

Putting Cooperative Learning to the Test

by Laurel Shaper Walters
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While studies link cooperative learning with higher achievement, defining the term and implementing the concept is a challenge.

In Terry Anderson's 3rd-grade classroom, nobody has an assigned seat. During the school day, the 23 students move from the carpet to a computer station or scatter to work at three small tables around the room. The arrangement works well, reports Anderson, a teacher at Robinson Elementary School in Kirkwood, MO. "Anywhere the kids want to settle in during their reading and writing time is fine," she says. "And this way there are more places for kids to work in groups. They're usually all over the floor."

In schools across the country, teachers are putting down their chalk and moving away from the front of the class. They are rearranging students into groups and encouraging a steady hum of voices sharing ideas. Pods of desks are replacing neat rows as the landscape of the American classroom shifts to accommodate more teamwork. Much of this activity is based on the principles of cooperative learning, in which the traditional competitive, teacher-driven approach is transformed by students' working together.

"But there's a huge difference between changing a seating arrangement and changing the way the students interact with each other as they learn," cautions Roger T. Johnson, co-director of the Cooperative Learning Center at the University of Minnesota and one of the leading researchers in this field. Johnson and his brother David have developed one of the most-used models of cooperative learning (see sidebar, p. 5). In effect, cooperative learning redefines teaching and the role of the educator. With students working together in groups, the teacher often functions as a facilitator rather than a lecturer. Students are encouraged to discover information together and to help one another learn.

Two Key Components

The cooperative learning concept is a mature one with a solid research base accumulated over several decades. This body of work has led to agreement about two components that must be present for cooperative learning to lead to significant gains in achievement.

The first key component is promoting interdependence within groups-fostering the perception among group members that they must work together to accomplish the goal. "There has to be a recognition that you're in a sink-or-swim relationship," Johnson notes. "That you can't be successful unless your partners are as well, and they can't be successful without you. That's the essence of a cooperative relationship."

Cooperative learning is most likely to go wrong when one of the students does all the work while others watch. Each of the established models of cooperative learning recommends strategies for avoiding this problem. Some popular strategies for fostering interdependence within groups include assigning a single product for the group, asking students to take on different roles (recorder, facilitator, researcher, presenter, and so on), and assigning one student in each group to become an "expert" in one particular area and report back to the others.

The second key component is holding students individually accountable for demonstrating their understanding of the material. While students should be expected to teach one another and learn

material as a group, proving their own understanding must be done individually. "Each person in the group should get up and walk away enriched and having learned something," Johnson says. "If you have 'hitchhiking' within the group, it's not yet a cooperative group."

One strategy for achieving this component is to have students teach what they have learned to someone else in their group. In project work, group members may be held responsible for their individual contributions to the goal. Alternatively, teachers may randomly choose one student to represent the group in an oral or written quiz.

Beyond these two agreed-on components, various models emphasize different additional elements, and researchers disagree about how teachers should implement cooperative learning. Some believe it can be used within an existing curriculum as long as certain basic principles are followed. Others are weaving the concept into a comprehensive reform program, embedding cooperative learning in a new curriculum. And some advocate providing exercises or "structures" that introduce cooperative learning into an existing program.

One proponent of such structures is Spencer Kagan, director of Kagan Publishing and Professional Development, which last year trained more than 20,000 teachers in cooperative learning through workshops and conferences. "We are very clear with teachers that they should make cooperative learning part of any lesson," Kagan says. "Ours is an integrated approach rather than a replacement approach."

For example, Kagan instructs teachers to use a "Timed Pair Share" structure. In this exercise, the teacher divides the class into pairs of students and poses a question. Within each pair, Student A talks about his or her answer for one minute, then Student B does the same. "In the same amount of time that you could have had two students respond, you have every student in the class respond to the question," Kagan notes.

The more than 100 structures developed by Kagan incorporate the basic principles of cooperative learning. "So when teachers are using one of these structures," he says, "they're doing good cooperative learning." Kagan developed this idea about 10 years ago after growing frustrated with more complex and comprehensive cooperative learning programs. "The message was: 'Stop what you're doing now. We've found a better mousetrap. Do cooperative learning instead.' With that approach, you get resistance."

Determining exactly how many teachers are using cooperative learning is difficult. Few national studies have been done. The best national data date back to the congressionally mandated "Prospects" study of 1993, in which 79 percent of elementary teachers and 62 percent of middle-school teachers reported making some sustained use of cooperative learning.

But narrower, in-depth studies have found that teachers' definitions of cooperative learning vary widely, so it is hard to tell what teachers mean when they claim to use it in their classrooms. In a 1998 study by researchers at the University of Washington in Seattle that surveyed teachers from six Washington State elementary schools, 93 percent said they used cooperative learning regularly. Any yet, the researchers found, these teachers "eschewed cooperative learning models that dominate the research literature."

As one teacher explained: "When I was trained in cooperative learning, it sounded so wonderful but so complex the way they laid it out. Every kid had to have a job, and they were so prescriptive. Through my teaching, I've learned that cooperative learning, for me, is just to have the kids discuss things with each other and put together a product. I was hoping I could use it full-blown all the time and learned that's not realistic."

A Great Success Story

Nevertheless, researchers consider cooperative learning one of the great success stories in educational research. "In terms of something that actually leaped across that bridge from theory to research to practice, it's hard to think of many better examples," says Robert E. Slavin, co-director of the Johns Hopkins University Center for Research on the Education of Students Placed at Risk, who has developed several well-known models of cooperative learning.

Hundreds of studies over more than three decades show a positive correlation between cooperative learning and achievement. Research has been done in every subject, at all grade levels, in all kinds of schools. And there is widespread consensus that students benefit when they can help one another learn instead of having to work apart from-or against-one another.

The concept of cooperative learning appeals to contemporary educators on several levels. For teachers dealing with increasingly diverse classrooms, it easily accommodates individual differences in achievement. Most models of cooperative learning advocate heterogeneous groups of three or four students at various levels of achievement.

Other Incentives

Other issues commonly viewed as negatives, such as peer pressure, can be turned to the teacher's advantage as students focus on a group goal. At the same time, cooperative learning encourages social and interpersonal development as students learn how to work together and to appreciate diversity. In fact, many studies credit the approach with improving cooperative attitudes outside the classroom and increasing cross-racial friendships.

Cooperative learning also garners praise from the business community, which is looking for a future work force with strong teamwork skills. Many teachers recognize this as an incentive for using the approach. "In addition to just teaching academic subjects, we also have a role in helping kids learn how to work in a group better, because jobs in the future are going to require this," says Karen Bettis, a French teacher at Parkway South High School in St. Louis, who uses cooperative-learning strategies.

But widespread acceptance does not automatically translate into consistent, effective implementation. In fact, despite the strong interest in cooperative learning, many practitioners are not implementing the concept effectively. "Cooperative learning has become so standard that sometimes it's honored in the breach," Slavin notes. "Everybody's heard of it, and they all had a course on it or some mention of it in their preservice. So they just use it from time to time. It's not seen as a big-deal innovation anymore. In some ways that undermines both the quality of implementation and the likelihood that people really understand what they're doing."

While researchers agree on the key components of successful cooperative learning, these components are not always understood or used by teachers. In Terry Anderson's 3rd-grade class, for example, students work in groups frequently. "But we don't do formal cooperative learning where everybody has a role," Anderson reports. "I just kind of make my own program. I see what works and what doesn't." And one teacher told the Washington State researchers: "I don't use cooperative learning in the sense that I'm assigning roles in the groups. I do group work."

But not all group work is cooperative learning, researchers insist, and defining the term is difficult for many educators. In the hands of poorly trained teachers, cooperative learning can dissolve into little more than loud, chaotic classrooms. "If you stop with just putting the students in a group," Johnson warns, you may not get the positive effects of cooperative learning.

The research has provided ample evidence about those positive effects. Models of cooperative learning that promote its two key components-interdependent work and individual accountability-are consistently found to lead to gains in achievement. According to a 1996 review of the literature by Slavin, 37 of 44 studies comparing traditional instruction with cooperative-learning methods, including these two elements, found significantly positive effects for cooperative learning; only 4 of 23 studies of cooperative-learning methods lacking group goals and individual accountability found positive effects on student achievement.

While some researchers view the two key elements as the core of cooperative learning, others urge educators to include several more components. "We're more demanding, if you will," Kagan says. His training includes two more basic principles. The first is "equal participation," which pushes teachers to give every student an opportunity to contribute. For example, a teacher following this principle would never ask students simply to make a list with a partner on their own. "Suzy could grab a pencil and make the list while Johnny sits and watches." Instead, Kagan recommends a "rally table" at which Student A writes one item on the list, then Student B adds something. The other principle Kagan emphasizes is "simultaneous interaction," which encourages teachers to actively involve as many students as possible at any one moment.

Other models emphasize additional elements. For example, Johnson and Johnson's Learning Together model includes work on team-building skills. "Many students need to be taught the behaviors or skills necessary to be a good partner and work together cooperatively," says Roger Johnson. This model also includes regular group discussion to evaluate the effectiveness of student groups. "When the work is done, the processing starts as you set it aside and ask: 'How well did we do as a team?' and 'What can we do next time to be more effective with each other?'"

To test the usefulness of such processing, a University of Minnesota study of 3rd-graders compared groups of students provided with a structured time and format for group processing with students working cooperatively but not allowed this time for reevaluation. "We expected that we'd find better relationships and more skillful people in the processing group, which we did," Johnson says. "But we also found that the group that was using processing had higher achievement." His conclusion: The more skillful students are at cooperating, the better the product.

Strategy or Group Rewards?

There is also some evidence that careful structuring of activities in cooperative groups can be effective. For example, a 1992 study compared students working in two cooperative situations. In one group, students were taught specific strategies for reading comprehension (such as prediction or summarization) and given "think sheets" to help them remember to use the strategies. The other group earned team scores if their members improved on weekly quizzes. Students in both cooperative groups showed a high level of engagement with the material. But the strategy group made significantly greater gains on a reading-comprehension test, suggesting that students do better when they are directed toward strategies for understanding rather than toward strategies for performing better on quizzes.

Slavin, however, is a strong promoter of the group-rewards concept. His cooperative-learning programs include opportunities for students to earn a team certificate or other recognition if all group members improve their performance on quizzes or other individual evaluations. In his review of the literature, Slavin documented positive effects on student achievement in 50 of 64 studies of cooperative-learning methods that included group rewards, while studies of methods providing no group rewards or based on a single group product found few positive effects.

"A lot of the opposition to cooperative learning has been because an A student comes home with a C," Slavin points out. "When the parents ask what happened, the kids say there's another

student in their group who keeps making trouble. The parents go ballistic, as they, frankly, should." This is why Slavin favors keeping grades separate from group rewards: "The grading system should be completely based on your own personal performance, whereas the group recognition or rewards can be parallel to that."

In her high school French classes, Bettis makes a concerted effort not to let group work jeopardize her students' grades. When she asks students to review material together before taking a quiz and then randomly chooses one student's quiz to represent the group, she emphasizes that the quiz will not be worth many points. "If I happen to choose a group member who is not very strong, it's not going to wreck the grade of the kid who really did know it," she explains. "The idea is to just put a little bit more pressure on the kids to help each other learn when they are working on the review together."

Who Benefits?

A number of studies have looked at the question of which students gain the most from cooperative learning. While the research shows that cooperative learning is effective with students across grade levels, the concept has been more readily accepted by elementary teachers. Yet interest is growing rapidly in middle and high schools. One reason is the shift toward block scheduling in high schools. "High school teachers are becoming aware that you can't just lecture at kids for 90 minutes and hold their attention," Kagan says. Two years ago, high school teachers outnumbered elementary attendees at Kagan's summer training institutes.

Advocates of cooperative learning argue that it benefits students at all achievement levels as well. A few studies have found better outcomes for high achievers than for low-achieving students, and a few have found low achievers gaining more. Most studies, however, have found equal benefits for high, average, and low achievers, Slavin reports.

The most vocal skeptics about cooperative learning are advocates for gifted students, who worry that bright students will be held back by the limits of the group. The existing research provides little evidence that gifted students are shortchanged in cooperative-learning settings. But, then, there has been very little research focused on the truly gifted. And some gifted students do express frustration with group projects. "When you explain it, you want to do it real fast because you're bored or something," says a gifted middle-schooler from a wealthy suburban district. Marian Matthews, an assistant professor at Eastern New Mexico University who interviewed gifted 6th- and 8th-graders, concluded that these students benefit most when working in homogeneous groups with other gifted students.

More to Study

Despite the extensive research on cooperative learning, today's researchers see much more to be studied. "There's a great deal more to be done in terms of development of replicable strategies," Slavin says. Much of the current research focuses on comparing existing cooperative-learning models and examining the internal dynamics of cooperative learning to determine what specific skills are needed to make it work.

As cooperative learning continues to mature, advocates are trying various tactics to persuade practitioners to implement it fully and successfully. Slavin sees great promise in the idea of weaving cooperative learning into innovative materials. "My guess is that when people get a quality cooperative-learning experience these days it's more likely to be because they think they're using a math innovation," he says. In fact, many new programs are using cooperative learning without making an issue of it. It's simply part of a well-planned curriculum. For example, the 1,500 schools implementing Slavin's Success For All program are built around cooperative

learning.

Slavin is pessimistic about "how much you can accomplish when it's just done in a Saturday afternoon workshop and then teachers go back to their classrooms and pick out the parts that they like." Most teachers are not likely to implement true cooperative learning under those conditions, he argues, and will end up not getting its full benefits.

Kagan strongly disagrees. "Cooperative learning, when viewed as a curriculum reform, gets into all kinds of trouble," he maintains. "Instead it should be introduced as a tool in the teacher's tool box that can be used in any lesson."

On both sides of such disputes, advocates of cooperative learning are relying on research to continue to provide insight into what makes it work best. And there's no evidence, Slavin says, that teachers are doing any damage when implementing their own versions of cooperative learning—although this sort of casual use may not offer all the achievement benefits. "There's some evidence that even poorly organized cooperative learning is probably improving things like race relations and attitudes toward mainstreamed kids. They're just missing out on a lot of the potential."

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