

Appendix

Appendix A1 Extent of evidence

Intervention name	Number of studies	Sample size (schools/students)	Extent of evidence ¹
Cognitive Tutor	2	9/781	Medium to large
Connected Mathematics Project (CMP)	3	100/14,696	Medium to large
I CAN Learn® Pre-Algebra and Algebra	6	729/16,656	Medium to large
Saxon Middle School Math	6	101/3,399	Medium to large
The Expert Mathematician	1	1/70	Small
Transition Mathematics	3	49/972	Medium to large
UCSMP Algebra	2	4/225	Medium to large ²

nr = not reported

1. A rating of “medium to large” requires at least two studies and two schools across studies in one domain and a total sample size across studies of at least 350 students or 14 classrooms. Otherwise, the rating is “small.”
2. The extent of evidence for *UCSMP Algebra* is considered to be medium to large because, across studies, 14 classrooms were included at the time of analysis.

Appendix A2 Targeted population

Intervention name	Targeted students (grade levels)	Students in studies reviewed (grade levels)¹
Cognitive Tutor	7–12	9
Connected Mathematics Project (CMP)	6–8	6–8
I CAN Learn® Pre-Algebra and Algebra	6–12	8–9
Saxon Middle School Math	6–9	6–9
The Expert Mathematician	6–9	8
Transition Mathematics	7–12	7–9
UCSMP Algebra	7–10	8–9

Note: This table compares targeted grade levels and the grade levels in the studies reviewed by the WWC. Grade levels are related to student age and may affect outcomes due to differences in the students' developmental stages as well as differences in school size and organization.

1. Some of the studies reviewed included students in grades 10 or above, but the findings for those students were not reviewed because those grades were outside the scope of this review.

Appendix A3 Summary of statistically significant¹ or substantively important² positive outcomes

Intervention name	Math achievement	
	Statistically significant positive findings ³	Math achievement across outcomes
Cognitive Tutor		
Morgan & Ritter, 2002	Math achievement grades (end of first and second semesters)	Statistically significant, Substantively important
Schneyderman, 2001	ns	ns, nsi
Connected Mathematics Project (CMP)		
Ridgway, Zawojewski, Hoover, & Lambdin, 2002	ns	ns, nsi
Riordan & Noyce, 2001	Massachusetts Comprehensive Assessment System (MCAS)—math scores	ns ⁴
Schneider, 2000	ns	ns, nsi
I CAN Learn[®] Pre-Algebra and Algebra		
Kirby, 2006, October	Louisiana Educational Assessment Program (LEAP) Grade 8 Mathematics Exam	Statistically significant, Substantively important
Kerstyn, 2001, Algebra 1	ns	ns, nsi
Kerstyn, 2001, Algebra 1 Honors	ns	ns, nsi
Kerstyn, 2001, MJ-3 pre-algebra	ns	ns, nsi
Kerstyn, 2001, MJ-3 Advanced	ns	ns, nsi
Kerstyn, 2002, October, Algebra 1	ns	ns, nsi
Kerstyn, 2002, October, Algebra 1 Honors	ns	ns, nsi
Kerstyn, 2002, October, MJ-3 pre-algebra	FCAT mathematics	Statistically significant, nsi
Kerstyn, 2002, October, MJ-3 Advanced	ns	ns, nsi
Kirby, 2004, September	General Mathematics CST	Statistically significant, Substantively important
Kirby, 2004a, November	Georgia Criterion-Referenced Competency Test (GCRCT) Math Test	Statistically significant, Substantively important
Kirby, 2005, January	Algebra 1 EOC test	Statistically significant, Substantively important
Saxon Middle School Math		
Williams, 1986	End-of-course math test	Statistically significant, Substantively important
Peters, 1992	ns	ns, nsi
Crawford & Raia, 1986	The California Achievement Test (CAT)	Statistically significant, Substantively important
Resendez, Fahmy, & Manley, 2005	The Texas Assessment of Academic Skills (TAAS)—TLI score; The Texas Assessment of Knowledge and Skills (TAKS)	Statistically significant, nsi
Resendez & Manley, 2005	ns	ns ⁴
Roberts, 1994	ns	ns, nsi

(continued)

Appendix A3 Summary of statistically significant¹ or substantively important² positive outcomes (continued)

Intervention name	Math achievement	
	Statistically significant positive findings ³	Math achievement across outcomes
<i>The Expert Mathematician</i>		
Baker, 1997	ns	ns, Substantively important
<i>Transition Mathematics</i>		
Baker, 1997	ns	ns, Substantively important negative effect
Hedges et al., 1986	Geometry Readiness	ns, nsi
Thompson et al., 2005	ns	ns, nsi
<i>UCSMP Algebra</i>		
Peters, 1992	ns	ns, nsi
Thompson et al., 2006	Algebra Readiness; Problem Solving and Understanding	ns, Substantively important

na = not studied

ns = not statistically significant

nsi = not substantively important

1. According to the WWC criteria, if a program finds a statistically significant effect, there is less than a 5% chance that this difference is due to chance. The level of statistical significance was calculated by the WWC and, where necessary, corrects for clustering within classrooms or schools, and for multiple comparisons. The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. For an explanation, see the [WWC Tutorial on Mismatch](#). See the [Technical Details of WWC-Conducted Computations](#) for the formulas the WWC used to calculate the statistical significance.
2. For rating purposes, the WWC considers the statistical significance of the findings and the magnitude of the effect, also called the effect size. An average effect size is the sum of all the effect sizes of the student outcomes in a study in a single domain divided by the number of those outcomes. The WWC considers an average effect size across all student outcomes in one study in a given domain to be substantively important if it is equal to or greater than 0.25.
3. No studies showed statistically significant negative effects on math achievement.
4. Student-level effect size could not be computed for this study; whether or not the magnitude of the effect is substantively important is unknown. However, the statistical significance for this study is comparable to other studies and is included in the intervention rating. For further details, see [Technical Details of WWC-Conducted Computations](#).

Appendix A4 Methodology

One hundred and fifty-eight studies provided data on 34 middle school math curricula and were classified by the strength of their designs.¹ To be fully reviewed, a study had to be a randomized controlled trial or a quasi experimental design with evidence of equating between the treatment and comparison groups.

Eligibility for review

Quasi experiments eligible for review include those equating through matching or statistical adjustment, regression discontinuity designs, and single case designs. However, no studies identified for the middle school math review used regression discontinuity or single case designs.

In judging the quality of the evidence, the review considered the properties of measurement instruments used in the studies, the percentage of the original study sample that was lost to follow-up, and any sample characteristics or events that might serve as alternative explanations for the observed effect. For details please see the [WWC Evidence Standards](#). When results were reported for multiple time periods following sample enrollment, the longer term results were included in the review.

The research evidence for programs that have at least one study meeting WWC evidence standards with or without reservations is summarized in individual intervention reports posted on the WWC website. See <http://www.whatworks.ed.gov>. So far, 21 studies of 7 middle school programs have met evidence standards with or without reservations. The lack of evidence for the remaining programs does not mean that those programs are ineffective; some programs have not yet been studied using a study design that permits the WWC to draw any conclusions about their effectiveness. And some studies were not considered for rating of effectiveness purposes because insufficient information was reported to enable us to confirm statistical findings.

Rating of effectiveness

Each middle school math curriculum that had at least one study meeting WWC standards with or without reservations received a rating of effectiveness for math achievement. The rating of effectiveness aims to characterize the existing evidence base on the intervention within a given domain. The intervention effects based on the research evidence are rated 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 students in the intervention and the comparison conditions, and the consistency in findings across studies (see the [WWC Intervention Rating Scheme](#)).

The level of statistical significance was reported by the study authors or, where necessary, calculated by the WWC to correct for clustering within classrooms or schools and for multiple comparisons. Because of these corrections, the level of statistical significance as calculated by the WWC may differ from the one originally reported by the study authors. For the formulas that we used to calculate statistical significance, see [Technical Details of WWC-Conducted Computations](#). For an explanation, see the [WWC Tutorial on Mismatch](#). If the average effect size across all outcomes in one study in a single domain is at least 0.25, it is considered substantively important, contributing toward the rating of effectiveness. See the technical appendices of the middle school math intervention report for further details.

Extent of evidence

The evidence base rating represents the size and number of independent samples that were assessed for the purposes of analysis of the program effects. A “medium to large” evidence

1. No empirical studies were identified for additional 14 programs during the time period of this review.

Appendix A4 Methodology

(continued)

base requires at least two studies and two schools across studies of at least 350 students or 14 classrooms. Otherwise, the evidence base is considered to be “small.” The WWC is currently working to define a “large” evidence base. This term should not be confused with external validity, as other facets of external validity—such as variations in settings, important subgroups of students, implementation, and outcome measures—were not taken into account for the purposes of this rating.

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 domain and each study as well as a domain average improvement index across studies of the same intervention (see the [Technical Details of WWC Conducted Computations](#)). 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. The improvement index can take on values between –50 and +50, with positive numbers denoting results favorable to the intervention group. Unlike the rating of effectiveness, the improvement index is based only on the size of the difference between the intervention and the comparison conditions.

Appendix A5 References

Studies that met WWC standards

Cognitive Tutor® Algebra I

Morgan, P., & Ritter, S. (2002). *An experimental study of the effects of Cognitive Tutor Algebra I on student knowledge and attitude*. Retrieved November 22, 2006, from http://www.carnegielearning.com/research/research_reports/morgan_ritter_2002.pdf

I CAN Learn® Pre-Algebra and Algebra

Kirby, P. C. (2006, October). *I CAN Learn® in Orleans Parish Public Schools: Effects on LEAP 8th grade math achievement, 2003–2004*. (Available from the ed-cet, Inc., 2301 Killdeer Street, New Orleans, LA 70122)

Additional citation for this study:

Kirby, P. C. (2004b, November). *I CAN Learn® in Orleans Parish Public Schools effects on LEAP 8th grade math achievement, 2003–2004*. (Available from the ed-cet, Inc., 2301 Killdeer Street, New Orleans, LA 70122)

The Expert Mathematician

Baker, J. J. (1997). Effects of a generative instructional design strategy on learning mathematics and on attitudes towards achievement. *Dissertation Abstracts International*, 58(7), 2573A. (UMI No. 9800955)

Saxon Middle School Math

Williams, D. D. (1986). *The incremental method of teaching algebra I*. Kansas City: University of Missouri.

Transition Mathematics

Baker, J. J. (1997). Effects of a generative instructional design strategy on learning mathematics and on attitudes towards achievement. *Dissertation Abstracts International*, 58(7), 2573A. (UMI No. 9800955)

Studies that met WWC standards with reservations

Cognitive Tutor® Algebra I

Schneyderman, A. (2001, September). *Evaluation of the Cognitive Tutor Algebra 1 program*. Unpublished manuscript. (Available from Miami-Dade County Public Schools Office of Evaluation and Research, 1500 Biscayne Boulevard, Miami, FL 33132)

Connected Mathematics Project

Ridgway, J. E., Zawojewski, J. S., Hoover, M. N., & Lambdin, D. V. (2002). Student attainment in the Connected Mathematics curriculum. In S. L. Senk & D. R. Thompson (Eds.), *Standards-based school mathematics curricula: What are they? What do students learn?* (pp. 193–224). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Additional citation for this study:

Hoover, M., Zawojewski, J. S., & Ridgway, J. E. (1997, April). *Effects of the Connected Mathematics Project on student attainment*. Paper presented at the meeting of the American Educational Research Association, Chicago, IL.

Riordan, J. E., & Noyce, P. E. (2001). The impact of two standards-based mathematics curricula on student achievement in Massachusetts. *Journal for Research in Mathematics Education*, 32(4), 368–398.

Schneider, C. L. (2000). Connected Mathematics and the Texas Assessment of Academic Skills. *Dissertation Abstracts International*, 62(02), 503A. (UMI No. 3004373)

I CAN Learn® Pre-Algebra and Algebra

Kerstyn, C. (2001). *Evaluation of the I CAN Learn® mathematics classroom: First year of implementation (2000–2001 school year)*. (Available from the Division of Instruction, Hillsborough County Public Schools, 901 East Kennedy Blvd., Tampa, FL 33602)

Kerstyn, C. (2002, October). *Evaluation of the I CAN Learn® mathematics classroom: Second year of implementation (2001–2002 school year)*. (Available from the Division of Instruction, Hillsborough County Public Schools, 901 East Kennedy Blvd., Tampa, FL 33602)

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- Kirby, P. C. (2004, November). *Comparison of I CAN Learn® and traditionally-taught 8th grade student performance on the Georgia Criterion-Referenced Competency Test*. Unpublished manuscript.
- Kirby, P. C. (2005, January). *I CAN Learn® Algebra I in Catoosa County, Georgia*. (Available from the ed-cet, Inc., 2301 Killdeer Street, New Orleans, LA 70122)

Saxon Middle School Math

- Crawford, J., & Raia, F. (1986). *Analyses of eighth grade math texts and achievement*. Oklahoma City, OK: Oklahoma City Public Schools, Planning, Research, and Evaluation Department.
- Peters, K. G. (1992). Skill performance comparability of two algebra programs on an eighth-grade population. *Dissertation Abstracts International*, 54(01), 77A. (UMI No. 9314428)
- Resendez, M., & Manley, M. A. (2005). *The relationship between using Saxon Elementary and Middle School Math and student performance on Georgia statewide assessments*. Orlando, FL: Harcourt Achieve.
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- Roberts, F. H. (1994). The impact of Saxon Mathematics program on group achievement test scores. *Dissertation Abstracts International*, 55(06), 1498A. (UMI No. 9430198)

Transition Mathematics

- Hedges, L. V., Stodolsky, S. S., Mathison, S., & Flores, P. V. (1986). *Transition mathematics: Field study* (Evaluation Rep.

No. 85/86-TM-2). Chicago: University of Chicago School Mathematics Project.

- Thompson, D. R., Senk, S. L., Witonsky, D., Usiskin, Z., & Kaeley, G. (2005). *An evaluation of the second edition of UCSMP Transition Mathematics*. Chicago: University of Chicago School Mathematics Project.

University of Chicago School Mathematics Project (UCSMP) Algebra

- Peters, K. G. (1992). Skill performance comparability of two algebra programs on an eighth-grade population. *Dissertation Abstracts International*, 54(01), 77A. (UMI No. 9314428)
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Studies that did not meet evidence screens

Accelerated Math

- Bach, S. (2001). *An evaluation of Accelerated Math in a seventh grade classroom*. Madison, WI: Renaissance Learning, Inc.¹
- Renaissance Learning, Inc. (1999). *Accelerated Math and Math Renaissance improve math performance (Scientific Research: Quasi-Experimental series)*. Retrieved January 5, 2006, from <http://research.renlearn.com/research/pdfs/10.pdf>²
- Sadusky, L. A., & Brem, S. K. (2002). *The use of Accelerated Math in an urban Title I elementary school*. Tempe: Arizona State University.²
- Spicuzza, R., & Ysseldyke, J. E. (1999). *Using Accelerated Math to enhance instruction in a mandated summer school program*. Minneapolis, MN: Minneapolis Public Schools.³
- Spicuzza, R., Ysseldyke, J. E., Lemkuil, A., Kosciulek, S., Boys, C., & Teelucksingh, E. (2001). *Effects of using a curriculum-based monitoring system on the classroom instructional environment and math achievement*. Minneapolis: National Center on Educational Outcomes, University of Minnesota.³

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Ysseldyke, J. E., & Tardrew, S. P. (2002). *Differentiating math instruction: A large scale study of Accelerated Math (Final report)*. Madison, WI: Renaissance Learning, Inc.³

Ysseldyke, J. E., Tardrew, S. P., Betts, J., Thill, T., & Hannigan, E. (2003). *Use of an instructional management system to enhance math instruction of gifted and talented students*. Madison, WI: Renaissance Learning, Inc.³

Ysseldyke, J., Spicuzza, R., Kosciulek, S., Teelucksingh, E., Boys, C., & Lemkuil, A. (2003). Using a curriculum-based instructional management system to enhance math achievement in urban schools. *Journal of Education for Students Placed at Risk*, 8(2), 247–265.³

Addison-Wesley Mathematics basal program

Nerenz, A. G., Stewart, D. M., & Webb, N. L. (1980). *Scaling and summary statistics for the curriculum implementation and program customizing variables. Comparative study of phase IV IGE evaluation project. Phase IV, project paper 80-6*. Madison: Wisconsin University, Research and Development Center for Individualized Schooling. (ERIC Document Reproduction Service No. ED252549)⁴

Webb, N., & Yasui, E. (1992). *The influence of problem context on mathematics performance. Project 2.1: Alternative approaches to assessment in mathematics and science*. Los Angeles: National Center for Research on Evaluation, Standards, and Student Testing. (ERIC Document Reproduction Service No. ED349331)⁵

Adventures of Jasper Woodbury Series

Northeastern Illinois University, Department of Teacher Education. (2000). *Use of interactive video technology to teach middle school mathematics in Chicago schools, September–November, 2000. Final evaluation report*. Chicago: Author. (ERIC Document Reproduction Service No. ED451055)⁶

Algebra Project

Adair, J. D. (1996). Priming the pump: A study of the Algebra Project and its impact on student achievement in mathematics. *Dissertation Abstracts International*, 57(07), 2921A. (UMI No. 9638729)²

Davis, F. E., & West, M. M. (2000a). *The impact of Algebra Project on mathematics achievement*. (Available from the Program Evaluation and Research Group, Lesley College, 29 Everett Street, Cambridge, MA 02138) (**Study: Brinkley**)²

Davis, F. E., & West, M. M. (2000b). *The impact of Algebra Project on mathematics achievement*. (Available from the Program Evaluation and Research Group, Lesley College, 29 Everett Street, Cambridge, MA 02138) (**Study: Cambridge**)⁷

Davis, F. E., & West, M. M. (2000c). *The impact of Algebra Project on mathematics achievement*. (Available from the Program Evaluation and Research Group, Lesley College, 29 Everett Street, Cambridge, MA 02138) (**Study: Jackson**)⁷

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Davis, F. E., & West, M. M. (2000e). *The impact of Algebra Project on mathematics achievement*. (Available from the Program Evaluation and Research Group, Lesley College, 29 Everett Street, Cambridge, MA 02138) (**Study: San Francisco**)⁷

Davis, M. M., West, F. E., & Lynch, M. (1998). *The impact of the Algebra Project on student achievement in mathematics: Results in five sites*. (Available from the Program Evaluation and Research Group, Lesley College, 29 Everett Street, Cambridge, MA 02138)⁸

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Algebraic Thinking

Fair, B., & Mannhardt, L. (2003, June). *Algebraic Thinking: Intermediate math program*. Paper presented at the meeting of the Southern Regional Education Board, Austin, TX.²

Appalachia Model Mathematics Program

Miller, R., Mills, C., & Tangherlini, A. (1995). The Appalachia Model Mathematics Program for gifted students. *Roeper Review*, 18(2), 138–142.⁶

Cognitive Tutor® Algebra I

Koedinger, K. R., Anderson, J. R., Hadley, W. H., & Mark, M. A. (1997). Intelligent tutoring goes to school in the big city. *International Journal of Artificial Intelligence in Education*, 8(1), 30–43.²

Plano, G. S., Ramey, M., & Achilles, C. M. (2005, August). *Implications for student learning using a technology-based algebra program in a ninth-grade algebra course*. Unpublished manuscript. (Available from the Mercer Island School District, 4160 86th Ave. SE, Mercer Island, WA 98040)¹⁰

Additional citation for this study:

Plano, G. S. (2004). The effects of the Cognitive Tutor® Algebra on student attitudes and achievement in a 9th grade algebra course. *Dissertation Abstracts International*, 65(04), 1291A. (UMI No. 3130130)

Sarkis, H. (2004). *Cognitive Tutor® Algebra 1: Miami-Dade County Public Schools*. Lighthouse Point, FL: The Reliability Group.²

CompassLearning

An independent study done by the Odyssey Charter Middle School (2001–2002). (2003). (Available from CompassLearning, 9920 Pacific Heights Blvd., San Diego, CA 92121)⁶

Assessment II. (2003). (Available from CompassLearning, 9920 Pacific Heights Blvd., San Diego, CA 92121)³

Curricula for CompassLearning. (2003). (Available from CompassLearning, 9920 Pacific Heights Blvd., San Diego, CA 92121)⁹

Hartley, C. L. (2003). *Partnered study two: Comparative study in a large inner city school district in the Midwest, 2001–2002*. San Diego, CA: CompassLearning, Inc.³

Additional citation for this study:

Compass Learning. (2003). *CompassLearning® Report: What Works Clearinghouse*. San Diego, CA: Author.

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School effectiveness report: Riverside Middle School, Pendleton, SC. (2004). (Available from CompassLearning, 9920 Pacific Heights Blvd., San Diego, CA 92121)⁷

School effectiveness report: Terrell Middle School, Terrell, TX. (2004). (Available from CompassLearning, 9920 Pacific Heights Blvd., San Diego, CA 92121)⁷

Connected Mathematics Project (CMP)

Adams, L. M., Tung, K. K., Warfield, V. M., Knaub, K., Yong, D., & Mudavanhu, B. (2002). *Middle school mathematics comparisons for Singapore Mathematics, Connected Mathematics Program, and Mathematics in Context (including comparisons with the NCTM Principles and Standards 2000)*. Retrieved from University of Washington, Department of Applied Mathematics Web site: <http://www.amath.washington.edu/~adams/full.ps>⁸

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- Winking, D. (1998). *The Minneapolis Connected Mathematics Project: Year two evaluation*. Retrieved from Minneapolis Public Schools, Teacher and Instructional Services Web site:

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Winking, D. (2000a). *Minneapolis data: Excerpts from the year two evaluation report*. (Available from the Connected Mathematics Project, Michigan State University, A715 Wells Hall, East Lansing, MI 48824)

Winking, D. (2000b). *Minneapolis data: Excerpts from the year one evaluation report*. (Available from the Connected Mathematics Project, Michigan State University, A715 Wells Hall, East Lansing, MI 48824)²

Zawojewski, J. S., Robinson, M., & Hoover, M. (1999). Reflections on developing formal mathematics and the Connected Mathematics Project. *Mathematics Teaching in the Middle School*, 4(5), 324–330.⁹

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CORD Applied Math

Alsop, J. K., & Sprigler, M. J. (2003). A comparison of traditional and reform mathematics curricula in an eighth-grade classroom. *Education*, 123(4), 689–694.²

Core Plus Mathematics Project (CPMP)

Kahan, J. A. (1999a). *Relationships among mathematical proof, high-school students, and a reform curriculum*. Unpublished doctoral dissertation, University of Maryland. **(Study: Site I)**¹¹

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Interventions with no studies

A+ny where Learning System
Heath Mathematics Connections (textbook series)
Holt Middle School Math (textbook)
Key Math Teach and Practice
Larson Developmental Math Series
Lightspan Achieve Now
Macmillan/McGraw-Hill
Math Advantage (textbook series)
Math Applications and Connections (textbook series published by Glencoe)
Mathematics Plus (textbook series published by Harcourt)
MathScape: Seeing and Thinking Mathematically
Middle Grades Math (textbook series, published by ScottForesman/AddisonWesley)
Middle School Mathematics through Applications Program (MMAP)
Real Math basal mathematics program
Reasoning Mind
Scott Foresman Math Diagnostic & Intervention System

1. Confound: there was only one intervention unit and/or one comparison unit, so the analysis could not separate the effects of the intervention from other factors.
2. Lack of evidence for baseline equivalence: the study, which uses a quasi-experimental design, does not establish that the comparison group was equivalent to the intervention group at baseline.
3. Intervention is not relevant: the intervention does not meet the WWC standards of a core middle school math curriculum.
4. Study is outside the time frame of the review: the parameters for this WWC review specified that interventions were implemented after 1983 but this study involves students that began the intervention prior to 1983.
5. Intervention is not relevant: the implementation length of the curriculum is too short.
6. Does not use a strong causal design: this study does not use a comparison group.
7. Does not use a strong causal design: this study provides no information on the research design and has no authorship.
8. Outcomes measures are not relevant to this review.
9. Does not use a strong causal design: this is a qualitative study.
10. Lack of evidence for baseline equivalence: the study, which was reviewed as a quasi-experimental design, does not establish that the comparison group was equivalent to the intervention group at baseline. This study, which was designed as a regression discontinuity design, does not properly assign students at the cutoff grade.
11. Does not use a strong causal design: there was a change in instrumentation during the study.
12. Sample is not relevant to this review: the parameters for this WWC review specified that students should be in grades 6–9; this study did not disaggregate students in the eligible range from those outside the range.
13. Complete data were not reported: the WWC could not compute effect sizes.
14. Sample is not relevant to the scope of this review: this study does not focus on students in U.S. schools, one of the parameters for this WWC review.