

What Works Clearinghouse



Reciprocal Teaching

Program Description¹ *Reciprocal teaching* is an interactive instructional practice that aims to improve students' reading comprehension by teaching strategies to obtain meaning from a text. The teacher and students take turns leading a dialogue regarding segments of the text. Students discuss with their teacher how to apply four comprehension strategies—generating questions, summarizing,

clarifying, and predicting—to passages of text. During the early stages of *reciprocal teaching*, the teacher assumes primary responsibility for modeling how to use these strategies. As students become more familiar with the strategies, there is a gradual shift toward student responsibility for talking through the application of the strategies to the text.

Research² Five studies of *reciprocal teaching* that fall within the scope of the Adolescent Literacy review protocol meet What Works Clearinghouse (WWC) evidence standards, and one study meets WWC evidence standards with reservations. The six studies included 316 students from grades 4–12, ranging in age from 9 to 21. The study schools were located in Alaska, California, South Carolina, the midwestern United States, Canada, and New Zealand.³

Based on these six studies, the WWC considers the extent of evidence for *reciprocal teaching* on adolescent learners to be medium to large for comprehension. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *reciprocal teaching* on adolescent learners in the alphabetic, reading fluency, or general literacy achievement domains.

1. The descriptive information for this program was obtained from publicly available sources: the North Central Regional Education Laboratory (NCREL) website (<http://www.ncrel.org/sdrs/areas/issues/students/atrisk/at6lk38.htm>, downloaded May 2009) and from Palincsar and Brown (1984). The WWC requests developers to review the program description sections for accuracy from their perspective. 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 April 2009.
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 evidence presented in this report is based on available research. Findings and conclusions may change as new research becomes available.

Effectiveness *Reciprocal teaching* was found to have mixed effects on comprehension for adolescent learners.

	Alphabetics	Reading fluency	Comprehension	General literacy achievement
Rating of effectiveness	na	na	Mixed effects	na
Improvement index⁴	na	na	Average: +6 percentile points	na
	na	na	Range: -23 to +42 percentile points	na

na = not applicable

Additional program information

Developer and contact

Developed by Annemarie Sullivan Palincsar and Ann L. Brown in 1984, *reciprocal teaching* is a practice (as opposed to a commercially available curriculum) and, therefore, does not have a developer responsible for providing information or materials. Dr. Palincsar can be reached at the School of Education, University of Michigan, 610 East University Avenue, Ann Arbor, MI 48109-1259. Telephone: (734) 647-0622. Fax: (734) 936-1606. Email: annemari@umich.edu.

Readers interested in using *reciprocal teaching* practices in their classrooms can refer to sources available through Internet searches for information. A list of examples follows, although these sources have not been reviewed or endorsed by the WWC:

- All About Adolescent Literacy: <http://www.adlit.org/strategies/19765>
- Los Angeles County Office of Education: <http://teams.lacoe.edu/documentation/classrooms/patti/2-3/teacher/resources/reciprocal.html>
- Teaching Text, Making Meaning (username: demo; password: demo): <http://edr1.educ.msu.edu/CompStrat/login.asp>

Scope of use

According to the authors, *reciprocal teaching* has been used with low-achieving students, students who have a history of comprehension difficulty, and general education students.

Cost

There is no available information about the cost of teacher training and implementation of *reciprocal teaching* practices.

Teaching

Reciprocal teaching is an interactive instructional practice in which the teacher or designated student alternately leads a group of students as they talk their way through a text. The practice is intended to help students improve their understanding of the text. The dialogue is structured to incorporate the use of four strategies:

- (1) *Summarizing*. Students summarize the text that was read. The text can be summarized across sentences, paragraphs, and the passage as a whole.
- (2) *Questioning*. Students identify key information in the text, frame that information in the form of a question, and self-test for understanding and recall.

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

Additional program information (continued)

- (3) *Clarifying*. Students note when they have experienced a failure in comprehension, identify the source of that breakdown, and ask for help (for example, “What does a word mean?”).
- (4) *Predicting*. Students make a prediction about what they think will happen next in the text.

The order in which the four strategies occur is not crucial. According to Palincsar and Brown (1985), adult tutors or

teachers can work with pairs of students or with groups of 4 to 18 students.⁵ Palincsar and Brown (1984) also recommend that *reciprocal teaching* be carried out for at least 15 to 20 lessons.⁶ Professional development for using *reciprocal teaching* focuses on instructional strategies to incorporate *reciprocal teaching* into the curricula.

Research

One hundred sixty-four studies reviewed by the WWC investigated the effects of *reciprocal teaching* on adolescent learners. Five studies (Brady, 1990; Dao, 1993; Leiker, 1995; Lysynchuk, Pressley, & Vye, 1990; Martin, 1989) are randomized controlled trials that meet WWC evidence standards. One study (Westera & Moore, 1995) is a quasi-experimental design that meets WWC evidence standards with reservations. The remaining 158 studies do not meet either WWC evidence standards or eligibility screens.

Meets evidence standards

Brady (1990) conducted a randomized controlled trial of 18 students in grades 5 to 8 in a school in Alaska. The participants were ranked from lowest to highest on a baseline measure of comprehension and assigned by a stratified random assignment procedure to one of three groups: (1) *reciprocal teaching*, (2) *reciprocal teaching* with a semantic mapping component (SMART), and (3) a “business-as-usual” control group. The WWC based its effectiveness ratings on findings from comparisons of the six students who received *reciprocal teaching* only and six students who were in the control group. The study reported student outcomes after 25 days of program implementation.

Dao (1993) conducted a randomized controlled trial that examined the effects of *reciprocal teaching* on Vietnamese-American students in grades 4, 5, and 6 in two public schools in

northern California. Students were randomly assigned to either an experimental group that received *reciprocal teaching*, or a control group that received regular instruction. The WWC based its effectiveness ratings on findings from comparisons of the 29 students in the experimental group and 21 students in the control group. The study reported student outcomes after 20 days of program implementation.

Leiker (1995) conducted a randomized controlled trial that examined the effects of *reciprocal teaching* on comprehension of fifth-grade students in one school in the midwestern United States. Random assignment was used to form the treatment and control groups.⁷ Both groups were taught by the researcher. The researcher implemented *reciprocal teaching* for the students in the treatment group and used the following methods with the students in the control group: reading text in a small group, outlining a lesson together as a group with the teacher modeling the procedure, using a cooperative learning strategy, and silent reading followed by answering comprehension questions. The WWC based its effectiveness ratings on findings from comparisons of the 20 students who received *reciprocal teaching* and the 19 students who were in the control group. The study reported outcomes after six weeks (25 school days) of program implementation.

5. Palincsar, A. S., & Brown, A. L. (1985). *Reciprocal teaching: Activities to promote reading with your mind*. In T. L. Harris & E. J. Cooper (Eds.), *Reading, thinking and concept development: Strategies for the classroom*. New York: The College Board.

6. Palincsar, A. S., & Brown, A. (1984). *Reciprocal teaching of comprehension fostering and comprehension monitoring activities*. *Cognition and Instruction*, 1(2), 117–175.

7. The WWC was unable to obtain information from the authors on whether students or classrooms were randomly assigned.

Research (continued)

Lysynchuk, Pressley, and Vye (1990) conducted a randomized controlled trial that examined the effects of *reciprocal teaching* on English-speaking students in Canada. Thirty-six grade 4 students enrolled in six schools and 36 grade 7 students enrolled in two schools participated in the study. Students with similar scores on the reading comprehension pretest were placed into pairs, and then the students within each pair were randomly assigned to either a business-as-usual control group or a *reciprocal teaching* group. The WWC based its effectiveness ratings on findings from comparisons of the 36 students who received *reciprocal teaching* and 36 students who were in the control group. The study reported student outcomes after 13 classroom sessions of program implementation.

Martin (1989) conducted a randomized control trial that examined the effects of *reciprocal teaching* on disadvantaged and handicapped students in nine state vocational schools and one high school in South Carolina. Twenty classes of 13- to 21-year-old students were chosen by teachers to participate in the study. Teachers at each institution randomly assigned classes of students to either the *reciprocal teaching* group or the control group. Students in the treatment and control groups were instructed for the same amount of time using the same reading material. However, treatment group students were taught using *reciprocal teaching* practices, while control group students were taught using business-as-usual methods. The WWC based its effectiveness ratings on findings from comparisons of the 59 students who received *reciprocal teaching* and 59 students who received regular instruction. The study reported student outcomes after 15 days of program implementation.

Meets evidence standards with reservations

Westera and Moore (1995) conducted a quasi-experiment that examined the effects of *reciprocal teaching* in a high school in New Zealand. The authors selected 46 students to participate in the study from seven eighth-grade classes; 35 of these students (from five classrooms) constituted the experimental group, and the remaining 11 students (from two classrooms) comprised the comparison group. The treatment group was further divided into two groups: (1) an extended-duration program group (20 students) that received 12–16 sessions of *reciprocal teaching*, and (2) a short-duration program group (15 students) that received 6–8 sessions of *reciprocal teaching*. The WWC based its effectiveness ratings on findings from comparisons of the 15 students in the short program group and 10 students in the comparison group.⁸ The study reported student outcomes after five weeks of program implementation.

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.⁹

The WWC considers the extent of evidence for *reciprocal teaching* to be medium to large for comprehension for adolescent learners. No studies that meet WWC evidence standards with or without reservations examined the effectiveness of *reciprocal teaching* in the alphabets, reading fluency, or general literacy achievement domains for adolescent learners.

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8. The comparison between the extended program group and the control group was not equivalent at baseline and, therefore, is not presented in this report.
 9. 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 *reciprocal teaching* is in Appendix A6.

Effectiveness Findings

The WWC review of interventions for Adolescent Literacy addresses student outcomes in four domains: alphabetics, reading fluency, comprehension, and general literacy achievement. The studies included in this report cover one domain: comprehension. There are two constructs within the comprehension domain: reading comprehension and vocabulary development. The findings below present the authors' estimates and WWC-calculated estimates of the size and the statistical significance of the effects of *reciprocal teaching* on adolescent learners.¹⁰

Comprehension. Six studies presented findings in the comprehension domain. Brady (1990) did not find statistically significant positive effects on the vocabulary and comprehension subtests of the Gates-MacGinitie Reading Test, science comprehension tests, or daily comprehension tests when comparing students in the comparison group and students in the pooled experimental group, which included one group of students that received only *reciprocal teaching* and a second group of students that received *reciprocal teaching* and semantic mapping.¹¹ However, Brady (1990) did find statistically significant positive effects on the social studies comprehension tests when comparing students in the comparison group and students in the pooled experimental group. WWC calculations focusing on scores of the comparison group and *reciprocal teaching* group found differences that were not statistically significant at the 0.05 level, but were large enough to be considered substantively important according to WWC criteria (that is, an effect size of at least 0.25). Dao (1993) reported, and the WWC confirmed, a

statistically significant positive effect of *reciprocal teaching* on the Nelson Reading Comprehension Test.¹² Leiker (1995) did not find a statistically significant effect of *reciprocal teaching* on a researcher-designed assessment of reading comprehension based on the school's social studies text. The effect also was not large enough to be considered substantively important according to WWC criteria. Lysynchuk, Pressley, and Vye (1990) found statistically significant positive effects for a combined sample of fourth- and seventh-grade students on both Daily Questions and Daily Retelling assessments. Lysynchuk, Pressley, and Vye (1990) did not find a statistically significant effect of *reciprocal teaching* on the following standardized reading measures: for grade 4, the comprehension subtest of the Metropolitan Achievement Test and the vocabulary subtest of the Canadian Test of Basic Skills; and for grade 7, the comprehension and vocabulary subtests of the Gates-MacGinitie Reading Test. The WWC-calculated average effect across grades and measures was not statistically significant or large enough to be considered substantively important according to WWC criteria. Martin (1989) did not find a statistically significant effect of *reciprocal teaching* on the reading comprehension subtest of the Peabody Individual Achievement Test, but the effect was large enough to be considered substantively important according to WWC criteria. Westera and Moore (1995) did not find a statistically significant effect of *reciprocal teaching* on the Progressive Achievement Test (PAT) reading comprehension subtest, but the effect was negative and large enough to be considered substantively important according to WWC criteria.

10. 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 cases of Dao (1993), Leiker (1995), and Westera and Moore (1995), no corrections for clustering or multiple comparisons were needed. In the cases of Brady (1990) and Lysynchuk, Pressley, and Vye (1990), a correction for multiple comparisons was needed, so the significance levels may differ from those reported in the original studies. In the case of Martin (1989), a correction for clustering was needed, so the significance levels may differ from those reported in the original study.
11. The authors did not compare either (1) the *reciprocal teaching* group directly to the comparison group on comprehension outcomes or (2) the *reciprocal teaching* plus semantic mapping group (SMART) directly to the comparison group on comprehension outcomes.
12. The WWC could not calculate effect sizes for this study in a way that was comparable to the other studies in this intervention report, as the WWC uses unadjusted standard deviations in the denominator of the effect size formula, whereas the study author reported change scores' standard deviations.

Effectiveness *(continued)*

For the comprehension domain, one study showed statistically significant positive effects, two studies showed substantively important positive effects, two studies showed indeterminate effects, and one study showed substantively important negative effects.

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 WWC Procedures and Standards Handbook, Appendix E).

The WWC found *reciprocal teaching* to have mixed effects in the comprehension domain for adolescent learners

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 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.

The average improvement index for comprehension is $+6$ percentile points across the six studies, with a range of -23 to $+42$ percentile points across findings.

Summary

The WWC reviewed 164 studies on *reciprocal teaching* for adolescent learners.¹³ Five of these studies meet WWC evidence standards; one study meets WWC evidence standards with reservations; the remaining 158 studies do not meet either WWC evidence standards or eligibility screens. Based on the six studies, the WWC found mixed effects in the comprehension domain for adolescent learners. The conclusions presented in this report may change as new research emerges.

References

Meets WWC evidence standards

- Brady, P. L. (1990). Improving the reading comprehension of middle school students through *reciprocal teaching* and semantic mapping strategies (Doctoral dissertation, University of Oregon, 1990). *Dissertation Abstracts International*, 52(03A), 230–860.
- Dao, M. N. T. H. (1993). An investigation into the application of the *reciprocal teaching* procedure to enhance reading

comprehension with educationally at-risk Vietnamese-American pupils (Doctoral dissertation, University of California–Berkeley, 1993). *Dissertation Abstracts International*, 55(06A), 105–1470.

Leiker, L. (1995). *An investigation of the effects of reciprocal teaching on fifth graders' comprehension and comprehension monitoring*. Unpublished master's thesis, University of Kansas, Lawrence.

13. Single-case design studies were identified but are not included in this review because the WWC does not yet have standards for reviewing single-case design studies.

References (continued)

- Lysynchuk, L. M., Pressley, M., & Vye, N. J. (1990). *Reciprocal teaching* improves standardized reading-comprehension performance in poor comprehenders. *Elementary School Journal*, 90(5), 469–484.
- Additional source:**
- Lysynchuk, L., Pressley, M., & Vye, N. J. (1989, March). *Reciprocal instruction improves standardized reading comprehension performance in poor grade-school comprehenders*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Martin, B. J. (1989). The effect of metacognitive strategy instruction on the problem-solving skills of disadvantaged/handicapped vocational students (Doctoral dissertation, Clemson University, 1989). *Dissertation Abstracts International*, 50(06A), 103–1627.

Meets WWC evidence standards with reservations

- Westera, J., & Moore, D. W. (1995). *Reciprocal teaching* of reading comprehension in a New Zealand high school. *Psychology in the Schools*, 32(3), 225–232.

Studies that fall outside the Adolescent Literacy review protocol or do not meet WWC evidence standards

- Adunyarittigun, D. (1998). The effects of the *reciprocal teaching* procedure on Thai EFL students' reading performance and self-perception as readers (Doctoral dissertation, University of Maryland–College Park, 1998). *Dissertation Abstracts International*, 59(06A), 305–1965. 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.
- Alfassi, M. (1998). Reading for meaning: The efficacy of *reciprocal teaching* in fostering reading comprehension in high school students in remedial reading classes. *American Educational Research Journal*, 35(2), 309–332. 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.

Additional source:

- Alfassi, M. (1991). An investigation of the role of individual differences in cognitive growth explored within the context of a *reciprocal teaching* instructional environment (Doctoral dissertation, Loyola University of Chicago, 1991). *Dissertation Abstracts International*, 52(02A), 121–405.
- Alfassi, M. (2004). Reading to learn: Effects of combined strategy instruction on high school students. *Journal of Educational Research*, 97(4), 171–184. 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.
- Al-Hilawani, Y. A., Marchant, G. J., & Poteet, J. A. (1993). *Implementing reciprocal teaching: Was it effective?* Paper presented at the annual meeting of the Midwest Association of Teachers of Educational Psychology, Anderson, IN. 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.
- Allen, S. (2003). An analytic comparison of three models of reading strategy instruction. *International Review of Applied Linguistics in Language Teaching*, 41(4), 319–338. 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.
- Alliance for Excellent Education. (2004). *Reading for the 21st century: Adolescent literacy teaching and learning strategies* (Issue Brief). Washington, DC: Author. 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.
- Almanza de Schonewise, E. (1999). Exploring *reciprocal teaching* with bilingual Latino students in Spanish within a thematic context (Doctoral dissertation, University of Colorado at Boulder, 1999). *Dissertation Abstracts International*, 60(04A),

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- 290–982. The study is ineligible for review because it does not examine an intervention conducted in English.
- Anderberg, A. (1996). The effects of *reciprocal teaching* techniques on reading comprehension for limited English proficient students (Doctoral dissertation, University of Connecticut, 1996). *Dissertation Abstracts International*, 57(12A), 112–5025. 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.
- Aninao, J. C. (1993). Training high school ESL students to use language-learning strategies (Doctoral dissertation, Stanford University, 1993). *Dissertation Abstracts International*, 54(06A), 255–2074. The study is ineligible for review because it does not use a comparison group.
- Apthorp, H. S., Dean, C. B., Florian, J. E., Lauer, P. A., Reichardt, R., & Snow-Renner, R. (2001). *Standards in classroom practice: Research synthesis*. Aurora, CO: Mid-Continent Research for Education and Learning. 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.
- Barrett, R. A. (2003). *Reciprocal teaching as a platform for communicative activities in the secondary foreign language classroom: A case study* (Doctoral dissertation, University of Akron, 2003). *Dissertation Abstracts International*, 64(03A), 201–773. The study is ineligible for review because it does not use a comparison group.
- Berninger, V. W., Vermeulen, K., Abbott, R. D., McCutchen, D., Cotton, S., Cude, J., et al. (2003). Comparison of three approaches to supplementary reading instruction for low-achieving second-grade readers. *Language, Speech, and Hearing Services in Schools*, 34(2), 101–116. 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.
- Beyeler, J. M. (1995). Action research intervention: Psychology undergraduates' application of reading comprehension and learning strategies (Doctoral dissertation, University of Akron, 1995). *Dissertation Abstracts International*, 56(05A), 172–1639. The study is ineligible for review because it does not use a comparison group.
- Bigby, G. P. (2007). The effects of instructional support programs on student achievement in reading (Doctoral dissertation, University of South Carolina, 2007). *Dissertation Abstracts International*, 68(08A), 124–3326. 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.
- Boamah, N. A. (1997). *Reciprocal teaching of comprehension-fostering and monitoring strategies in an ESL setting in Ghana* (Doctoral dissertation, Ohio University, 1997). *Dissertation Abstracts International*, 58(12A), 113–4598. 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.
- Bottomley, D. M. (1993). The effects of two procedures for teaching strategic reading on fourth-grade students' reading comprehension: Transactional strategies instruction and *reciprocal teaching* (Doctoral dissertation, University of Illinois at Urbana-Champaign, 1993). *Dissertation Abstracts International*, 54(11A), 323–4046. 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.
- Bottomley, D., & Osborn, J. (1993). *Implementing reciprocal teaching with fourth- and fifth-grade students in content area reading* (Technical Report No. 586). Urbana, IL: Center for the Study of Reading. The study is ineligible for review because it does not use a comparison group.
- Bradford, L. E. (1991). Metacognition and reading instruction: The effects of *reciprocal teaching* on reading comprehension of poor readers (Doctoral dissertation, Indiana University, 1991). *Dissertation Abstracts International*, 52(09A), 102–3221. The study does not meet WWC evidence standards because

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- it uses a randomized controlled trial design that either did not generate groups using a random process or had nonrandom allocations after random assignment, and the subsequent analytic intervention and comparison groups are not shown to be equivalent.
- Brand-Gruwel, S., Aarnoutse, C. A. J., & Van Den Bos, K. P. (1998). Improving text comprehension strategies in reading and listening settings. *Learning and Instruction, 8*(1), 63–81. The study is ineligible for review because it does not take place in the geographic area specified in the protocol.
- Briganti, N. C. (1995). Reintegration of self-contained students with learning disabilities using *reciprocal teaching*, peer tutoring, cooperative learning, and transenvironmental programming (Doctoral dissertation, University of Maryland–College Park, 1995). *Dissertation Abstracts International, 56*(08A), 191–3076. The study is ineligible for review because it does not use a comparison group.
- Brown, A. L., & Palincsar, A. S. (1985). *Reciprocal teaching of comprehension strategies: A natural history of one program for enhancing learning* (Technical Report No. 334). Urbana, IL, and Cambridge, MA: Center for the Study of Reading and Bolt, Beranek, and Newman, Inc. The study is ineligible for review because it does not occur within the time frame specified in the protocol.
- Brown, W. M. (1995). The testing of an instructional strategy for improving reading comprehension of expository text in science and content area reading (Doctoral dissertation, University of Florida, 1995). *Dissertation Abstracts International, 56*(11A), 159–4261. The study is ineligible for review because it does not use a comparison group.
- Bruce, M. E., & Chan, L. K. S. (1991). *Reciprocal teaching and transenvironmental programming: A program to facilitate the reading comprehension of students with reading difficulties. Remedial and Special Education, 12*(5), 44–53. The study is ineligible for review because it does not use a comparison group.
- Bruce, M. E., & Robinson, G. L. (1999, November–December). *A metacognitive program for improving the word identification and reading comprehension skills of upper primary poor readers* (Study 2). Paper presented at the joint meeting of the Australian Association for Research in Education/New Zealand Association for Research in Education, Melbourne, Australia. 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.
- Bruce, M. E., & Robinson, G. L. (2001, July). *The clever kid's reading program: Metacognition and reciprocal teaching*. Paper presented at the Annual European Conference on Reading, Dublin, Ireland. 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.
- Bruer, J. T. (1993). The mind's journey from novice to expert: If we know the route, we can help students negotiate their way. *American Educator: The Professional Journal of the American Federation of Teachers, 17*(2), 6–15, 38–46. The study is ineligible for review because it does not use a comparison group.
- Budano, M. (2004). *Using reciprocal teaching in a fourth grade classroom*. Unpublished master's thesis, Gwynedd-Mercy College, Gwynedd Valley, PA. The study is ineligible for review because it does not use a comparison group.
- Carter, C. J., & Fekete, D. F. (2001). *Reciprocal teaching: The application of a reading improvement strategy on urban students in Highland Park, Michigan, 1993–95*. Geneva: International Bureau of Education. The study is ineligible for review because it does not use a comparison group.
- Center on Instruction (2008). *A synopsis of Gajria, Jitendra, Sood, & Sacks' "Improving comprehension of expository text in students with LD: A research synthesis."* Portsmouth, NH: RMC Research Corporation. The study is ineligible for review because it does not use a sample aligned with

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- the protocol—the sample includes less than 50% general education students.
- Chapman, M. L. (1997). Instructing narrative text: Using children's concept of story with *reciprocal teaching* activities to foster story understanding and metacognition (Doctoral dissertation, University of Michigan, 1997). *Dissertation Abstracts International*, 58(10A), 136–3819. 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.
- Choi, I., Land, S. M., & Turgeon, A. (2007). Instructor modeling and online question prompts for supporting peer-questioning during online discussion. *Journal of Educational Technology Systems*, 36(3), 255–275. 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.
- Clapper, A. T., Bremer, C. D., & Kachgal, M. M. (2002). *Never too late: Approaches to reading instruction for secondary students with disabilities* (Research to Practice Brief Vol. 1 No. 1). Minneapolis, MN: National Center on Secondary Education and Transition. 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.
- Clark, L. (2003). Reciprocal teaching *strategy and adult high school students*. Unpublished master's project, Kean University, Union, NJ. The study is ineligible for review because it does not use a comparison group.
- Comprehensive School Reform Quality Center. (2005). *CSRQ Center report on elementary school comprehensive school reform models*. Washington, DC: American Institutes for 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.
- Cook, B. G., Tankersley, M., Cook, L., & Landrum, T. J. (2008). Evidence-based special education and professional wisdom: Putting it all together. *Intervention in School and Clinic*, 44(2), 105–111. 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.
- Curran, L., Guin, L., & Marshall, L. (2002). *Improving reading ability through the use of cross-age tutoring, Phono-Graphix, and reciprocal teaching*. Unpublished master's research project, Saint Xavier University, Chicago, IL. 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.
- Deiley, C. M. (2000). *Using reciprocal teaching to help readers improve upon their reading skills*. Unpublished master's thesis, Gratz College, Melrose Park, PA. The study is ineligible for review because it does not use a comparison group.
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