

EDUCATION WEEK

Children Must Be Taught to Collaborate, Studies Say

Researchers explore group work in class

By Sarah D. Sparks

May 16, 2017

At its best, collaboration in the classroom can help students think more deeply and creatively about a subject and develop more empathy for others' perspectives. At its worst, group tasks can deteriorate into awkward silences, arguments—or frustration for the one child who ends up doing everyone else's work.

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Now, as the teaching technique gains new prominence in state standards, researchers and educators are working to understand how to help students gain the skills needed to learn and work in groups.

"Learning through doing is an important component in this, ... but by itself, it's not enough," said Emily Lai, the director of formative assessment and feedback for Pearson, the educational publishing company. "Students go into these experiences with very little understanding of what they should be working toward—and so students walk away from these experiences a little jaded. Collaboration is just like any other skill; it has to be taught."

The ability to collaborate with others has become one of the most sought-after skills in both education and the workplace. **A survey by the Association of American Colleges and Universities** found that more than 80 percent of midsize or larger employers look for collaboration skills in new hires—but fewer than 40 percent of them considered new graduates prepared to work in teams.

Collaborative Standards

Partly in response to industry and higher education recommendations, both the Common Core State Standards for reading and mathematics and the Next Generation Science Standards call for students to develop skills for collaboration and group problem-solving.

Even assessments are changing to focus on the skills needed for group work. In 2015, the Program for International Student Assessment, or PISA, added interactive tasks that gauge how well students can develop shared understanding of a problem, take action together to solve it, and maintain a team organization. The first results of that test are expected this fall.

The nonprofit Partnership for 21st Century Learning, along with Pearson, this month released a report breaking down three main aspects of collaboration that need to be taught: communicating with others, resolving conflicts, and managing tasks.

Without a task that requires multiple perspectives, Lai said, students often simply divvy up different aspects of a task "and then sort of smooch it together at the end. That's not really collaborating."

That's what Emma Mercier, an assistant professor of curriculum and instruction, and graduate researcher Susan Kelly, both of the University of Illinois at Urbana-Champaign, are also finding in a large, ongoing series of studies of middle school students working in groups.

For one forthcoming study, the researchers assigned groups of students using electronic "smart" tables to answer questions on the nutrition and energy costs of different foods, using different data sources. In the

45 discussions studied, all the students could identify and repeat data facts, but the groups that engaged in more discussion of the data were able to begin to synthesize different sources of information and how they were connected.

Yet none of the groups was able to synthesize data from several sources without help from the teacher.

Mercier found in a separate study that regardless of whether middle schoolers collaborated using paper and pencil or smart tables to solve complex math-based "mystery" problems, the groups in which a student generated the first idea and then students responded to each other produced more ideas for solving problems than those in which the first idea came from a teacher.

"The elephant in the room when you have students work in groups is, if you don't explicitly teach them how to collaborate, they are not going to do it. If you just put them in groups and give them a task, that's not enough," Kelly said.

Equitable Benefits

Kelly was among several researchers at last month's meeting of the American Educational Research Association who are exploring how collaboration can improve student learning.

The quality of group discussions can be more important than the individual student's previous knowledge about a subject, according to a separate series of studies previewed at the meeting by Joshua Adams, a science of learning researcher at Arizona State University. Adams tracked the growth in understanding of small groups in secondary school and college, some of which paired students of roughly similar background knowledge and some

that had large gaps in knowledge between students on the team. While that sort of mixed-ability grouping sometimes prompts concerns that more-gifted students will be held back, Adams found students' learning was better predicted by whether they engaged in substantive conversations than by their previous knowledge. In fact, among high schoolers, the longer that students of different abilities participated in engaged groups, the more the knowledge of the subject improved for all students.

And just as students' background knowledge differs from subject to subject, Mercier found in a separate study that students' leadership roles in the groups can vary as well, even though students who are naturally more outspoken do tend to be more likely to be primary leaders. When the researcher kept the same students in groups for math and history projects, she found different students led the group in the two subjects, regardless of who had higher social status.

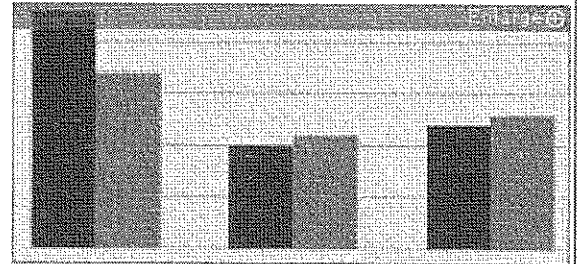
"A partner can bring in information that's not in the learning materials ... [such as] procedures they've used to solve other problems," Adams said. "Students can generate new knowledge and work at a higher learning level. Instead of trying to choose whether the high-performing students will benefit the most or low-performing students will benefit the most, if teachers focus on prioritizing interaction quality, ... both benefit."

Teachers can set the stage for better student discussions by only using group work for tasks that "are too cognitively large for any one student to do on their own," Mercier said, and by discussing and modeling appropriate talking and listening in a group.

Building Strong Discussions

How Students Respond in Group Work

In a study, researchers examined different group configurations and found that, during group work, students responded more often to ideas offered by other students than they did to those offered by teachers.



Source: Emma Mercier, University of Illinois at Urbana-Champaign

One Ohio State University researcher is piloting a program to build up students' social skills so they can better function in group work. In the program, Collaborative Social Reasoning, developed by Tzu-Jung Lin, students are separated into small groups over the course of a year and receive direct instruction on providing clear arguments with evidence, disagreeing with a teammate respectfully, providing substantive feedback, and understanding each person's responsibilities for group learning.

Teachers receive training on how to devise the kinds of tasks that will spur constructive group work. For example, the pilot study asked students to analyze the history of Japanese-American internment camps during World War II and compare them with modern debates over immigrant and minority groups.

"Through these historical backgrounds, students were able to relate the reading to their personal experiences," Lin said.

Shufeng Ma, another educational psychologist at the University of Illinois, found that students who participated in group discussions created longer chains of reasoning to answer complex essay questions. Even students who spoke less than others in a group learned more when their group engaged in complex conversations.

Ma analyzed the group discussions of 160 students in eight schools across Illinois who took part in a six-week reading unit on ecology, economic, and policy issues related to wild wolves near a community. Of more than 3,300 conversational turns, students engaged in 122 discussions in which one student explained and expanded on another student's thought.

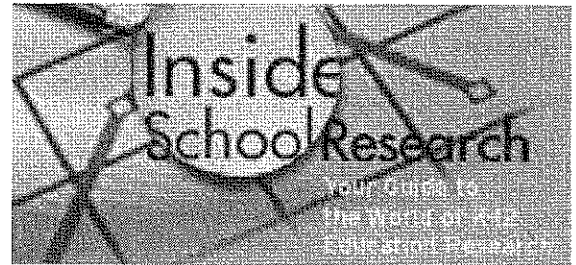
Once those conversations started, students were more likely to generate multiple chains of logic together, she found. "Reasoning is forged in talk. ... Children adopt the way other people think and talk, so conceptual relationships and the words to represent those become more accessible to children in a group discussion," she said.

Coverage of learning mindsets and skills is supported in part by a grant from the Raikes Foundation, at www.raikesfoundation.org. Education Week retains sole editorial control over the content of this coverage.

Vol. 36, Issue 31, Page 8

Published in Print: May 17, 2017, as **Classroom Collaboration: Seeking the Secret to Success**

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