On Cooperative Learning: A Conversation with Spencer Kagan

First as a graduate student at UCLA and later as Professor of
Psychology and faculty member in the School of Education at the
University of California–Riverside, Spencer Kagan has been
researching the development of cooperation since 1967. Recently
he has devoted full time to conducting training institutes and
writing about his structural approach to cooperative learning,
which he describes here, including its effects on competitive
behavior and racial relations and the ways it differs from
other cooperative methods.

What do you mean by a "structural" approach to cooperative learning?

There are a variety of classroom structures—ways of organizing the social interaction among students. The most common structure is for students to sit passively while teachers talk at them. Then a second structure is often used to check for comprehension: Whole-Class Question-Answer. The teacher asks the question, the students who think they know the answer raise their hands, and the teacher calls on one of them. We've all seen it many times: when one student is called on, the other students who have their hands up register their disappointment with a little "Oh." It's a structure that sets the kids against each other.

So you favor the use of different structures?

Yes. That Whole-Class Question-Answer structure is used primarily to review or check for comprehension. If that were my goal, I'd use "Numbered Heads Together." I'd have the students sitting in heterogeneous teams with one high-, two middle-, and one low-achieving students on a team. Each student would have a number—*one, two, three,* or *four*. I'd ask a question as I normally would but then say, "Put your heads together and make sure everybody knows." After the students had a chance to make sure everybody on the team knew the answer, I'd call a number: "Number three's, what's the answer?" Now, with that structure, when a question is asked there is a buzz of participation among all students in the classroom. And instead of feeling bad when someone else is called on, students are glad that another student knows the answer.

—unless the student is a member of another team.

Well, we can use other structures to set up a cooperative classroom, in which a team doing well actually makes others feel good because all the teams can be gaining points toward a class goal or contributing to a class project.

That, too, is just a matter of structure, then?

Yes, we're talking about positive versus negative interdependence. When a student makes a mistake in the traditional classroom—misses a question, for example—the other students are happy. They begin waving their hands, and they feel good because now they've got a second chance to be recognized.

In contrast, students in the cooperative classroom are positively interde-

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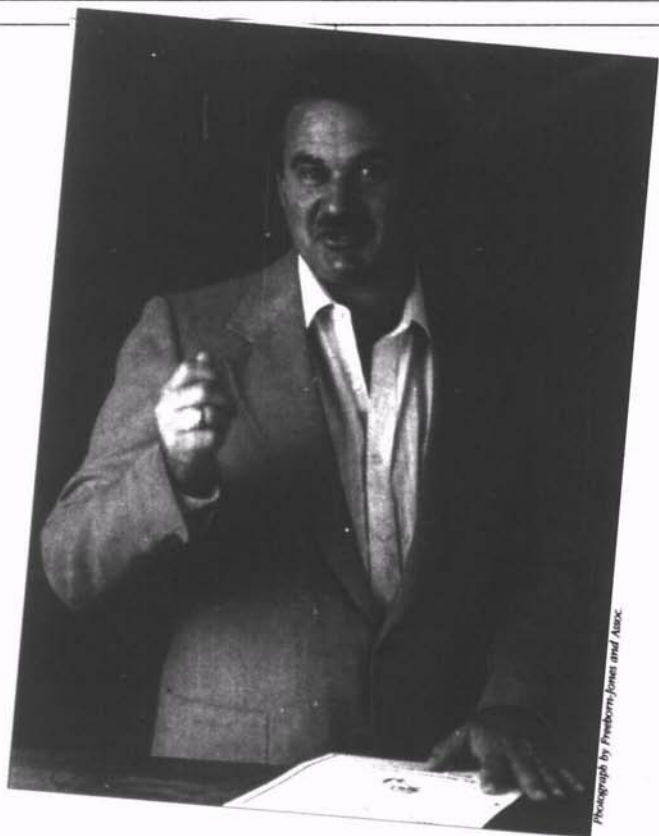
pendent. For example, you might have a class thermometer on which you post points earned by all the teams. When the class reaches a certain class goal, we all spend a little time celebrating that. Another way to create positive interdependence among teams is to have each team do one part of a class project.

It sounds as though this idea of structure goes beyond just another new method of teaching.

It's grounded in a tradition of research and thought that says our behaviors are determined to a large extent by the situations we're in. People tend to underestimate the power of situational variables. We look at someone who's behaving cooperatively or competitively and say, "She's a cooperative person" or "He's very competitive" without realizing that the person's behavior is greatly influenced by the situation.

For example, if a group of us were caught in a room with sirens outside and smoke coming under the door and the only way we could get out of the room would be to pull together, we would all be very cooperative. But if someone walked into the room and threw out a bunch of gold coins and said, "Whoever gets them, they're yours," we'd suddenly be very competitive. The same individuals will be quite cooperative or quite competitive in different situations.

How do you know how a particular structure will affect people's behavior?

We've conducted quite a bit of research on that. I personally began looking at the influence of various situations on cooperative and competitive behavior among children back in 1967. I've conducted an extensive series of research studies on that issue.

So even though your ideas are presented as practical suggestions, they've derived from a body of scholarly theory and research.

That's right. My interest in cooperation began when I was an undergraduate at UCLA. I studied with Professor Millard Madsen, who had done some research in Mexico. Madsen had developed a device with four strings on it. The idea was that to obtain toys, children could either compete by pulling against each other or could coordinate their efforts. He found that children in rural Mexico were far more cooperative than those in more urban parts of Mexico.

I became interested and began designing games and other methods for assessing the cooperativeness and competitiveness of children, both their behaviors and their motives. We discovered certain rather universal findings, including that competition increases with urbanization. We found that to be true worldwide; it didn't matter what continent or what subcultural group we went to; children were more competitive in more urban settings. If you couple that finding with the fact that the whole world is rapidly becoming more urban, you can see what our future social character will be unless we somehow intervene.

That was one of the reasons I became interested in the question of whether we could influence the competitiveness of children. One of our findings was that when we used cooperative teams in the classroom, we were able to reverse the tendency toward increasing competitiveness with age.

You're saying these were not just casual observations; you had objective measures of cooperativeness.

Yes, both behavioral and paper-and-pencil measures—in over 20 published research studies—documenting that cooperative learning leads to a more pro-social orientation among students.

Apparently your interests have turned from research to practice.

Yes, I began using cooperative learning methods in 1972 in my own classes at the University of California–Riverside. As we experimented with

those methods and found positive results among student teachers, I got more and more involved in teacher training in general and so began going into classrooms and working with students from kindergarten on up.

The turning point for me was an experiment we conducted in 1980. Irving Balow, Dean of the School of Education at UC–Riverside, gave me permission to conduct a large-scale research project with the student teachers at the school of education. That year we randomly assigned the student teachers to teach using either cooperative methods or more traditional methods. The 50 student teachers had some 2,000 pupils, and we assessed the results as broadly as we could: we had measures of ethnic relations, self-esteem, role-taking abilities, classroom climate, cooperativeness, and of course standardized achievement tests. We collected close to a million bits of data in that one research project.

One of the more important findings was a tremendous improvement in racial relations among students as a result of cooperative learning. But in the classrooms of the student teachers who were randomly assigned to use traditional methods, we found that race relations patterns were as they generally are in schools: at or near entry to school there was no self-segregation among students; by 3rd grade there emerged a slight segregation, and by 6th grade students chose as friends those of the same race. But in the classrooms where cooperative learning was used, students' highest levels of intimacy choices were their teammates—and, because we had integrated teams, we essentially eliminated self-segregation among students. Race of the other students was not a significant predictor of friendship choices.

That's fascinating.

Yes, and since that study there've been a couple of dozen very good studies supporting that general finding. We've had court-mandated desegregation in this country for some time, but it hasn't served to improve race relations, because students quickly

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self-segregate; we have desegregation without integration. With cooperative learning there is true integration because students become friends with their teammates. Several of the studies suggest that these are not trivial findings; there's generalization to cafeteria seating patterns and playground play patterns, even to friendship choices the following school year, when students are no longer in the same cooperative learning teams. When you create heterogeneous teams and make them heterogeneous not only by achievement but by race, you get strong improvement in race relations.

There are, of course, different formulations of cooperative learning. They aren't necessarily opposed to one another, but they are somewhat different. Will you contrast your approach with those of Roger and David Johnson and of Robert Slavin?

Sure. The structural approach shares with David and Roger Johnson's approach the idea of giving teachers new methods so they can teach whatever they want to teach more successfully. It's curriculum free; the choice of a structure does not involve choice of any particular curriculum or curriculum materials; in fact, the structures can be used from kindergarten through university across the curriculum.

That is in contrast, of course, to the curriculum-specific approach that Robert Slavin and the Johns Hopkins group has favored recently. On the other hand, the structural approach shares with the Johns Hopkins approaches an emphasis on specific behaviors among teachers rather than giving them general principles and leaving it up to them to decide how to structure the classroom.

We've worked hard, though, to try to incorporate the most important principles—positive interdependence and individual accountability—into the various structures. For example, if a teacher used "Numbered Heads Together," there's positive interdependence at the point where students are working together in step 3. There's individual accountability in the last step, because the teacher calls on one student and none of the other students is allowed to help.

Teachers trained in the structural approach teach quite differently from those trained only by the Johnsons or only in the Johns Hopkins approaches. Both of those approaches train the teachers in relatively few structures and don't emphasize "domains of usefulness"—when to use each. In contrast, teachers trained in the structural approach learn a great many structures and when to use them. They don't have to design ways to create positive interdependence or individual accountability—that's built into the structures. They also don't follow detailed prescriptions of what and how to teach. They concentrate on choosing the appropriate set of structures for a given academic or social goal. As teachers become fluent in the structures, they move from one to another through a lesson. The structures are tools, and the teachers use the tools to design dynamic lessons. Part of the art of teaching is choosing an appropriate structure for whatever goal you have.

You specify structures for various purposes. Are there some educational purposes for which a cooperative approach is not appropriate?

Cooperative learning methods are very powerful; they allow us to reach

our objectives more efficiently. But there are some objectives we shouldn't be trying to reach, some curriculums we shouldn't be trying to deliver. In California we've gone through a time when students have been memorizing algorithms in mathematics classes without understanding the algorithms and without having a meaningful context for working those kinds of problems. The new math framework has rightly challenged that. We have, for example, Color-Coded Co-op Cards that can be used to help students memorize math facts very efficiently. But if they're memorizing those facts without understanding, then something's wrong. That structure, which is an efficient memory structure, is only appropriate if used in conjunction with other structures that provide meaning and context for the memory work.

It's probably true that schools sometimes teach some things that shouldn't be delivered with or without cooperation, but that isn't what I had in mind. What I meant to ask is: are there legitimate objectives that should not be taught cooperatively?

Absolutely. Students need to learn to compete; they need to be able to work alone. An individualistic orientation is often very adaptive. But they also need to work together. The problem I have with the traditional approach is not that it's too competitive or too individualistic; it's that it almost never includes *any* cooperative activities.

And the structural approach helps us recognize that the conventional structure, the one most adults grew up with, is very one-sided.

Yes. Each structure has its benefits and its limits. To rely exclusively on any one structure is to limit the range of experience of students and leave them less prepared for the kind of world they'll be living in.□

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