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Summary of effects

Study	Effect size
Igel, 2010	0.44
Johnson et.al. 1981 (co-op v individualistic)	0.78
Johnson et.al. 1981 (co-op v competitive)	0.78
Johnson et.al. 2000 (learning together)	0.91
Johnson et.al. 2000 (group investigation)	0.62
Johnson et.al. 2000 (academic controversy)	0.86
Johnson et.al. 2000 (jigsaw groups)	0.09
Johnson et.al. 2000 (student-team achievement)	0.28
Johnson et.al. 2000 (cooperative integrated read & composition)	0.18
Johnson et.al. 2000 (team assisted individualization)	0.19
Kyndt et al. 2013	0.54
Nunnery, Chappell & Arnold, 2013	0.16
Puzio & Colby, 2013 (on reading comprehension)	0.20
Romero, 2009	0.40
Stoner, 2004	0.13
Weighted mean effect size	0.41

For more information about the effect sizes in the Toolkit, click [here](#).

Meta-analyses and abstracts	
Study	Abstract
Igel, 2010	Cooperative instruction is one of the most theoretically-grounded, popular, and misunderstood of the instructional strategies. Grounded within social-psychology and learning theory, properly specified cooperative instruction requires design elements such as positive interdependence and individual accountability that go beyond basic group-mediated instruction. Despite its popularity and a large corpus of literature, practitioners and researchers alike often confuse cooperative instruction with less stringent forms of group-mediated instruction. The present study clarifies this distinction, and meta-analyzes the results of twenty rigorous studies on the effect of cooperative interventions on K-12 student learning. The meta-analysis employs rigorous selection criteria to maintain internal validity and newly developed statistical adjustments to account for analytic errors found throughout much of the primary research base. Findings reveal a moderate overall effect (0.44) for cooperative interventions with differential estimates across a range of moderators. These findings are placed within the context of the larger corpus of research on cooperative learning and its implications for practitioners discussed.
Johnson et al., 1981	We reviewed 122 studies and compared the relative effectiveness of cooperation, cooperation with intergroup competition, interpersonal competition, and individualistic goal structures in promoting achievement and productivity in North American samples. These studies yielded 286 findings. Three meta-analysis procedures were used: voting method, effect-size method, and z-scores method. The results of the meta-analyses indicate (a) that cooperation is considerably more effective than interpersonal competition and individualistic efforts, (b) that cooperation with intergroup competition is also superior to interpersonal competition and individualistic efforts, and (c) that there is no significant difference between interpersonal competitive and individualistic efforts. Through multiple regression, a number of potentially mediating variables for these results are identified.
Johnson et al. 2000	Cooperative learning is one of the most widespread and fruitful areas of theory, research, and practice in education. Reviews of the research, however, have focused either on the entire literature which includes research conducted in non-educational settings or have included only a partial set of studies that may or may not validly represent the whole literature. There has never been a comprehensive review of the research on the effectiveness in increasing achievement of the methods of cooperative learning used in schools. An extensive search found 164 studies investigating eight cooperative learning methods. The studies yielded 194 independent effect sizes representing academic achievement. All eight cooperative learning methods had a significant positive impact on student achievement. When the impact of cooperative learning was compared with competitive learning, Learning Together (LT) promoted the greatest effect, followed by Academic Controversy (AC), Student-Team- Achievement-Divisions (STAD), Teams-Games-Tournaments (TGT), Group Investigation (GI), Jigsaw, Teams-Assisted-Individualization (TAI), and finally Cooperative Integrated Reading and Composition (CIRC). When the impact of cooperative lessons was compared with individualistic learning, LT promotes the greatest effect, followed by AC, GI, TGT, TAI, STAD, Jigsaw, and CIRC. The consistency of the results and the diversity of the cooperative learning methods provide strong validation for its effectiveness.
Kyndt et al., 2013	One of the major conclusive results of the research on learning in formal learning settings of the past decades is that cooperative learning has shown to evoke clear positive effects on different variables. Therefore this meta-analysis has two principal aims. First, it tries to replicate, based on recent studies, the research about the main effects of cooperative learning on three categories of outcomes: achievement, attitudes and

	<p>perceptions. The second aim is to address potential moderators of the effect of cooperative learning. In total, 65 articles met the criteria for inclusion: studies from 1995 onwards on cooperative learning in primary, secondary or tertiary education conducted in real-life classrooms. This meta-analysis reveals a positive effect of cooperative learning on achievement and attitudes. In the second part of the analysis, the method of cooperative learning, study domain, age level and culture were investigated as possible moderators for achievement. Results show that the study domain, the age level of the students and the culture in which the study took place are associated with variations in effect size.</p>
Nunnery, Chappell & Arnold, 2013	<p>This study synthesizes the mathematics achievement impacts observed in randomized Studies of the Student Teams Achievement Divisions cooperative learning model. A total of 15 randomized studies were retrieved from the extant literature. Analyses of $d = +0.16$. Cohen's d effect size estimates indicated an overall Statistically significant positive effect of. Effect size Estimates were also examined for between- class Heterogeneity to ascertain whether there were Differences in effects for younger children in Elementary settings versus adolescent children in Secondary settings. These analyses indicated That cooperative learning had a much stronger effect on student achievement for adolescent children than for younger children.</p>
Puzio & Colby, 2013	<p>We conducted a meta-analysis on the effectiveness of cooperative and collaborative learning to support enhanced literacy outcomes. Interventions considered were provided in regular education settings (i.e., not pull-out instruction) with students from Grades 2 through 12. Reviewing more than 30 years of literacy research, we located 18 intervention studies with 29 study cohorts. Included studies primarily used standardized assessments to report on students' reading, vocabulary, or comprehension achievement, which we analyzed separately. Overall, students had significantly higher literacy achievement scores when instructional interventions utilized cooperative and collaborative activity structures. The overall weighted mean effect sizes ranged from 0.16 to 0.22 ($p < .01$) with more than 94% of the point estimates being positive. Because cooperative or collaborative learning was always one of multiple intervention components, it was impossible to estimate the unique, added effects of cooperative and/or collaborative learning. Although the small number of eligible studies precludes any claims about the effectiveness of specific forms of grouping and the circumstances under which programs have more impact, our findings suggest that cooperative and collaborative grouping was a core component of effective literacy interventions, particularly at the elementary level.</p>
Romero, 2009	<p>A systematic review of 2,506 published and unpublished citations identified in a literature search on science outcomes associated with cooperative learning in secondary and early post-secondary science classrooms between 1995 and 2007 was conducted. The goal of this review was to determine what impact cooperative learning had on science achievement of students compared to traditional instruction. A tri-level screening and coding process was implemented and identified 30 original, empirical studies that met the inclusionary criteria while yielding an overall effect size estimate. The minimum methodological criteria for inclusion were as follows: (a) the study utilized a treatment/control design, (b) cooperative learning was the intervention, and the control group experienced traditional instruction, (c) the subjects in included studies were secondary or early-post-secondary students, (d) the study was performed in a science classroom, and (e) student achievement was the outcome measure. This meta-analysis describes the main effect of cooperative learning; additionally, a variety of moderator analyses were conducted in order to determine if particular study and participant characteristics influenced the effect of the intervention. The results of this review indicate that cooperative learning improves student achievement in science. The overall mean effect size was .308, a medium effect (Cohen, 1988). Moderator analyses on study participant characteristics gender and ability level were inconclusive based on the small number of studies in which data on these characteristics were disaggregated. If the intervention was structured</p>

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	<p>in a particular fashion, the effect on student achievement was greater than that for an unstructured intervention. The intervention showed a greater effect on student achievement in biology classes than in other science disciplines. Studies performed using cluster randomized or quasi-experimental without subject matching methodologies showed a greater effect on student achievement in science than studies that used the quasi-experimental with subject matching methodology. Implications for teacher education policy and recommendations for improvements in methodological practices and reporting are given.</p>
Stoner, 2004	<p>The purpose of this study was to examine the existing body of literature and through the use meta-analysis determine the effect of cooperative learning strategies on the mathematics achievement of middle-grades students, grades 4-8. A collection of 25 quantitative studies produced an effect size which indicated that cooperative learning strategies have a positive effect] on the mathematics achievement of middle-grades students. Through correlational analysis, the current study examined relationships between the duration of the studies and effect size of the studies. Also examined was the duration of the studies and grade 4 and grade 8 NAEP mathematics proficiency scores for 2003. Correlation Tables as well as scatter plots for each correlation were provided for visual examination. Also examined were the location of the studies; the particular method of data analysis that each study used; and the dependent outcome measure of each of the studies. Conclusions and recommendations for further research were provided.</p>