45–64. 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.
- Ashworth, D. R. (1999). Effects of Direct Instruction and basal reading instruction programs on the reading achievement of second graders. *Reading Improvement, 35*(4), 150–156. 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 of analysis in one or both conditions.
- Brent, G., Diobilda, N., & Gavin, F. (1986). Camden Direct Instruction project 1984-1985. *Urban Education, 21*(2), 138–148. 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.
- Carlson, C. D., & Francis, D. J. (2002). Increasing the reading achievement of at-risk children through Direct Instruction: Evaluation of the Rodeo Institute for Teacher Excellence (RITE). *Journal of Direct Instruction, 3*(1), 29–50. 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.
- Crowe, E. C., Connor, C. M., & Petscher, Y. (2009). Examining the core: Relations among reading curricula, poverty, and first through third grade reading achievement. *Journal of School Psychology, 47*, 187–214. 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.
- Foorman, B. R., Chen, D. T., Carlson, C., Moats, L., Francis, D. J., & Fletcher, J. M. (2003). The necessity of the alphabetic principle to phonemic awareness instruction. *Reading and Writing, 16*(4), 289–324. The study does not meet WWC evidence standards because the measures of effectiveness cannot be attributed solely to the intervention—the effects are not reported separately for the intervention.
- Green, A. K. (2010). Comparing the efficacy of SRA Reading Mastery and guided reading on reading achievement in struggling readers. *Dissertation Abstracts International, 71*(11A), 3969. 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.
- Harvey, M. W. (2012). Union County Public Schools action research: Comparing early literacy interventions used in Union County Public Schools; Reading Recovery vs. Leveled Literacy Intervention. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 73*(3A), 989. The study does not meet WWC evidence standards because it only includes outcomes that are overaligned with the intervention or measured in a way that is inconsistent with the protocol.
- Jones, C. D. (2002). Effects of Direct Instruction programs on the phonemic awareness abilities of kindergarten students. *Dissertation Abstracts International, 63*(03), 902A. 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.
- 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 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.
- Kamps, D., Abbott, M., Greenwood, C., Wills, H., Veerkamp, M., & Kaufman, J. (2008). Effects of small-group reading instruction and curriculum differences for students most at risk in kindergarten. *Journal of Learning*

- Disabilities*, 41(2), 101–114. 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.
- Kamps, D. M., & Greenwood, C. R. (2005). Formulating secondary-level reading interventions. *Journal of Learning Disabilities*, 38(6), 500–509. 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.
- League, M. B. (2001). The effect of the intensity of phonological awareness instruction on the acquisition of literacy skills. *Dissertation Abstracts International*, 62(10), 3299A. 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.
- Mac Iver, M. A., & Kemper, E. (2002). The impact of Direct Instruction on elementary students' reading achievement in an urban school district. *Journal of Education for Students Placed at Risk*, 7(2), 197–220. The study does not meet WWC evidence standards because the measures of effectiveness cannot be attributed solely to the intervention—the intervention was not implemented as designed.
- McClendon, I. D. (2012). A longitudinal case study of a literacy program titled Reading Recovery for students in a struggling Midwestern school district. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 73(4A), 1357. 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.
- McCollum, S., McNeese, M. N., Styron, R., & Lee, D. E. (2007). A school district comparison of reading achievement based on three reading programs. *Journal of At-Risk Issues*, 13(1), 1–6. 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.
- McIntyre, E., Rightmyer, E. C., & Petrosko, J. P. (2008). Scripted and non-scripted reading instructional models: Effects on the phonics and reading achievement of first-grade struggling readers. *Reading & Writing Quarterly: Overcoming Learning Difficulties*, 24(4), 377–407. 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.
- Neely, M. (1995). The multiple effects of whole language, precision teaching and Direct Instruction on first-grade story-reading. *Effective School Practices*, 14(4), 33–42. 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.
- O'Brien, D. M., & Ware, A. M. (2002). Implementing research-based reading programs in the Fort Worth independent school district. *Journal of Education for Students Placed at Risk*, 7(2), 167–195. 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.
- O'Connor, R. E., Harty, K. R., & Fulmer, D. (2005). Tiers of intervention in kindergarten through third grade. *Journal of Learning Disabilities*, 38(6), 532–538. 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.
- Redding, L. R. (2012). *An investigation of the sustained effects of Reading Recovery on economically disadvantaged fifth grade students* (Unpublished doctoral dissertation). Widener University, Chester, PA. 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.
- Ryder, R. J., Burton, J. L., & Silberg, A. (2006). Longitudinal study of Direct Instruction effects from first through third grades. *Journal of Educational Research*, 99(3), 180–191. 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.

- Ryder, R. J., Sekulski, J. L., & Silberg, A. (2003). *Results of Direct Instruction reading program evaluation longitudinal results: First through third grade 2000–2003*. Retrieved from: <http://www.uwm.edu> 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.
- SRA/McGraw-Hill. (2009). *A report on the effects of SRA/McGraw-Hill's Reading Mastery, Signature Edition: A response to intervention solution*. DeSoto, TX: Author. 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.
- Stockard, J. (2011). Increasing reading skills in rural areas: An analysis of three school districts. *Journal of Research in Rural Education, 26*(8). 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.
- Additional source:**
- Stockard, J. (2010). *The impact of Reading Mastery in kindergarten on reading achievement through the primary grades: A cohort control group design*. Eugene, OR: National Institute for Direct Instruction.
- Stockard, J., & Engelmann, K. (2010). The development of early academic success: The impact of Direct Instruction's Reading Mastery. *Journal of Behavior Assessment & Intervention in Children, 1*(1), 2–24. Study A. 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.
- Stockard, J., & Engelmann, K. (2010). The development of early academic success: The impact of Direct Instruction's Reading Mastery. *Journal of Behavior Assessment & Intervention in Children, 1*(1), 2–24. Study B. 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.
- Thames, D., Kazelskis, R., & Kazelskis, C. R. (2006, November). *Reading performance of elementary students: Results of a five-year longitudinal study of direct reading instruction*. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Birmingham, AL. 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.
- Thomson, B. (1991). Pilot study of the effectiveness of a Direct Instruction model (Reading Mastery Fast Cycle) as a supplement to a literature based delivery model (Houghton-Mifflin Integrated Reading Program) in two regular first grade classrooms. *Florida Educational Research Council Research Bulletin, 23*(2), 3–23. 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.
- Trout, A. L., Epstein, M. H., Mickelson, W. T., Nelson, J. R., & Lewis, L. M. (2003). Effects of a reading intervention for kindergarten students at risk for emotional disturbance and reading deficits. *Behavioral Disorders, 28*(3), 313–326. 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.
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- Wills, H., Kamps, D., Abbott, M., Bannister, H., & Kaufman, J. (2010). Classroom observations and effects of reading interventions for students at risk for emotional and behavioral disorders. *Behavioral Disorders, 35*(2), 103–119. 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.
- Wiltz, N., & Wilson, G. P. (2006). An inquiry into children's reading in one urban school using SRA Reading Mastery (Direct Instruction). *Journal of Literacy Research, 37*(4), 493–528. 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 do not meet WWC pilot single-case design standards

Goss, C. L., & Brown-Chidsey, R. (2012). Tier 2 reading interventions: Comparison of Reading Mastery and Foundations Double Dose. *Preventing School Failure*, 56(1), 65–74. The study does not meet WWC evidence standards because it does not have at least three attempts to demonstrate an intervention effect at three different points in time.

Additional source:

Goss, C. L. (2008). Tier II reading interventions: Research study. *Dissertation Abstracts International*, 70(03A), 63-797.

Studies that are ineligible for review using the Beginning Reading Evidence Review Protocol

Airhart, K. M. (2005). *The effectiveness of Direct Instruction in reading compared to a state mandated language arts curriculum for ninth and tenth graders with specific learning disabilities* (Unpublished doctoral dissertation). Tennessee State University, Nashville. 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.

Asfendis, G. (2008). Phonemic awareness and early intervention: An evaluation of a pilot phonemic awareness program. *Dissertation Abstracts International*, 62. The study is ineligible for review because it does not use a comparison group design or a single-case design.

Association for Supervision and Curriculum Development and the Council of Chief State School Officers. (2003). City Springs Elementary School, Baltimore, MD. In *Results with Reading Mastery* (pp. 14–15). New York: McGraw-Hill. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.

Association for Supervision and Curriculum Development and the Council of Chief State School Officers. (2003). Eshelman Avenue Elementary, Lomita, CA. In *Results with Reading Mastery* (pp. 16–17). New York: McGraw-Hill. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.

Association for Supervision and Curriculum Development and the Council of Chief State School Officers. (2003). Fort Worth Independent School District, Fort Worth, TX. In *Results with Reading Mastery* (pp. 4–5). New York: McGraw-Hill. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.

Association for Supervision and Curriculum Development and the Council of Chief State School Officers. (2003). Lebanon School District, Lebanon, PA. In *Results with Reading Mastery* (pp. 8–9). New York: McGraw-Hill. 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.

Association for Supervision and Curriculum Development and the Council of Chief State School Officers. (2003). Park Forest-Chicago Heights School District 163, Chicago, IL. In *Results with Reading Mastery* (pp. 10–11). New York: McGraw-Hill. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.

Association for Supervision and Curriculum Development and the Council of Chief State School Officers. (2003). Portland Elementary School, Portland, OR. In *Results with Reading Mastery* (pp. 2–3). New York: McGraw-Hill. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.

Association for Supervision and Curriculum Development and the Council of Chief State School Officers. (2003). Roland Park Elementary/Middle School, Baltimore, MD. In *Results with Reading Mastery* (pp. 12–13). New

- York: McGraw-Hill. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.
- Association for Supervision and Curriculum Development and the Council of Chief State School Officers. (2003). Wilson Primary School, Phoenix, AZ. In *Results with Reading Mastery* (pp. 6–7). New York: McGraw-Hill. The study is ineligible for review because it does not disaggregate findings for the age or grade range specified in the protocol.
- Batchelder, H. L. W. (2008). *An investigation of the efficacy of the text talk strategy on pre-school students' vocabulary acquisition*. Retrieved from <http://purl.fcla.edu> 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.
- Bateman, B. (1991). Teaching word recognition to slow-learning children. *Journal of Reading, Writing, and Learning Disabilities International*, 7(1), 1–16. 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.
- Borges, J. (2009). *Reciprocal teaching strategies in context: Implications for sixth grade humanities*. New York: Bank Street College of Education. 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.
- Butler, P. A. (2003). Achievement outcomes in Baltimore City Schools. *Journal of Education for Students Placed at Risk*, 8, 33–60. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Chamberlain, L. A. (1987). Using DI in a Victoria, B.C. resource room. *ADI News*, 7(1), 7–8. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Cohen, E. J., & Brady, M. P. (2011). Acquisition and generalization of word decoding in students with reading disabilities by integrating vowel pattern analysis and children's literature. *Education and Treatment of Children*, 34(1), 81–113. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Collier, P. R. (2008). The impact of literacy coaching on teacher fidelity and students with learning disabilities' reading achievement. *Dissertation Abstracts International*, 70(02A), 126–514. 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.
- Comprehensive School Reform Quality Center. (2006). *CSRQ center report on elementary school CSR models*. Washington, DC: Comprehensive School Reform Quality Center, American Institutes for 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.
- Cooke, N. L., Gibbs, S. L., Campbel, M. L., & Shalvis, S. L. (2004). A comparison of Reading Mastery Fast Cycle and Horizons Fast Track A–B on the reading achievement of students with mild disabilities. *Journal of Direct Instruction*, 4(2), 139–151. 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.
- Darch, C., & Kameenui, E. (1987). Teaching critical reading skills to learning disabled children. *Learning Disability Quarterly*, 10, 82–92. 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.
- De La Cruz, C. F. (2009). *A program evaluation study of a literacy initiative for students with moderate to severe disabilities*. Retrieved from <http://purl.fcla.edu> The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Elias, E. I. (2009). The lived experiences of six first-grade teachers using Reading Mastery Plus curriculum in high poverty schools. *Dissertation Abstracts International*, 70(7A), 182–2440. The study is ineligible for review because it does not use a comparison group design or a single-case design.

Eppley, K. (2011). Reading Mastery as pedagogy of erasure. *Journal of Research in Rural Education*, 26, 1–5. The study is ineligible for review because it does not examine the effectiveness of an intervention.

European Centre for Reading Recovery. (2012). *Reading Recovery annual report for the UK and the Republic of Ireland: 2011-12*. University of London: Institute of Education. The study is ineligible for review because it does not use a comparison group design or a single-case design.

Additional source:

Evans, D. (2012). Early intervention boosts later success. *Times Educational Supplement*, (5023), 14–15.

Flores, M. M., & Ganz, J. B. (2007). Effectiveness of Direct Instruction for teaching statement inference, use of facts, and analogies to students with developmental disabilities and reading delays. *Focus on Autism & Other Developmental Disabilities*, 22(4), 244–251. The study is ineligible for review because it does not use a comparison group design or a single-case design.

Foorman, B., & Al Otaiba, S. (2009). How children learn to read: Current issues and new directions in the integration of cognition, neurobiology and genetics of reading and dyslexia research and practice. In K. Pugh & P. McCa-rdle (Eds.), *Reading remediation: State of the art* (pp. 257–274). New York: Psychology 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.

Foorman, B. R., Fletcher, J. M., & Francis, D. J. (2004). Early reading assessment. In W. M. Evers & H. J. Walberg (Eds.), *Testing student learning, evaluating teaching effectiveness* (pp. 81–125). Stanford, CA: Hoover Institution 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.

Foorman, B. R., Schatschneider, C., Eakin, M. N., Fletcher, J. M., Moats, L. C., & Francis, D. J. (2006). The impact of instructional practices in grades 1 and 2 on reading and spelling achievement in high poverty schools. *Contemporary Educational Psychology*, 31(1), 1–29. The study is ineligible for review because it does not examine the effectiveness of an intervention.

Fredrick, L. D., Keel, M. C., & Neel, J. H. (2002). Making the most of instructional time: Teaching reading at an accelerated rate to students at risk. *Journal of Direct Instruction*, 2(1), 57–63. The study is ineligible for review because it does not use a comparison group design or a single-case design.

Frijters, J. C., Lovett, M. W., Steinbach, K. A., Wolf, M., Sevcik, R. A., & Morris, R. D. (2011). Neurocognitive predictors of reading outcomes for children with reading disabilities. *Journal of Learning Disabilities*, 44(2), 150–166. The study is ineligible for review because it does not examine the effectiveness of an intervention.

Fulmer, S. M., & Frijters, J. C. (2011). Motivation during an excessively challenging reading task: The buffering role of relative topic interest. *Journal of Experimental Education*, 79(2), 185–208. 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.

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 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.

Greaney, K., & Arrow, A. (2012). Phonological-based assessment and teaching within a first year reading program in New Zealand. *Australian Journal of Language & Literacy*, 35(1), 9–32. The study is ineligible for review because it does not examine the effectiveness of an intervention.

Gunn, B., Smolkowski, K., Biglan, A., & Black, C. (2002). Supplemental instruction in decoding skills for Hispanic and non-Hispanic students in early elementary school: A follow-up. *Journal of Special Education*, 36(2), 69–79. 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.

Additional source:

Gunn, B., Smolkowski, K., Biglan, A., Black, C., & Blair, J. (2005). Fostering the development of reading skill

through supplemental instruction: Results for Hispanic and non-Hispanic students. *Journal of Special Education*, 39(2), 66–86.

- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York: Routledge. 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.
- Herrera, J. A., Logan, C. H., Cooker, P. G., Morris, D. P., & Lyman, D. E. (1997). Phonological awareness and phonetic-graphic conversion: A study of the effects of two intervention paradigms with learning disabled children. Learning disability or learning difference? *Reading Improvement*, 34(2), 71–89. 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.
- Hudler, S. E. (2008). *A description of explicit phonological instruction for elementary children with mild disabilities with computer-assisted instruction*. Columbus: Ohio State University. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Humphries, T., Neufeld, M., Johnson, C., Engels, K., & McKay, R. (2005). A pilot study of the effect of Direct Instruction programming on the academic performance of students with intractable epilepsy. *Epilepsy & Behavior*, 6(3), 405–412. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Intensive, tailored tuition raise literacy. (2012). *Children and Young People Now*, 2(15), 32–33. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Jordan, N. L. (2005). Basal readers and reading as socialization: What are children learning? *Language Arts*, 82(3), 204–213. The study is ineligible for review because it does not include an outcome within a domain specified in the protocol.
- Joseph, B. L. (2000). Teacher expectations of low-SES preschool and elementary children: Implications of a research-validated instructional intervention for curriculum policy and school reform. *Dissertation Abstracts International*, 65(01), 35A. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Joseph, L. M., & Schisler, R. (2009). Should adolescents go back to the basics? A review of teaching word reading skills to middle and high school students. *Remedial and Special Education*, 30(3), 131–147. 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.
- Kaiser, S., Palumbo, K., Bialozor, R. C., & McLaughlin, T. F. (1989). The effects of Direct Instruction with rural remedial education students: A brief report. *Reading Improvement*, 26(1), 88–93. 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.
- Kanfush, P. M., III. (2010). Use of Direct Instruction to teach reading to students with significant cognitive impairments: Student outcomes and teacher perceptions. *Dissertation Abstracts International*, 71(12A), 4355. 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.
- Keafer, K. A. (2008). Effects of National Institute for Learning Development educational therapy for students with learning difficulties. *Dissertation Abstracts International*, 69(06A), 123-222. The study is ineligible for review because it does not use a comparison group design or a single-case design.
- Kubina, R. M., Jr., Commons, M. L., & Heckard, B. (2009). Using precision teaching with Direct Instruction in a summer school program. *Journal of Direct Instruction*, 9(1), 1–12. The study is ineligible for review because it does not use a comparison group design or a single-case design.
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Endnotes

¹ The descriptive information for this program was obtained from a publicly available source: the WWC *Reading Mastery* intervention report for adolescent readers (<http://ies.ed.gov/ncee/wwc/interventionreport.aspx?sid=418>). The WWC requests developers to review the program description sections for accuracy from their perspective. The program description was provided to the developer in September 2012; however, the WWC received no response. Further verification of the accuracy of the descriptive information for this program is beyond the scope of this review. The literature search reflects documents publicly available by December 2012.

² This report has been updated to include reviews of 106 studies that have been reviewed since the previous intervention report was released in August 2008. Of these additional studies, 86 were not within the scope of the Beginning Reading review protocol, and 20 were within the scope of the protocol but did not meet evidence standards. A complete list and disposition of all studies reviewed are provided in the references. The studies in this report were reviewed using the Evidence Standards from the WWC Procedures and Standards Handbook (version 2.1), along with those described in the Beginning Reading review protocol (version 2.1). The evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

Recommended Citation

U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse (2013, November).
Beginning Reading intervention report: Reading Mastery. Retrieved from <http://whatworks.ed.gov>

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 Procedures and Standards Handbook (version 2.1).
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 Procedures and Standards Handbook (version 2.1).
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.