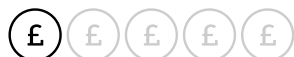


Collaborative learning approaches

High impact for very low cost based on limited evidence

Collaborative learning approaches involve pupils working together on activities or learning tasks in a groups

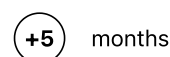
Implementation cost



Evidence strength



Impact (months)



Subject breakdown

maths: 64
reading: 62
toolkit: 211

School phase breakdown

primary: 104
secondary: 107
toolkit: 211

Technical Appendix

The criteria used to judge the inclusion of studies in the Toolkit are:

- The population sampled involved early years and school age learners from 3-18 learning in their first language.
- The intervention or approach being tested was educational in nature, including named or clearly defined programmes and recognisable approaches classifiable according to the Toolkit strand definitions (e.g. peer tutoring or small group teaching). The intervention or approach is undertaken in a normal educational setting or environment for the learners involved, such as a nursery or school or a typical setting (e.g. an outdoor field centre or museum).
- A valid comparison was made between those receiving the educational intervention or approach and those not receiving it.
- Outcomes include the assessment of educational or cognitive achievement which reports quantitative results from testing of attainment or learning outcomes, such as by standardised tests or other appropriate curriculum assessments or school examinations or appropriate cognitive measures.
- The study design provided a quantitative estimate of the impact of the intervention or approach on the educational attainment of the sample, calculated or estimated in the form of an effect size (standardised mean difference) based on a counterfactual comparison.










Standardised mean differences and confidence intervals for the most appropriate estimates of the impact of the intervention or approach for the Toolkit were extracted from each included study, along with other study variables. These effect sizes were further synthesised into a single pooled effect using a random effects meta-analysis adopting a restricted maximum likelihood (REML) estimation methods. For the full details of the methodology see the [Protocol and Analysis Plan](https://educationendowmentfoundation.org.uk/public/files/Toolkit/EEF_Evidence_Database_Protocol_and_Analysis_Plan_June2019.pdf) (https://educationendowmentfoundation.org.uk/public/files/Toolkit/EEF_Evidence_Database_Protocol_and_Analysis_Plan_June2019.pdf).

References (211)










The forest plot below is a graphical representation of the results of all included studies in this Toolkit strand. It shows the effect size and confidence interval of each study, and whether the particular intervention in that study was more or less effective than standard practice or other alternative interventions that the study looked at.

Studies that show an effect size result on the right-hand side of the red vertical red indicate that the particular intervention studied was more effective than standard practice. Studies that show an effect size on the left-hand side of the red vertical indicate that the particular intervention studied was less effective than standard practice.

Author	Title	Effect Size	Effect Size (Graph)
Ozsoy (2004)	The Effect of Learning Together Technique of Cooperative Learning Method on Student Achievement in Mathematics Teaching 7th Class of Primary School. (<i>Turkish Online Journal of Educational Technology - TOJET</i>)	Effect Size: 3.511 LCI: 2.751 UCI: 4.272 Weight: 0.397 Standard error: 0.388	
Okebukola (1986) 1_1	Impact of Extended Cooperative and Competitive Relationships on the Performance of Students in Science (<i>Human Relations</i>)	Effect Size: 2.893 LCI: 2.197 UCI: 3.59 Weight: 0.415 Standard error: 0.355	
Okebukola (1986) 1_2	Impact of Extended Cooperative and Competitive Relationships on the Performance of Students in Science (<i>Human Relations</i>)	Effect Size: 2.816 LCI: 2.14 UCI: 3.492 Weight: 0.421 Standard error: 0.345	
Acar (2008)	Effects of Cooperative Learning on Students' Understanding of Metallic Bonding (<i>Research in Science Education</i>)	Effect Size: 2.698 LCI: 1.968 UCI: 3.428 Weight: 0.405 Standard error: 0.372	
Okebukola (1985) 1_4	Cooperative and Competitive Interaction Techniques in Strengthening Students' Performance in Science Classes (<i>Science Education</i>)	Effect Size: 2.614 LCI: 2.268 UCI: 2.96 Weight: 0.51 Standard error: 0.176	
Acar (2007)	Effect of Cooperative Learning Strategies on Students' Understanding of Concepts in Electrochemistry (<i>International Journal of Science and Mathematics Education</i>)	Effect Size: 2.471 LCI: 1.639 UCI: 3.302 Weight: 0.376 Standard error: 0.424	

Author	Title	Effect Size	Effect Size (Graph)
Adeyemi (2008)	Effects of cooperative learning and problem-solving strategies on junior secondary school students' achievement in Social Studies (<i>Journal of Research in Educational Psychology</i>)	Effect Size: 2.461 LCI: 1.937 UCI: 2.985 Weight: 0.465 Standard error: 0.267	
Okebukola (1985) 1_3	Cooperative and Competitive Interaction Techniques in Strengthening Students' Performance in Science Classes (<i>Science Education</i>)	Effect Size: 2.361 LCI: 2.031 UCI: 2.691 Weight: 0.513 Standard error: 0.168	
Tarhan (2007)	Problem-based learning in an eleventh grade chemistry class: 'factors affecting cell potential' (<i>Research in Science & Technological Education</i>)	Effect Size: 2.25 LCI: 1.441 UCI: 3.059 Weight: 0.383 Standard error: 0.413	
Durukan (2011)	Effects of cooperative integrated reading and composition (CIRC) technique on reading-writing skills (<i>Educational Research and Reviews</i>)	Effect Size: 1.917 LCI: 1.2 UCI: 2.635 Weight: 0.409 Standard error: 0.366	
Bilgin (2006)	The Effect of Cooperative Learning Approach Based on Conceptual Change Condition on Students' Understanding of Chemical Equilibrium Concepts (<i>Journal of Science Education and Technology</i>)	Effect Size: 1.875 LCI: 1.367 UCI: 2.383 Weight: 0.469 Standard error: 0.259	
Bonaparte (1990)	The effects of cooperative versus competitive classroom organization for mastery learning on the mathematical achievement and self-esteem of urban second-grade pupils (NA)	Effect Size: 1.764 LCI: 1.326 UCI: 2.203 Weight: 0.488 Standard error: 0.224	
Garibaldi (1979)	Affective contributions of cooperative and group goal structures. (<i>Journal of Educational Psychology</i>)	Effect Size: 1.695 LCI: 0.995 UCI: 2.395 Weight: 0.414 Standard error: 0.357	
Mesch (1986)	Isolated Teenagers, Cooperative Learning, and the Training of Social Skills (<i>The Journal of Psychology</i>)	Effect Size: 1.582 LCI: -0.425 UCI: 3.589 Weight: 0.148 Standard error: 1.024	
Işık (2009) 1_1	The effects of the cooperative learning method supported by multiple intelligence theory on Turkish elementary students' mathematics achievement (<i>Asia Pacific Education Review</i>)	Effect Size: 1.565 LCI: 1.051 UCI: 2.079 Weight: 0.468 Standard error: 0.262	

Author	Title	Effect Size	Effect Size (Graph)
Palincsar (1984)	Reciprocal Teaching of Comprehension-Fostering and Comprehension-Monitoring Activities (<i>Cognition and Instruction</i>)	Effect Size: 1.524 LCI: 0.239 UCI: 2.81 Weight: 0.261 Standard error: 0.656	
Olson (1990) CL	The revising processes of the sixth-grade writers with and without peer feedback (<i>Journal of Educational Research</i>)	Effect Size: 1.524 LCI: 0.868 UCI: 2.18 Weight: 0.427 Standard error: 0.335	
Okebukola (1985) 1_2	Cooperative and Competitive Interaction Techniques in Strengthening Students' Performance in Science Classes (<i>Science Education</i>)	Effect Size: 1.518 LCI: 1.231 UCI: 1.805 Weight: 0.522 Standard error: 0.146	
Shachar (1994)	Talking, Relating, and Achieving: Effects of Cooperative Learning and Whole-Class Instruction (<i>Cognition and Instruction</i>)	Effect Size: 1.516 LCI: 1.229 UCI: 1.804 Weight: 0.522 Standard error: 0.147	
Lumpe (1995)	Peer collaboration and concept development: Learning about photosynthesis (<i>Journal of Research in Science Teaching</i>)	Effect Size: 1.473 LCI: 0.5 UCI: 2.446 Weight: 0.336 Standard error: 0.497	
Okebukola (1986)	The problem of large classes in science: An experiment in co-operative learning (<i>European Journal of Science Education</i>)	Effect Size: 1.436 LCI: 1.141 UCI: 1.73 Weight: 0.52 Standard error: 0.15	
Guthrie (2004) 1_1	Increasing Reading Comprehension and Engagement Through Concept-Oriented Reading Instruction. (<i>Journal of Educational Psychology</i>)	Effect Size: 1.32 LCI: 0.318 UCI: 2.322 Weight: 0.329 Standard error: 0.511	
Gillies (2000)	The Effects of Cooperative Learning on Students with Learning Difficulties in the Lower Elementary School (<i>The Journal of Special Education</i>)	Effect Size: 1.271 LCI: 0.335 UCI: 2.207 Weight: 0.347 Standard error: 0.478	
Kumar (1998)	Cooperative Learning-Based Approach and Development of Learning Awareness and Achievement in Mathematics in Elementary School (<i>Psychological Reports</i>)	Effect Size: 1.231 LCI: 0.676 UCI: 1.786 Weight: 0.456 Standard error: 0.283	



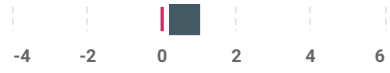





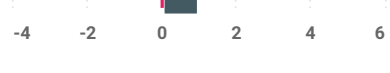
Author	Title	Effect Size	Effect Size (Graph)
Işık (2009) 1_2	The effects of the cooperative learning method supported by multiple intelligence theory on Turkish elementary students' mathematics achievement (<i>Asia Pacific Education Review</i>)	Effect Size: 1.223 LCI: 0.719 UCI: 1.726 Weight: 0.471 Standard error: 0.257	
Smith (1982)	Effects of Cooperative and Individualistic Instruction on the Achievement of Handicapped, Regular, and Gifted Students (<i>The Journal of Social Psychology</i>)	Effect Size: 1.22 LCI: 0.652 UCI: 1.788 Weight: 0.452 Standard error: 0.29	
Guthrie (2004) 1_2	Increasing Reading Comprehension and Engagement Through Concept-Oriented Reading Instruction. (<i>Journal of Educational Psychology</i>)	Effect Size: 1.188 LCI: -0.111 UCI: 2.486 Weight: 0.258 Standard error: 0.663	
Sherman (1986)	Mathematics Achievement in Cooperative versus Individualistic Goal-Structured High School Classrooms (<i>The Journal of Educational Research</i>)	Effect Size: 1.161 LCI: 0.467 UCI: 1.854 Weight: 0.416 Standard error: 0.354	
De Ligny (1996)	How will the use of the Jigsaw technique of cooperative learning affect mathematics achievement of sixth graders? (<i>NA</i>)	Effect Size: 1.144 LCI: 0.486 UCI: 1.801 Weight: 0.427 Standard error: 0.335	
Okebukola (1985) 1_1	Cooperative and Competitive Interaction Techniques in Strengthening Students' Performance in Science Classes (<i>Science Education</i>)	Effect Size: 1.141 LCI: 0.867 UCI: 1.416 Weight: 0.524 Standard error: 0.14	
Trowbridge (1984) CL	Individual vs. group usage of computer based learning materials (<i>National Educational Computing Conference</i>)	Effect Size: 1.101 LCI: 0.752 UCI: 1.45 Weight: 0.509 Standard error: 0.178	
Mesch (1988)	Impact of Positive Interdependence and Academic Group Contingencies on Achievement (<i>The Journal of Social Psychology</i>)	Effect Size: 1.092 LCI: 0.517 UCI: 1.667 Weight: 0.451 Standard error: 0.293	
Stevahn (1996) 1_2	The Impact of a Cooperative or Individualistic Context on the Effectiveness of Conflict Resolution Training (<i>American Educational Research Journal</i>)	Effect Size: 1.071 LCI: 0.508 UCI: 1.634 Weight: 0.454 Standard error: 0.287	

Author	Title	Effect Size	Effect Size (Graph)
Graham (2005) CL	Improving the writing performance, knowledge, and self-efficacy of struggling young writers: The effects of self-regulated strategy development (<i>Contemporary Educational Psychology</i>)	Effect Size: 1.066 LCI: 0.201 UCI: 1.932 Weight: 0.366 Standard error: 0.442	
Palincsar (1987)	Collaborating for Collaborative Learning of Text Comprehension (<i>NA</i>)	Effect Size: 1.02 LCI: 0.652 UCI: 1.388 Weight: 0.505 Standard error: 0.188	
Tarim (2008)	The effects of cooperative learning on Turkish elementary students' mathematics achievement and attitude towards mathematics using TAI and STAD methods (<i>Educational Studies in Mathematics</i>)	Effect Size: 1.003 LCI: 0.686 UCI: 1.32 Weight: 0.516 Standard error: 0.162	
Laney (1996) CL	The Effect of Cooperative and Mastery Learning Methods on Primary Grade Students' Learning and Retention of Economic Concepts (<i>Early Education and Development</i>)	Effect Size: 0.965 LCI: 0.428 UCI: 1.502 Weight: 0.461 Standard error: 0.274	
Slavin (1979) 1_2	Effects of Cooperative Reward Structures and Individual Accountability on Productivity and Learning (<i>The Journal of Educational Research</i>)	Effect Size: 0.955 LCI: 0.192 UCI: 1.718 Weight: 0.396 Standard error: 0.389	
Johnson (1986)	Comparison Of Computer-Assisted Cooperative, Competitive, And Individualistic Learning (<i>American Educational Research Journal</i>)	Effect Size: 0.91 LCI: 0.313 UCI: 1.507 Weight: 0.444 Standard error: 0.304	
Dalton (1989)	Effects of individual and cooperative computer-assisted instruction on student performance and attitudes (<i>Educational Technology Research and Development</i>)	Effect Size: 0.907 LCI: 0.374 UCI: 1.441 Weight: 0.462 Standard error: 0.272	
Leighton (1989)	Achievement Effects of Individual, Small Group, and Cooperative Learning Strategies on Math Problem-Solving. Report No. 40. (<i>NA</i>)	Effect Size: 0.885 LCI: 0.58 UCI: 1.189 Weight: 0.518 Standard error: 0.155	
Kelly (1994)	Reciprocal Teaching in a Regular Primary School Classroom (<i>Journal of Educational Research</i>)	Effect Size: 0.872 LCI: -0.337 UCI: 2.081 Weight: 0.278 Standard error: 0.617	

Author	Title	Effect Size	Effect Size (Graph)
Graziano (1976)	Peer Interaction in Same- and Mixed-Age Triads in Relation to Chronological Age and Incentive Condition (<i>Child Development</i>)	Effect Size: 0.865 LCI: 0.596 UCI: 1.134 Weight: 0.525 Standard error: 0.137	
Wilson (1978)	Relationship of diagnostic-cooperative teaching approach to mathematics achievement and personal-social adjustment of inner city intermediate students (1979)	Effect Size: 0.861 LCI: 0.824 UCI: 0.898 Weight: 0.55 Standard error: 0.019	
Stevens (1991)	The effects of cooperative learning and direct instruction in reading comprehension strategies on main idea identification (<i>Journal of Educational Psychology</i>)	Effect Size: 0.855 LCI: 0.626 UCI: 1.084 Weight: 0.532 Standard error: 0.117	
Barbato (2000)	Policy implications of cooperative learning on the achievement and attitudes of secondary school mathematics students (<i>ProQuest Dissertations and Theses</i>)	Effect Size: 0.841 LCI: 0.557 UCI: 1.125 Weight: 0.523 Standard error: 0.145	
Lampe (1996)	Effects of Cooperative Learning Among Hispanic Students in Elementary Social Studies (<i>The Journal of Educational Research</i>)	Effect Size: 0.834 LCI: 0.419 UCI: 1.249 Weight: 0.494 Standard error: 0.212	
Kramarski (2009) FB	Group-Metacognitive Support for Online Inquiry in Mathematics with Differential Self-Questioning (<i>Journal of Educational Computing Research</i>)	Effect Size: 0.831 LCI: 0.334 UCI: 1.329 Weight: 0.472 Standard error: 0.254	
Johnson (1993)	Impact of Cooperative and Individualistic Learning on High-Ability Students' Achievement, Self-Esteem, and Social Acceptance (<i>The Journal of Social Psychology</i>)	Effect Size: 0.821 LCI: 0.118 UCI: 1.525 Weight: 0.413 Standard error: 0.359	
Kahl (1994)	Using elaborative interrogation to facilitate acquisition of factual information in cooperative learning settings: One good strategy deserves another (<i>Applied Cognitive Psychology</i>)	Effect Size: 0.8 LCI: 0.094 UCI: 1.506 Weight: 0.413 Standard error: 0.36	
DeVries (1976)	Student Teams Can Improve Basic Skills: TGT Applied to Reading. (NA)	Effect Size: 0.762 LCI: 0.204 UCI: 1.32 Weight: 0.456 Standard error: 0.284	


Author	Title	Effect Size	Effect Size (Graph)
Slavin (1979) 1_1	Effects of Cooperative Reward Structures and Individual Accountability on Productivity and Learning (<i>The Journal of Educational Research</i>)	Effect Size: 0.76 LCI: 0.04 UCI: 1.481 Weight: 0.408 Standard error: 0.368	
Balfakih (2003)	The effectiveness of student team-achievement division (STAD) for teaching high school chemistry in the United Arab Emirates (<i>International Journal of Science Education</i>)	Effect Size: 0.759 LCI: 0.377 UCI: 1.142 Weight: 0.501 Standard error: 0.195	
Shachar (2004)	Cooperative learning and the achievement of motivation and perceptions of students in 11th grade chemistry classes (<i>Learning and Instruction</i>)	Effect Size: 0.745 LCI: 0.429 UCI: 1.061 Weight: 0.516 Standard error: 0.161	
Atkins (1993) CL	Gender effects in self-management training: Individual versus cooperative interventions (<i>Psychology in the Schools</i>)	Effect Size: 0.744 LCI: 0.025 UCI: 1.464 Weight: 0.408 Standard error: 0.367	
Artzt (1983)	The comparative effects of the student-team method of instruction and the traditional teacher-centered method of instruction upon student achievement, attitude, and social interaction in high school mathematics course (<i>NA</i>)	Effect Size: 0.74 LCI: 0.485 UCI: 0.995 Weight: 0.528 Standard error: 0.13	
Bos (1992) CL	Using Interactive Teaching and Learning Strategies to Promote Text Comprehension and Content Learning for Students with Learning Disabilities (<i>International Journal of Disability, Development and Education</i>)	Effect Size: 0.738 LCI: -0.01 UCI: 1.487 Weight: 0.4 Standard error: 0.382	
Whicker (1997)	Cooperative Learning in the Secondary Mathematics Classroom (<i>The Journal of Educational Research</i>)	Effect Size: 0.734 LCI: 0.003 UCI: 1.465 Weight: 0.405 Standard error: 0.373	
Gayford (1995)	Science Education and Sustainability: a case-study in discussion-based learning (<i>Research in Science & Technological Education</i>)	Effect Size: 0.711 LCI: 0.419 UCI: 1.003 Weight: 0.521 Standard error: 0.149	
Taylor (1992)	Comprehension strategy instruction in the intermediate grades (<i>Literacy Research and Instruction</i>)	Effect Size: 0.701 LCI: 0.362 UCI: 1.039 Weight: 0.511 Standard error: 0.173	

Author	Title	Effect Size	Effect Size (Graph)
Sampson (1982)	The effects of instructional cloze on the comprehension, vocabulary, and divergent production of third-grade students (<i>Reading Research Quarterly</i>)	Effect Size: 0.67 LCI: 0.258 UCI: 1.082 Weight: 0.494 Standard error: 0.21	
Slavin (1985) 1_2	Effects of Whole Class, Ability Grouped, and Individualized Instruction on Mathematics Achievement (<i>American Educational Research Journal</i>)	Effect Size: 0.669 LCI: 0.396 UCI: 0.942 Weight: 0.525 Standard error: 0.139	
Roussey (1992) FB	Effects of social regulation and computer assistance on the monitoring of writing (<i>European Journal of Psychology of Education</i>)	Effect Size: 0.667 LCI: 0.217 UCI: 1.117 Weight: 0.485 Standard error: 0.23	
Wise (1992) CL	The effects of revision instruction on eighth graders' persuasive writing (NA)	Effect Size: 0.656 LCI: 0.224 UCI: 1.089 Weight: 0.489 Standard error: 0.221	
Unrau (1991) CL	The Effects of Explicit Instruction on Critical Reading and Argumentative Writing: The TASK of Reading and Writing (<i>Annual Meeting of the American Educational Research Association</i>)	Effect Size: 0.654 LCI: 0.152 UCI: 1.156 Weight: 0.471 Standard error: 0.256	
Ortiz (1996)	The Effect of Positive Goal and Resource Interdependence on Individual Performance (<i>The Journal of Social Psychology</i>)	Effect Size: 0.652 LCI: -0.173 UCI: 1.477 Weight: 0.378 Standard error: 0.421	
Reid (1992)	The Effects of Cooperative Learning with Intergroup Competition on the Math Achievement of Seventh Grade Students. (NA)	Effect Size: 0.649 LCI: 0.079 UCI: 1.219 Weight: 0.452 Standard error: 0.291	
Skon (1981)	Cooperative peer interaction versus individual competition and individualistic efforts: Effects on the acquisition of cognitive reasoning strategies. (<i>Journal of Educational Psychology</i>)	Effect Size: 0.619 LCI: 0.064 UCI: 1.173 Weight: 0.456 Standard error: 0.283	
Harskamp (2006)	Structured Collaboration versus Individual Learning in Solving Physics Problems (<i>International Journal of Science Education</i>)	Effect Size: 0.616 LCI: 0.053 UCI: 1.179 Weight: 0.454 Standard error: 0.287	


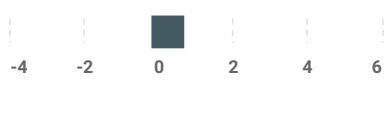

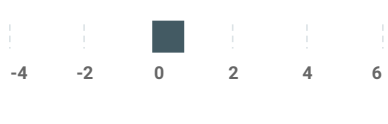
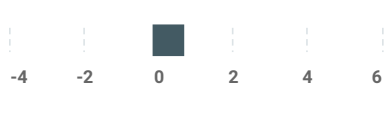
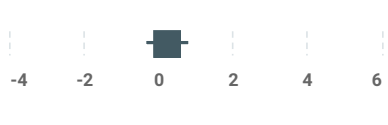
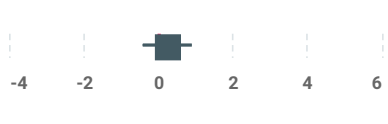
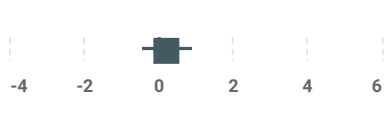
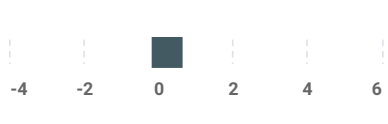
Author	Title	Effect Size	Effect Size (Graph)
Ugwu (2004) 1_2	The effects of concept and vee mappings under three learning modes on Jamaican eighth graders' knowledge of nutrition and plant reproduction (<i>Research in Science & Technological Education</i>)	Effect Size: 0.607 LCI: 0.398 UCI: 0.815 Weight: 0.535 Standard error: 0.106	
Mevarech (1985) 1_1	The effects of cooperative mastery learning strategies on mathematics achievement (<i>Journal of Educational Research</i>)	Effect Size: 0.597 LCI: 0.103 UCI: 1.091 Weight: 0.473 Standard error: 0.252	
Reznitskaya (2001)	Influence of Oral Discussion on Written Argument (<i>Discourse Processes</i>)	Effect Size: 0.59 LCI: 0.218 UCI: 0.962 Weight: 0.504 Standard error: 0.19	
Fischer (1989)	An experimental study of reciprocal teaching of expository text with third, fourth, and fifth-grade students enrolled in Chapter 1 Reading (<i>NA</i>)	Effect Size: 0.547 LCI: 0.302 UCI: 0.793 Weight: 0.529 Standard error: 0.125	
Merebah (1987)	Cooperative learning in science: A comparative study in Saudi Arabia (<i>NA</i>)	Effect Size: 0.54 LCI: 0.33 UCI: 0.749 Weight: 0.535 Standard error: 0.107	
Suyanto (1998)	The effects of Student Teams-Achievement Divisions on mathematics achievement in Yogyakarta rural primary schools (<i>ProQuest Dissertations and Theses</i>)	Effect Size: 0.537 LCI: 0.382 UCI: 0.692 Weight: 0.542 Standard error: 0.079	
Mevarech (1991) 1_1	Learning Mathematics in Different Mastery Environments (<i>The Journal of Educational Research</i>)	Effect Size: 0.528 LCI: -0.025 UCI: 1.081 Weight: 0.457 Standard error: 0.282	
Ugwu (2004) 1_1	The effects of concept and vee mappings under three learning modes on Jamaican eighth graders' knowledge of nutrition and plant reproduction (<i>Research in Science & Technological Education</i>)	Effect Size: 0.523 LCI: 0.298 UCI: 0.749 Weight: 0.533 Standard error: 0.115	
Klingner (2004)	Collaborative strategic reading: "Real-world" lessons from classroom teachers (<i>Remedial and Special Education</i>)	Effect Size: 0.492 LCI: 0.218 UCI: 0.767 Weight: 0.524 Standard error: 0.14	



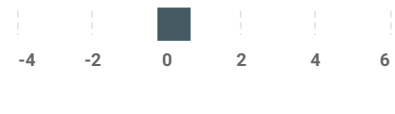

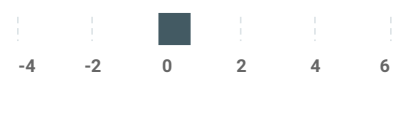
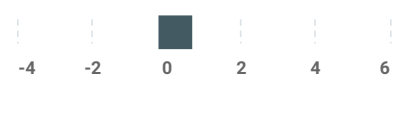

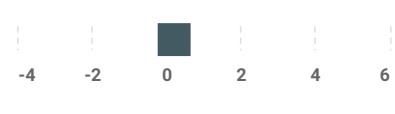
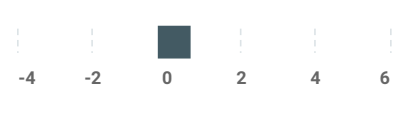
Author	Title	Effect Size	Effect Size (Graph)
Edwards (1972)	Games and Teams: A Winning Combination (<i>Simulation & Games</i>)	Effect Size: 0.48 LCI: 0.088 UCI: 0.872 Weight: 0.499 Standard error: 0.2	
Guthrie (1999) 1_2	Influences of Concept-Oriented Reading Instruction on Strategy Use and Conceptual Learning from Text (<i>The Elementary School Journal</i>)	Effect Size: 0.479 LCI: 0.083 UCI: 0.875 Weight: 0.498 Standard error: 0.202	
Dori (1995)	The Effect of Teaching the Cell Topic Using the Jigsaw Method on Students' Achievement and Learning Activity. (<i>NA</i>)	Effect Size: 0.478 LCI: 0.091 UCI: 0.864 Weight: 0.501 Standard error: 0.197	
Sancilio (1992) CL	Two versus one? The effects of pairing friends on cognition during collaborative learning with Logo (<i>NA</i>)	Effect Size: 0.478 LCI: -0.194 UCI: 1.149 Weight: 0.423 Standard error: 0.343	
Conring (2009)	The effects of cooperative learning on mathematic achievement in second graders (<i>ProQuest Dissertations and Theses</i>)	Effect Size: 0.469 LCI: -0.131 UCI: 1.068 Weight: 0.443 Standard error: 0.306	
Singhanayok (1998) 1_1	The effects of cooperative learning and learner control on students' achievement, option selections, and attitudes (<i>Educational Technology Research and Development</i>)	Effect Size: 0.454 LCI: -0.398 UCI: 1.307 Weight: 0.37 Standard error: 0.435	
Xin (1999) CL	Computer-Assisted Cooperative Learning in Integrated Classrooms for Students With and Without Disabilities (<i>Information Technology in Childhood Education Annual</i>)	Effect Size: 0.438 LCI: 0.027 UCI: 0.85 Weight: 0.494 Standard error: 0.21	
Klingner (1998)	Collaborative Strategic Reading during Social Studies in Heterogeneous Fourth-Grade Classrooms (<i>The Elementary School Journal</i>)	Effect Size: 0.43 LCI: 0.088 UCI: 0.771 Weight: 0.511 Standard error: 0.174	
Guthrie (1998) 1_2	Does concept-oriented reading instruction increase strategy use and conceptual learning from text? (<i>Journal of Educational Psychology</i>)	Effect Size: 0.423 LCI: -0.015 UCI: 0.861 Weight: 0.488 Standard error: 0.224	










Author	Title	Effect Size	Effect Size (Graph)
Lysynchuk (1990)	Reciprocal teaching improves standardized reading-comprehension performance in poor comprehenders (<i>The Elementary School Journal</i>)	Effect Size: 0.422 LCI: -0.045 UCI: 0.89 Weight: 0.48 Standard error: 0.238	
Faro (2006)	An Investigation into the Efficacy of the Studio Model at the High School Level (<i>Journal of Educational Computing Research</i>)	Effect Size: 0.401 LCI: -0.225 UCI: 1.028 Weight: 0.436 Standard error: 0.32	
Kosters (1990)	The effects of cooperative learning in the traditional classroom on student achievement and attitude - (NA)	Effect Size: 0.397 LCI: -0.156 UCI: 0.95 Weight: 0.457 Standard error: 0.282	
Slavin (1981)	Effects of Cooperative Learning Teams on Student Achievement and Race Relations: Treatment by Race Interactions (<i>Sociology of Education</i>)	Effect Size: 0.38 LCI: 0.092 UCI: 0.668 Weight: 0.522 Standard error: 0.147	
Law (2008)	Effects of cooperative learning on second graders' learning from text (<i>Educational Psychology</i>)	Effect Size: 0.377 LCI: 0.113 UCI: 0.64 Weight: 0.526 Standard error: 0.134	
Lew (1986)	Components of cooperative learning: Effects of collaborative skills and academic group contingencies on achievement and mainstreaming (<i>Contemporary Educational Psychology</i>)	Effect Size: 0.36 LCI: -0.11 UCI: 0.83 Weight: 0.479 Standard error: 0.24	
Stevens (2003)	Student Team Reading and Writing: A Cooperative Learning Approach to Middle School Literacy Instruction (<i>Educational Research and Evaluation</i>)	Effect Size: 0.357 LCI: 0.294 UCI: 0.42 Weight: 0.549 Standard error: 0.032	
Petersen (1991)	Effects of Cooperative Learning on Perceived Status of Male and Female Pupils (<i>The Journal of Social Psychology</i>)	Effect Size: 0.354 LCI: -0.192 UCI: 0.901 Weight: 0.459 Standard error: 0.279	
Love (1969) CL	Individual Versus Paired Learning of an Abstract Algebra Presented by Computer Assisted Instruction (NA)	Effect Size: 0.35 LCI: -0.24 UCI: 0.939 Weight: 0.446 Standard error: 0.301	

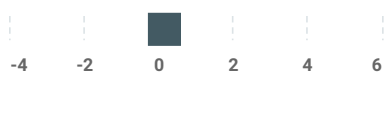
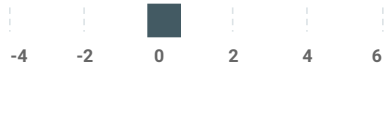
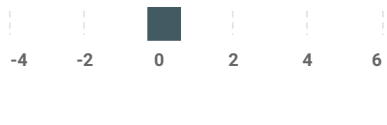
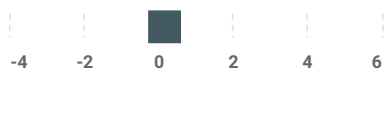
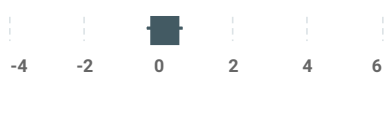
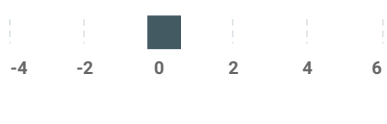

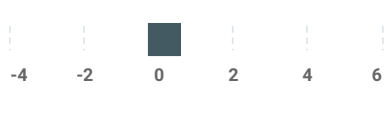
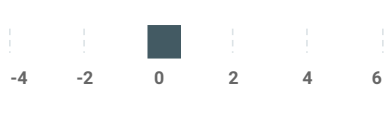
Author	Title	Effect Size	Effect Size (Graph)
Stevens (1987) 1_2	Cooperative Integrated Reading and Composition: Two Field Experiments (<i>Reading Research Quarterly</i>)	Effect Size: 0.348 LCI: 0.157 UCI: 0.54 Weight: 0.538 Standard error: 0.098	
Qualter (2000)	Approaches to Teaching Science in the Jordanian Primary School (<i>Research in Science & Technological Education</i>)	Effect Size: 0.344 LCI: 0.184 UCI: 0.503 Weight: 0.542 Standard error: 0.082	
Wright (1985) CL	The effects of peer-teaching on student perceptions of class environment, adjustment, and academic performance (<i>American Journal of Community Psychology</i>)	Effect Size: 0.34 LCI: -0.077 UCI: 0.756 Weight: 0.493 Standard error: 0.212	
Mevarech (1991) CL	Learning with computers in small groups: Cognitive and affective outcomes (<i>Journal of Educational Computing Research</i>)	Effect Size: 0.334 LCI: 0.003 UCI: 0.665 Weight: 0.513 Standard error: 0.169	
Chapman (1997) CL	Instructing narrative text: Using children's concept of story with reciprocal teaching activities to foster story understanding and metacognition (<i>NA</i>)	Effect Size: 0.317 LCI: -0.488 UCI: 1.122 Weight: 0.384 Standard error: 0.411	
Hooper (1993) CL	The effects of cooperative learning and learner control on high- and average-ability students (<i>Educational Technology Research and Development</i>)	Effect Size: 0.305 LCI: -0.005 UCI: 0.615 Weight: 0.517 Standard error: 0.158	
Lucker (1976)	Performance in the Interdependent Classroom: A Field Study (<i>American Educational Research Journal</i>)	Effect Size: 0.298 LCI: 0.071 UCI: 0.525 Weight: 0.532 Standard error: 0.116	
Stevens (1995)	The Cooperative Elementary School: Effects on Students' Achievement, Attitudes, and Social Relations (<i>American Educational Research Journal</i>)	Effect Size: 0.281 LCI: 0.147 UCI: 0.414 Weight: 0.544 Standard error: 0.068	
Cavaier (1998) CL	Effects of cooperative versus individual learning and orienting activities during computer-based instruction (<i>Educational Technology Research and Development</i>)	Effect Size: 0.279 LCI: -0.378 UCI: 0.936 Weight: 0.427 Standard error: 0.335	

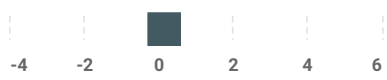
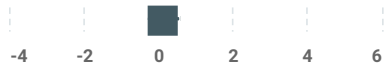

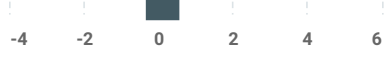

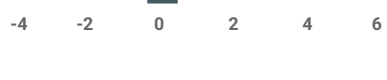



Author	Title	Effect Size	Effect Size (Graph)
Slavin (1984) 1_1	Team Assisted Individualization: Cooperative Learning and Individualized Instruction in the Mainstreamed Classroom (<i>Remedial and Special Education</i>)	Effect Size: 0.275 LCI: 0.042 UCI: 0.508 Weight: 0.531 Standard error: 0.119	
Stevahn (1996) 1_1	The Impact of a Cooperative or Individualistic Context on the Effectiveness of Conflict Resolution Training (<i>American Educational Research Journal</i>)	Effect Size: 0.271 LCI: -0.265 UCI: 0.807 Weight: 0.462 Standard error: 0.274	
Ghaith (2003)	Effects of the Learning Together Model of Cooperative Learning on English as a Foreign Language Reading Achievement, Academic Self-Esteem, and Feelings of School Alienation (<i>Bilingual Research Journal</i>)	Effect Size: 0.266 LCI: -0.26 UCI: 0.792 Weight: 0.464 Standard error: 0.268	
Holliday (1995)	The effects of the cooperative learning strategy Jigsaw II on academic achievement and cross-race relationships in a secondary social studies classroom (<i>NA</i>)	Effect Size: 0.266 LCI: -0.13 UCI: 0.663 Weight: 0.498 Standard error: 0.202	
Uttero (1992)	The effects of the instruction-modeling-cooperative engagement model on children's print comprehension in science (<i>NA</i>)	Effect Size: 0.262 LCI: -0.033 UCI: 0.557 Weight: 0.52 Standard error: 0.15	
Stevens (1989)	A Cooperative Learning Approach to Elementary Reading and Writing Instruction: Long-Term Effects. Report No. 42. (<i>NA</i>)	Effect Size: 0.26 LCI: 0.088 UCI: 0.431 Weight: 0.54 Standard error: 0.087	
Hulten (1976)	Team Competition and Group Practice: Effects on Student Achievement and Attitudes. Report No. 212. (<i>NA</i>)	Effect Size: 0.26 LCI: 0.002 UCI: 0.518 Weight: 0.527 Standard error: 0.132	
Ross (1988) 1_1	Improving Social-Environmental Studies Problem Solving Through Cooperative Learning (<i>American Educational Research Journal</i>)	Effect Size: 0.259 LCI: 0.002 UCI: 0.516 Weight: 0.527 Standard error: 0.131	
Slavin (1980) 1_1	Effects of Student Teams and Peer Tutoring on Academic Achievement and Time On-Task (<i>The Journal of Experimental Education</i>)	Effect Size: 0.255 LCI: -0.109 UCI: 0.619 Weight: 0.506 Standard error: 0.186	

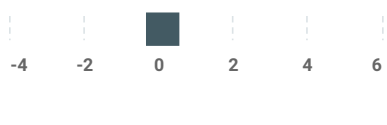
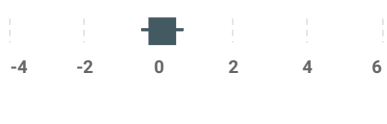

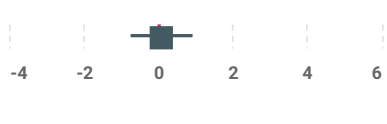
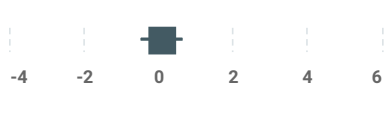
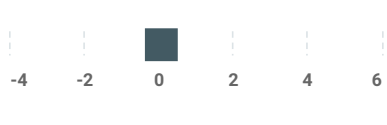
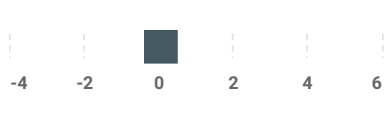
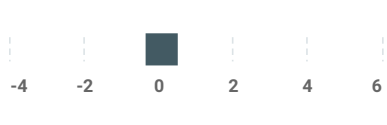
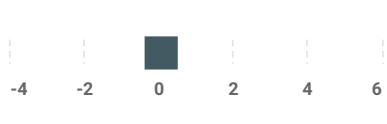
Author	Title	Effect Size	Effect Size (Graph)
Madden (1983)	Effects of Cooperative Learning On the Social Acceptance of Mainstreamed Academically Handicapped Students (<i>The Journal of Special Education</i>)	Effect Size: 0.254 LCI: -0.071 UCI: 0.578 Weight: 0.514 Standard error: 0.166	
Slavin (1984)	Mastery Learning and Student Teams: A Factorial Experiment in Urban General Mathematics Classes (<i>American Educational Research Journal</i>)	Effect Size: 0.248 LCI: 0.019 UCI: 0.476 Weight: 0.532 Standard error: 0.117	
Mevarech (1991) 1_2	Learning Mathematics in Different Mastery Environments (<i>The Journal of Educational Research</i>)	Effect Size: 0.248 LCI: -0.248 UCI: 0.744 Weight: 0.473 Standard error: 0.253	
Williams (1988)	The effects of cooperative team learning on student achievement and student attitude in the algebra classroom (<i>NA</i>)	Effect Size: 0.241 LCI: -0.066 UCI: 0.547 Weight: 0.518 Standard error: 0.156	
Hänze (2007)	Cooperative learning, motivational effects, and student characteristics: An experimental study comparing cooperative learning and direct instruction in 12th grade physics classes (<i>Learning and Instruction</i>)	Effect Size: 0.235 LCI: -0.101 UCI: 0.571 Weight: 0.512 Standard error: 0.172	
Singhanayok (1998) 1_2	The effects of cooperative learning and learner control on students' achievement, option selections, and attitudes (<i>Educational Technology Research and Development</i>)	Effect Size: 0.218 LCI: -0.368 UCI: 0.805 Weight: 0.447 Standard error: 0.299	
Takala (2006)	The effects of reciprocal teaching on reading comprehension in mainstream and special (SLI) education (<i>Scandinavian Journal of Educational Research</i>)	Effect Size: 0.215 LCI: -0.472 UCI: 0.902 Weight: 0.418 Standard error: 0.351	
Johnson-Glenberg (2000) 1_1	Training reading comprehension in adequate decoders/poor comprehenders: Verbal versus visual strategies (<i>Journal of Educational Psychology</i>)	Effect Size: 0.21 LCI: -0.484 UCI: 0.904 Weight: 0.416 Standard error: 0.354	
Harrison (1991) CL	The effects of cooperative grouping and ability on achievement by subjects using a computer-based lesson with instructional options (<i>NA</i>)	Effect Size: 0.21 LCI: -0.179 UCI: 0.6 Weight: 0.5 Standard error: 0.199	


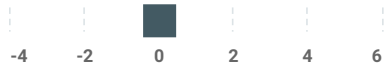



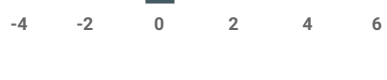



Author	Title	Effect Size	Effect Size (Graph)
Mevarech (1993) CL	Who benefits from cooperative computer-assisted instruction? (<i>Journal of Educational Computing Research</i>)	Effect Size: 0.207 LCI: -0.18 UCI: 0.595 Weight: 0.5 Standard error: 0.198	
Whyte (1991) CL	Individualistic versus paired/cooperative computer-assisted instruction: Matching instructional method with cognitive style (<i>Journal of educational technology systems</i>)	Effect Size: 0.205 LCI: -0.243 UCI: 0.654 Weight: 0.485 Standard error: 0.229	
Stevens (1987) 1_1	Cooperative Integrated Reading and Composition: Two Field Experiments (<i>Reading Research Quarterly</i>)	Effect Size: 0.205 LCI: 0.022 UCI: 0.389 Weight: 0.539 Standard error: 0.094	
Lazarowitz (1988)	Academic Achievement and On-Task Behavior of High School Biology Students Instructed in a Cooperative Small Investigative Group (<i>Science Education</i>)	Effect Size: 0.203 LCI: -0.258 UCI: 0.664 Weight: 0.482 Standard error: 0.235	
Piercy (1997)	The effects of multi-strategy instruction upon reading comprehension (NA)	Effect Size: 0.2 LCI: -0.094 UCI: 0.494 Weight: 0.521 Standard error: 0.15	
Slavin (1983)	Combining Student Teams and Individualized Instruction in Mathematics: An Extended Evaluation. (NA)	Effect Size: 0.2 LCI: 0.117 UCI: 0.283 Weight: 0.548 Standard error: 0.042	
Hernandez (1997)	Effects of teaching problem-solving through cooperative learning methods on student mathematics achievement, attitudes toward mathematics, mathematics self-efficacy, and metacognition (NA)	Effect Size: 0.2 LCI: -0.402 UCI: 0.802 Weight: 0.443 Standard error: 0.307	
Mevarech (1994) CL	The effectiveness of individualized versus cooperative computer-based integrated learning systems (<i>International Journal of Educational Research</i>)	Effect Size: 0.197 LCI: -0.018 UCI: 0.412 Weight: 0.534 Standard error: 0.11	
Slavin (1984)	Combining Cooperative Learning and Individualized Instruction: Effects on Student Mathematics Achievement, Attitudes, and Behaviors (<i>The Elementary School Journal</i>)	Effect Size: 0.195 LCI: -0.038 UCI: 0.427 Weight: 0.532 Standard error: 0.119	










Author	Title	Effect Size	Effect Size (Graph)
Gordon (1985)	Cooperative learning: A comparative study of attitude and achievement of two groups of grade seven mathematics classes (NA)	Effect Size: 0.19 LCI: -0.34 UCI: 0.72 Weight: 0.463 Standard error: 0.27	
Wolf (1994) CL	Effects of cooperative learning and learner control in computer-based instruction (NA)	Effect Size: 0.186 LCI: -0.165 UCI: 0.537 Weight: 0.509 Standard error: 0.179	
Slavin (1982) 1_2	Student Teams and Mastery Learning: A Factorial Experiment in Urban Math Nine Classes. (NA)	Effect Size: 0.178 LCI: -0.058 UCI: 0.414 Weight: 0.531 Standard error: 0.12	
Lazarowitz (1996)	Teaching biology in a group mastery learning mode: high school students' academic achievement and affective outcomes (International Journal of Science Education)	Effect Size: 0.175 LCI: -0.196 UCI: 0.546 Weight: 0.504 Standard error: 0.189	
Giannitti (1988) CL	An experimental investigation of the relationships among learning style sociological preferences of middle school students, their attitudes and achievement in social studies, and selected instructional strategies (NA)	Effect Size: 0.175 LCI: -0.104 UCI: 0.453 Weight: 0.523 Standard error: 0.142	
Stevens (1995)	Effects of a Cooperative Learning Approach in Reading and Writing on Academically Handicapped and Nonhandicapped Students (The Elementary School Journal)	Effect Size: 0.171 LCI: 0.062 UCI: 0.28 Weight: 0.546 Standard error: 0.056	
Nichols (1996)	The Effects of Cooperative Learning on Student Achievement and Motivation in a High School Geometry Class (Contemporary Educational Psychology)	Effect Size: 0.164 LCI: -0.275 UCI: 0.603 Weight: 0.488 Standard error: 0.224	
Araz (2007)	Effectiveness of problem-based learning on academic performance in genetics (Biochemistry and Molecular Biology Education)	Effect Size: 0.158 LCI: -0.112 UCI: 0.428 Weight: 0.525 Standard error: 0.138	
Hawkins (1985)	Changing Teaching Practices in Mainstream Classrooms to Improve Bonding and Behavior of Low Achievers (American Educational Research Journal)	Effect Size: 0.157 LCI: -0.19 UCI: 0.504 Weight: 0.51 Standard error: 0.177	










Author	Title	Effect Size	Effect Size (Graph)
Slavin (2009) 1_1	The Reading Edge: a randomized evaluation of a middle school cooperative reading program (<i>Effective Education</i>)	Effect Size: 0.152 LCI: -0.043 UCI: 0.347 Weight: 0.537 Standard error: 0.1	
Slavin (1984)	Effects of team assisted individualization on the mathematics achievement of academically handicapped and nonhandicapped students. (<i>Journal of Educational Psychology</i>)	Effect Size: 0.151 LCI: 0.044 UCI: 0.257 Weight: 0.547 Standard error: 0.054	
Slavin (1984) 1_2	Team Assisted Individualization: Cooperative Learning and Individualized Instruction in the Mainstreamed Classroom (<i>Remedial and Special Education</i>)	Effect Size: 0.151 LCI: 0.044 UCI: 0.257 Weight: 0.547 Standard error: 0.054	
Slavin (1982) 1_1	Student Teams and Mastery Learning: A Factorial Experiment in Urban Math Nine Classes. (<i>NA</i>)	Effect Size: 0.15 LCI: -0.072 UCI: 0.373 Weight: 0.533 Standard error: 0.114	
Guthrie (1999) 1_1	Influences of Concept-Oriented Reading Instruction on Strategy Use and Conceptual Learning from Text (<i>The Elementary School Journal</i>)	Effect Size: 0.148 LCI: -0.36 UCI: 0.656 Weight: 0.469 Standard error: 0.259	
Miller (2017)	Success for All (<i>NA</i>)	Effect Size: 0.141 LCI: 0.033 UCI: 0.248 Weight: 0.547 Standard error: 0.055	
Slavin (1984)	Effects of Cooperative Learning and Individualized Instruction on Mainstreamed Students (<i>Exceptional Children</i>)	Effect Size: 0.139 LCI: -0.381 UCI: 0.66 Weight: 0.466 Standard error: 0.266	
Chamberlain (2007)	A randomized evaluation of the Success for All Middle School reading program (<i>Middle Grades Research Journal</i>)	Effect Size: 0.134 LCI: -0.061 UCI: 0.329 Weight: 0.537 Standard error: 0.1	
Vaughn (2011)	Efficacy of Collaborative Strategic Reading With Middle School Students (<i>American Educational Research Journal</i>)	Effect Size: 0.122 LCI: -0.018 UCI: 0.262 Weight: 0.544 Standard error: 0.072	


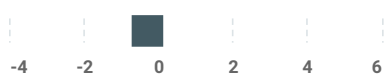







Author	Title	Effect Size	Effect Size (Graph)
Stevens (1992)	Using Student Team Reading and Student Team Writing in Middle Schools: Two Evaluations. (NA)	Effect Size: 0.12 LCI: 0.004 UCI: 0.236 Weight: 0.546 Standard error: 0.059	
Ravid (1992)	The use of cooperative learning methods in Jewish schools. (<i>Journal of Research & Development in Education</i>)	Effect Size: 0.116 LCI: -0.328 UCI: 0.561 Weight: 0.486 Standard error: 0.227	
Slavin (1981)	Cognitive and Affective Outcomes of an Intensive Student Team Learning Experience (<i>The Journal of Experimental Education</i>)	Effect Size: 0.11 LCI: -0.093 UCI: 0.312 Weight: 0.536 Standard error: 0.103	
Starr (1974)	An Experiment in Small-Group Learning. (<i>American Biology Teacher</i>)	Effect Size: 0.108 LCI: -0.021 UCI: 0.237 Weight: 0.545 Standard error: 0.066	
Kramarski (2003)	Enhancing Mathematical Reasoning in the Classroom: The Effects of Cooperative Learning and Metacognitive Training (<i>American Educational Research Journal</i>)	Effect Size: 0.107 LCI: -0.182 UCI: 0.396 Weight: 0.521 Standard error: 0.148	
Sharan (1979) CL	Academic achievement of elementary school children in small-group versus whole-class instruction (<i>Journal of Experimental Education</i>)	Effect Size: 0.106 LCI: -0.317 UCI: 0.529 Weight: 0.492 Standard error: 0.216	
MacGregor (1988) CL	Instructional design for computer-mediated text systems: Effects of motivation, learner control, and collaboration on reading performance (<i>The Journal of Experimental Educational</i>)	Effect Size: 0.103 LCI: -0.448 UCI: 0.653 Weight: 0.458 Standard error: 0.281	
Bramlett (1994)	Implementing cooperative learning: A field study evaluating issues for school-based consultants (<i>Journal of School Psychology</i>)	Effect Size: 0.102 LCI: -0.096 UCI: 0.3 Weight: 0.537 Standard error: 0.101	
Crawford (2014)	LIT Programme: Evaluation report and executive summary (NA)	Effect Size: 0.09 LCI: -0.039 UCI: 0.219 Weight: 0.545 Standard error: 0.066	





Author	Title	Effect Size	Effect Size (Graph)
Chang (1999)	Comparison of Taiwan Science Students' Outcomes With Inquiry-Group Versus Traditional Instruction (<i>The Journal of Educational Research</i>)	Effect Size: 0.09 LCI: -0.067 UCI: 0.247 Weight: 0.542 Standard error: 0.08	
Armstrong (1998)	The effect of Student Team Achievement Divisions cooperative learning technique on upper secondary social studies students' academic achievement and attitude towards social studies class (<i>NA</i>)	Effect Size: 0.086 LCI: -0.509 UCI: 0.681 Weight: 0.445 Standard error: 0.304	
LeBel (1982) CL	Cooperation between adolescents in computer-assisted algebraic problem solving (<i>NA</i>)	Effect Size: 0.082 LCI: -0.666 UCI: 0.831 Weight: 0.4 Standard error: 0.382	
Chalip (1978) CL	Interaction between co-operative and individual learning (<i>New Zealand Journal of Educational Studies</i>)	Effect Size: 0.064 LCI: -0.793 UCI: 0.921 Weight: 0.369 Standard error: 0.437	
Shaaban (2006)	An Initial Study of the Effects of Cooperative Learning on Reading Comprehension, Vocabulary Acquisition, and Motivation to Read (<i>Reading Psychology</i>)	Effect Size: 0.064 LCI: -0.527 UCI: 0.655 Weight: 0.446 Standard error: 0.302	
Ghaith (1998)	Effect of cooperative learning on the acquisition of second language rules and mechanics (<i>System</i>)	Effect Size: 0.061 LCI: -0.159 UCI: 0.281 Weight: 0.533 Standard error: 0.112	
Hitchcock (2011)	The Impact of Collaborative Strategic Reading on the Reading Comprehension of Grade 5 Students in Linguistically Diverse Schools. (<i>National Center for Education Evaluation and Regional Assistance</i>)	Effect Size: 0.056 LCI: -0.057 UCI: 0.168 Weight: 0.546 Standard error: 0.058	
Banghart (1963)	Group Influence on Creativity in Mathematics (<i>The Journal of Experimental Education</i>)	Effect Size: 0.047 LCI: -0.245 UCI: 0.339 Weight: 0.521 Standard error: 0.149	
Glassman (1989)	A study of cooperative learning in mathematics, writing, and reading in the intermediate grades: A focus upon achievement, attitudes, and self-esteem by gender, race, and ability group (<i>ProQuest Dissertations and Theses</i>)	Effect Size: 0.04 LCI: -0.147 UCI: 0.227 Weight: 0.538 Standard error: 0.095	

Author	Title	Effect Size	Effect Size (Graph)
Zaidi (1994) 1_1	Comparing cooperative learning variations and traditional instruction in seventh-grade mathematics: Effects on achievement and self-regulation strategies (NA)	Effect Size: 0.028 LCI: -0.376 UCI: 0.432 Weight: 0.496 Standard error: 0.206	
Slavin (2009) 1_2	The Reading Edge: a randomized evaluation of a middle school cooperative reading program (Effective Education)	Effect Size: 0.028 LCI: -0.173 UCI: 0.228 Weight: 0.536 Standard error: 0.102	
Zaidi (1994) 1_2	Comparing cooperative learning variations and traditional instruction in seventh-grade mathematics: Effects on achievement and self-regulation strategies (NA)	Effect Size: 0.028 LCI: -0.376 UCI: 0.432 Weight: 0.496 Standard error: 0.206	
Yueh (1988)	The effect of reward structure and group ability composition on cooperative computer-assisted instruction (Journal of Computer-Based Instruction,)	Effect Size: 0.024 LCI: -0.554 UCI: 0.602 Weight: 0.45 Standard error: 0.295	
Slavin (1979)	An Extended Cooperative Learning Experience in Elementary School. (NA)	Effect Size: 0.022 LCI: -0.004 UCI: 0.048 Weight: 0.551 Standard error: 0.013	
Samaha (2000)	Peer Collaboration on a Nonverbal Reasoning Task by Urban, Minority Students (The Journal of Experimental Education)	Effect Size: 0 LCI: -0.509 UCI: 0.509 Weight: 0.469 Standard error: 0.26	
Bellows (1986) CL	Group size, group structure and student interaction in children's computer learning (NA)	Effect Size: 0 LCI: -0.608 UCI: 0.608 Weight: 0.441 Standard error: 0.31	
Hanley (2016)	Let's Think Secondary Science (NA)	Effect Size: -0.003 LCI: -0.054 UCI: 0.048 Weight: 0.55 Standard error: 0.026	
Snyder (1995) 1_2	Cooperative and Individual Learning and Student Misconceptions in Science (Contemporary Educational Psychology)	Effect Size: -0.02 LCI: -0.303 UCI: 0.263 Weight: 0.523 Standard error: 0.144	

Author	Title	Effect Size	Effect Size (Graph)
Aguirre (1997) CL	The effects of cooperative, competitive, and individual computer-assisted instruction on the achievement of middle school students (NA)	Effect Size: -0.021 LCI: -0.714 UCI: 0.672 Weight: 0.416 Standard error: 0.354	
Biggart (2015)	Quest: Evaluation report and executive summary (NA)	Effect Size: -0.03 LCI: -0.116 UCI: 0.056 Weight: 0.548 Standard error: 0.044	
Klingner (1996)	Reciprocal Teaching of Reading Comprehension Strategies for Students with Learning Disabilities Who Use English as a Second Language (The Elementary School Journal)	Effect Size: -0.032 LCI: -0.801 UCI: 0.737 Weight: 0.394 Standard error: 0.392	
Guntermann (1987) CL	Collaborative problem-solving with Logo: Effects of group size and group composition (Journal of Educational Computing Research)	Effect Size: -0.038 LCI: -1.018 UCI: 0.942 Weight: 0.335 Standard error: 0.5	
Calderón (1998)	Effects of Bilingual Cooperative Integrated Reading and Composition on Students Making the Transition from Spanish to English Reading (The Elementary School Journal)	Effect Size: -0.058 LCI: -0.355 UCI: 0.24 Weight: 0.52 Standard error: 0.152	
Ho (2007)	Cooperative learning: exploring its effectiveness in the physics classroom (Asia-Pacific Forum on Science Learning and Teaching)	Effect Size: -0.059 LCI: -0.498 UCI: 0.379 Weight: 0.488 Standard error: 0.224	
Guthrie (1998) 1_1	Does concept-oriented reading instruction increase strategy use and conceptual learning from text? (Journal of Educational Psychology)	Effect Size: -0.079 LCI: -0.494 UCI: 0.335 Weight: 0.494 Standard error: 0.211	
Tsai (2002) CL	Do Male Students Often Perform Better Than Female Students When Learning Computers?: A Study of Taiwanese Eighth Graders' Computer Education through Strategic and Cooperative Learning (Journal of Educational Computing Research)	Effect Size: -0.093 LCI: -0.532 UCI: 0.345 Weight: 0.488 Standard error: 0.224	
Mevarech (1985) 1_2	The effects of cooperative mastery learning strategies on mathematics achievement (Journal of Educational Research)	Effect Size: -0.1 LCI: -0.583 UCI: 0.383 Weight: 0.476 Standard error: 0.246	

Author	Title	Effect Size	Effect Size (Graph)
Smith (1981)	Can conflict be constructive? Controversy versus concurrence seeking in learning groups. (<i>Journal of Educational Psychology</i>)	Effect Size: -0.102 LCI: -0.627 UCI: 0.422 Weight: 0.465 Standard error: 0.267	
Johnson-Glenberg (2000) 1_2	Training reading comprehension in adequate decoders/poor comprehenders: Verbal versus visual strategies (<i>Journal of Educational Psychology</i>)	Effect Size: -0.103 LCI: -0.767 UCI: 0.562 Weight: 0.425 Standard error: 0.339	
McDermott (1985) CL	Effects of cooperative learning strategies on computer literacy of fifth and sixth grade students (<i>NA</i>)	Effect Size: -0.111 LCI: -0.527 UCI: 0.306 Weight: 0.493 Standard error: 0.212	
Webb (1985) CL	The role of gender in computer programming learning processes (<i>Journal of Educational Computing Research</i>)	Effect Size: -0.112 LCI: -0.644 UCI: 0.419 Weight: 0.463 Standard error: 0.271	
Shupe (2003)	Cooperative learning versus direct instruction: Which type of instruction produces greater understanding of fractions with fourth graders? (<i>NA</i>)	Effect Size: -0.145 LCI: -0.712 UCI: 0.422 Weight: 0.453 Standard error: 0.289	
Tan (2007)	Group Investigation Effects on Achievement, Motivation, and Perceptions of Students in Singapore (<i>The Journal of Educational Research</i>)	Effect Size: -0.167 LCI: -0.422 UCI: 0.089 Weight: 0.528 Standard error: 0.13	
Jenkins (1994)	Accommodations for Individual Differences without Classroom Ability Groups: An Experiment in School Restructuring (<i>Exceptional Children</i>)	Effect Size: -0.188 LCI: -0.358 UCI: -0.018 Weight: 0.54 Standard error: 0.086	
Noble (1967) CL	A study of the differences between paired and individual learning from a branching program (<i>Programmed Learning and Educational Technology</i>)	Effect Size: -0.203 LCI: -0.898 UCI: 0.491 Weight: 0.416 Standard error: 0.354	
Weiss (2006)	Effects of multimedia environments on kindergarten children's mathematical achievements and style of learning (<i>Educational Media International</i>)	Effect Size: -0.23 LCI: -0.682 UCI: 0.221 Weight: 0.484 Standard error: 0.23	

Author	Title	Effect Size	Effect Size (Graph)
Ross (2002)	Is Cooperative Learning a Valuable Instructional Method for Teaching Social Studies to Urban African American Students?. (NA)	Effect Size: -0.261 LCI: -0.848 UCI: 0.326 Weight: 0.447 Standard error: 0.3	
Mevarech (1993)	Effects of Learning with Cooperative-Mastery Method on Elementary Students (The Journal of Educational Research)	Effect Size: -0.334 LCI: -0.672 UCI: 0.005 Weight: 0.511 Standard error: 0.173	
Spaulding (1984) CL 1_2	An evaluation of computer programming courses in a junior high school relating student grouping to the quality of learning (NA)	Effect Size: -0.36 LCI: -0.448 UCI: -0.277 Weight: 0.011 Standard error: 0.413	
Liu (1998) CL	The Effect of Being Hypermedia Designers on Elementary School Students' Motivation and Learning of Design Knowledge (EDMEDIA/ED-TELECOM 98 World Conference on Educational Multimedia and Hypermedia and World Conference on Educational Telecommunications)	Effect Size: -0.391 LCI: -1.043 UCI: 0.26 Weight: 0.428 Standard error: 0.332	
Snyder (1995) 1_1	Cooperative and Individual Learning and Student Misconceptions in Science (Contemporary Educational Psychology)	Effect Size: -0.394 LCI: -0.68 UCI: -0.109 Weight: 0.522 Standard error: 0.146	
Souvignier (2007)	Cooperative learning in third graders' jigsaw groups for mathematics and science with and without questioning training (British Journal of Educational Psychology)	Effect Size: -0.47 LCI: -0.803 UCI: -0.137 Weight: 0.513 Standard error: 0.17	
Noh (2005)	The Effects of Thinking Aloud Pair Problem Solving on High School Students' Chemistry Problem-Solving Performance and Verbal Interactions (Journal of Chemical Education)	Effect Size: -0.496 LCI: -1.024 UCI: 0.032 Weight: 0.464 Standard error: 0.27	
Werner (1997)	Effects of learning structure and summarization during computer-based instruction (NA)	Effect Size: -0.539 LCI: -0.991 UCI: -0.087 Weight: 0.484 Standard error: 0.231	
Cannaday (1990)	A comparative study of the relative effectiveness of computer-assisted instruction, cooperative learning and teacher-directed instruction on improving math performance of low-achieving students (NA)	Effect Size: -0.542 LCI: -1.004 UCI: -0.081 Weight: 0.482 Standard error: 0.235	

Author	Title	Effect Size	Effect Size (Graph)
Slavin (1980) 1_2	Effects of Student Teams and Peer Tutoring on Academic Achievement and Time On-Task (<i>The Journal of Experimental Education</i>)	Effect Size: -0.606 LCI: -0.962 UCI: -0.251 Weight: 0.508 Standard error: 0.181	
Graup (1985) CL	Response to literature: Student generated questions and collaborative learning as related to comprehension (Cognitive, Essays, Junior Great Books) (NA)	Effect Size: -0.616 LCI: -1.626 UCI: 0.394 Weight: 0.327 Standard error: 0.515	
Ginsburg-Block (1998)	An evaluation of the relative effectiveness of NCTM standards-based interventions for low-achieving urban elementary students. (<i>Journal of Educational Psychology</i>)	Effect Size: -0.754 LCI: -1.588 UCI: 0.079 Weight: 0.375 Standard error: 0.425	
Slavin (1985) 1_1	Effects of Whole Class, Ability Grouped, and Individualized Instruction on Mathematics Achievement (<i>American Educational Research Journal</i>)	Effect Size: -0.789 LCI: -1.073 UCI: -0.505 Weight: 0.523 Standard error: 0.145	
Ross (1988) 1_2	Improving Social-Environmental Studies Problem Solving Through Cooperative Learning (<i>American Educational Research Journal</i>)	Effect Size: -1.003 LCI: -1.33 UCI: -0.676 Weight: 0.514 Standard error: 0.167	
Johnson (1976)	Effects of cooperative versus individualized instruction on student prosocial behavior, attitudes toward learning, and achievement. (<i>Journal of Educational Psychology</i>)	Effect Size: -1.167 LCI: -1.951 UCI: -0.383 Weight: 0.39 Standard error: 0.4	
Spaulding (1984) CL 1_1	An evaluation of computer programming courses in a junior high school relating student grouping to the quality of learning (NA)	Effect Size: -2.11 LCI: -3.045 UCI: -1.175 Weight: 0.347 Standard error: 0.477	