

Cooperative Learning

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Cooperative Learning

Spencer Kagan

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Note on Numbering

This book uses a chapter based numbering system. For example, Chapter 10 begins on page 10:1, and the fifth page of Chapter 10, is numbered 10:5.

The advantage of this system is that once you know that the Mastery Structures, for example, are all found in Chapter 10, you can turn right to those structures without looking up a page number in the Table of Contents.

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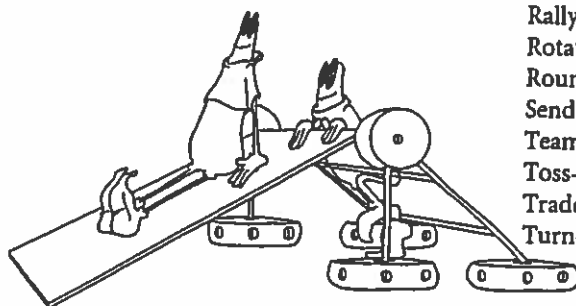
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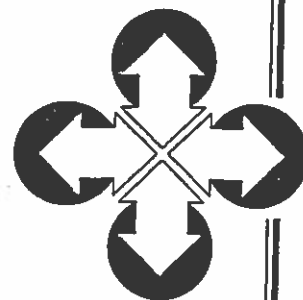


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2. Create Cards
3. Flashcard Game
4. Practice Test
5. Count Improvement Points
6. Flashcard Game
7. Final Test
8. Final Improvement Scoring
9. Individual, Team & Class Recognition
10. Reflection

STAD 17:6

1. Direct Instruction
2. Group Work for Practice
3. Individual Quiz
4. Improvement Scoring
5. Team Recognition

TGT 17:10

(Same as STAD except Tournament replaces Quiz, and points are based on out scoring others.)

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Telephone 18:1 Partners 18:1

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. A Student Exits Room 2. Remaining Students Instructed 3. Student Returns 4. Returnee Instructed by Teammates 5. Returnee Tested | <ol style="list-style-type: none"> 1. Form Partners Within Teams 2. Class Division 3. Materials Distributed 4. Partners Work 5. Partners Consult 6. Partners Prepare to Present 7. Teams Reunite 8. Partners Present & Tutor 9. Reflection 10. Individual Assessment |
|--|--|

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1. Direct Instruction
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3. Expert Group Work
4. Experts Teach Teammates
5. Individual Quiz
6. Improvement Scoring
7. Team Recognition

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1. Identify Topic; Team Selection
2. Plan the Learning Task
3. Carry Out Investigation
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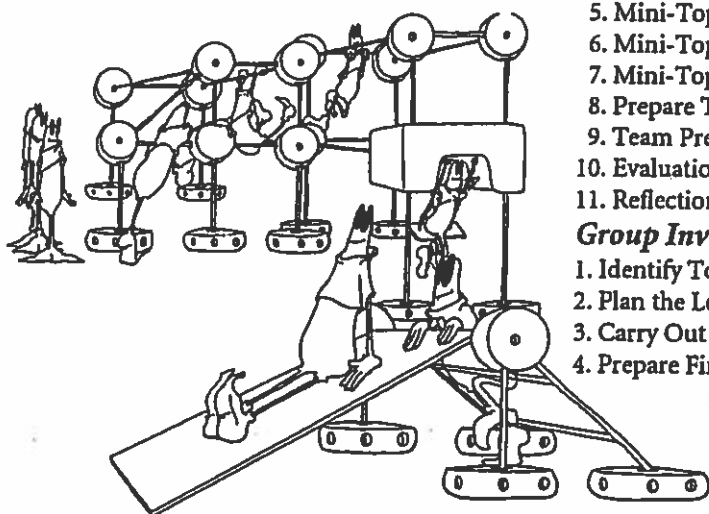
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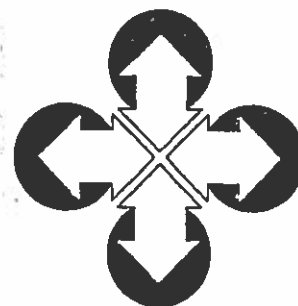
Johnson &

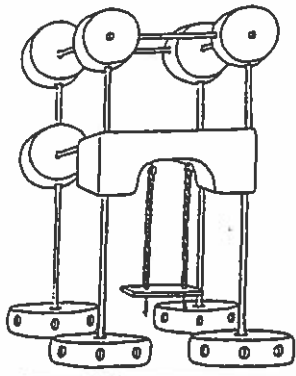
Johnson 5:9

1. Direct Instruction of Content
2. Teach Social Skills
3. Students Work in Groups
4. Teacher Observes for Social Skills & Content
5. Process Social Skills & Content

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1. Class Building
2. Teambuilding
3. Mastery
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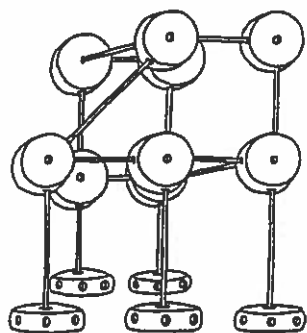




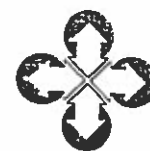
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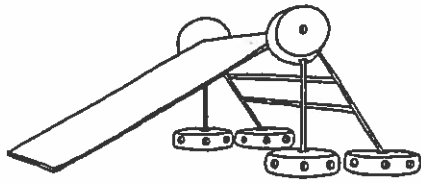


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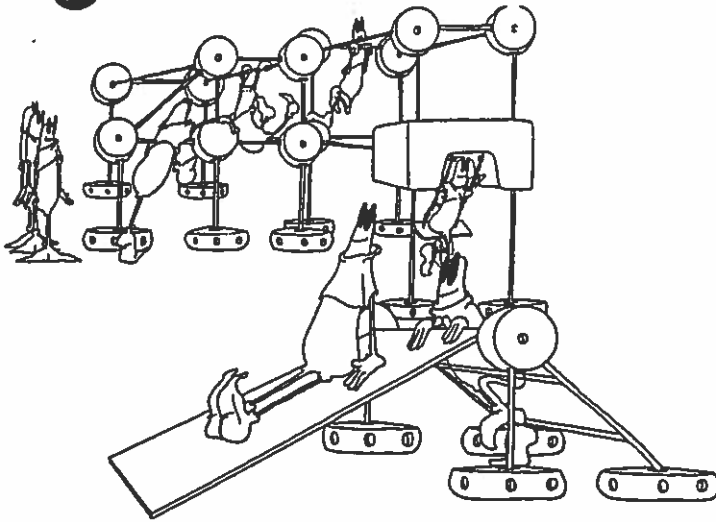
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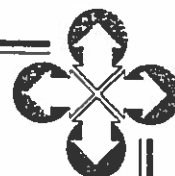
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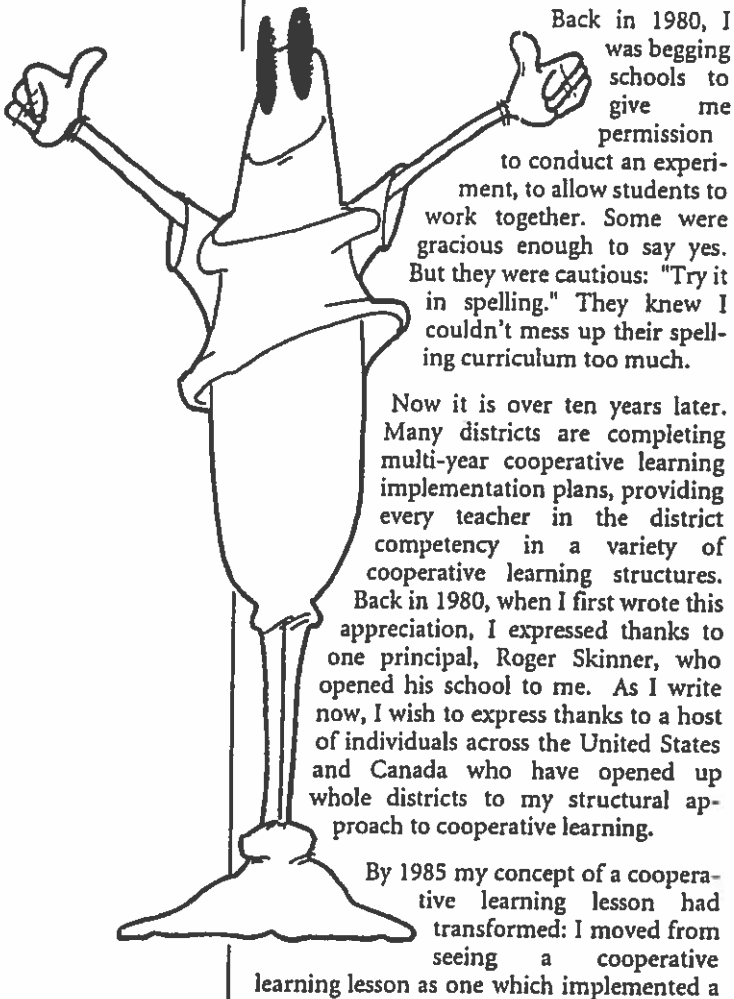
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Preface



Back in 1980, I was begging schools to give me permission to conduct an experiment, to allow students to work together. Some were gracious enough to say yes. But they were cautious: "Try it in spelling." They knew I couldn't mess up their spelling curriculum too much.

Now it is over ten years later. Many districts are completing multi-year cooperative learning implementation plans, providing every teacher in the district competency in a variety of cooperative learning structures. Back in 1980, when I first wrote this appreciation, I expressed thanks to one principal, Roger Skinner, who opened his school to me. As I write now, I wish to express thanks to a host of individuals across the United States and Canada who have opened up whole districts to my structural approach to cooperative learning.

By 1985 my concept of a cooperative learning lesson had transformed: I moved from seeing a cooperative learning lesson as one which implemented a

fully orchestrated set of learning experiences toward teacher determined learning objectives. Structures became the building blocks of a lesson.

My demonstration lessons in cooperative learning changed radically. Prior to 1985, I would demonstrate Jigsaw, or the Color-Coded Co-op Cards, or Co-op Co-op. After 1985, a typical demonstration lesson might include a half dozen structures such as Inside/Outside Circle, Three-Step Interview, and Pairs Check. The reason: I became convinced that only by multi-structural lessons can all goals be realized most efficiently.

Structures moved to the heart of my approach. Repeatedly, I found that if I gave teachers cooperative learning activities during initial training, they reported back excitedly: the activities produced enthusiastic, intense involvement and learning among their students. The teachers were hungry for more activities; they had "used up" the initial activities. In contrast, when I switched to providing teachers structures during initial training, the response was different: there was the same intense involvement and learning among students, but were the teachers not waiting for me to provide more activities. They saw numerous ways to use the structures in each of their curriculum areas all year. *Structures, unlike activities, don't get used up.*

The structures provided yet other advantages. Teachers had difficulty translating abstract concepts like positive interdependence and individual accountability into lesson plans, but they easily adopted structures like "Numbered Heads Together" and "Pairs Check." And the structures had built-in positive interdependence and individual accountability. Teachers were free to teach rather than worry about implementing abstract concepts. Training of teachers by other teachers also was facilitated: It is hard to train "cooperative learning," but easy to train one structure. Thus, schools began developing their year-long training plans, forming their Structure-a-Month Clubs.

This book is dedicated to the teachers of the future -- to those about to enter teacher training. May those kindergarten students of today experience throughout their schooling such a broad range of structures and activities that when they begin to prepare their first lesson, they would no more dream of trying to teach primarily through Teacher Talk than they would dream of going back to the 20th century.

structure; I began seeing the lesson as composed of structures.

We had discovered the power of multi-structural lessons, in which each structure built on the effects of the previous structures, moving students through a care-

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Preface

Cooperative learning was being learned in bite size pieces -- a structure at a time.

In this book, the structures are grouped by function; the chapters contain structures with common objectives. In ordering structures within chapters, when other considerations have not prevailed, I have begun with the simplest structures. A teacher might well start with the relatively easy four-step Numbered Heads structure for content mastery, before moving to the nine-step Color-Coded Co-op Cards. Similarly, among the thinking structures, Team Discussion is presented before Team Word-Webbing.

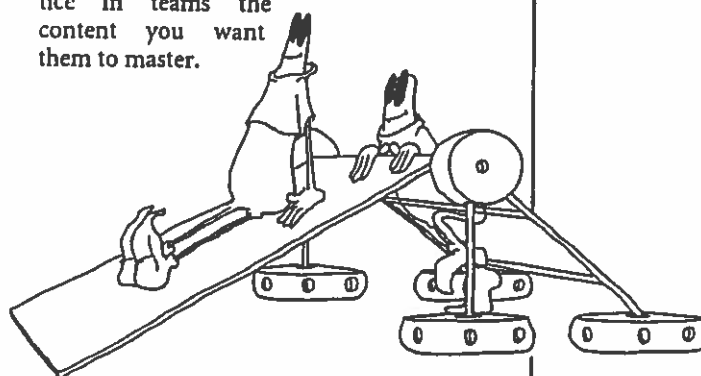
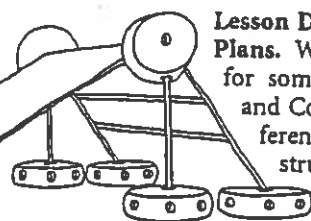
A Structure is Content Free

Lesson Designs and Lesson Plans. We have all known for some time that STAD and Co-op Co-op are different animals than structures like Roundtable and Think-Pair-Share. To call them structures is to lose sight of a fundamental distinction. Roundtable and Think-Pair-Share are Co-op Structures; STAD and Co-op Co-op are Co-op Lesson Designs. The distinction between structures and lesson designs is as important as the distinction between activities and structures.

Lesson designs are activity-free. They are frameworks, setting the goals of a lesson. A Lesson Design provides a sequenced set of sub-objectives. To reach each sub-objective, you use an activity (a structure plus content). Lesson designs hold activities (structure/content combos).. *We place activities into a lesson design to create a lesson.* One form of Co-op Lesson planning is to find the best structure/content combination to reach each sub-objective dictated by a given Co-op lesson design.

Any one lesson design can be used to deliver an infinite number of lessons. When you are in the second step of the STAD lesson design, for example, it is time for teamwork for practice. At that point, you might use Worksheet Practice, Send-A-Problem, Turn-4-Review, The Flashcard Game, or any other of the mastery structures to have students practice in teams the content you want them to master.

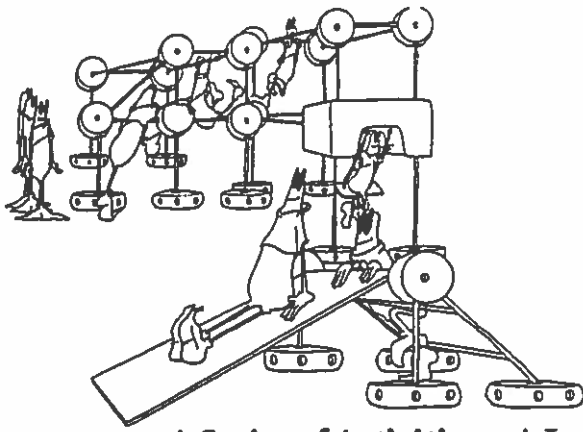
Structures hold content. *We place content into a structure to create a learning activity.* By changing either the structure or the content, we create a different activity, and a different kind of learning results. For example, a Roundrobin of favorite foods produces different learning than a Roundrobin of foods from the meat group. Similarly, holding the content constant, changing the structure changes the activity, and the resultant learning. To Roundrobin foods from the meat group produces different learning than to use Roundtable writing of the same foods. A great deal of the art of good teaching is the ability to choose the best structure/content combination to reach a given learning objective. An activity is a structure/content combination.



Structure + Content = Activity

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A Series of Activities = A Lesson

Following this model, in this book structures are presented before lesson designs. For example, mastery structures such as Numbered Heads Together and Pairs Check are presented together in a chapter on mastery structures (Chapter 10), whereas mastery lesson designs such as STAD and Color-Coded Co-op Cards are presented together in a chapter on mastery lesson designs (Chapter 17). In this edition of the book, you will find four chapters on structures, (one of which is entirely new), three new chapters on lesson designs, and one new chapter on Co-op Lesson Planning. Communication skills structures have been distinguished from Social Skills Development methods; and Information Sharing structures have been distinguished from Thinking Skills Structures. Other additions include new chapters on co-op projects, co-op management and cooperation beyond the classroom.

This edition of the book also introduces a new framework for categorizing thinking skills structures, and a new way to categorize cooperative sports. You will find many new structures, methods, and activities, as well as improved and broadened presentations of old structures and activities. For example, in the classbuilding chapter, you will find class meetings and class goals as well as many new classbuilding structures and activities.

Some old sections which had been dropped in recent editions have been revived because

of reports from teachers regarding their successes. So, for example, Rotation Learning Centers is reintroduced in an improved version.

ACKNOWLEDGEMENTS

I am most grateful to my good friend Celso Rodriguez, who did the delightful drawings. In a few lines Celso expresses more than I can with many. Each time I give Celso a concept to illustrate, I look forward to seeing what that cheerful character, Professor Jelly Bean, will do next. Miguel Kagan helped create the conceptual framework which led to this new version of the book. He also did graphics, a major part of the formatting, a bit of writing, created the student-directed multi-structural lesson, Surface Tension, and encouraged and supported me to make the book as good as I could. Without Miguel's dedication and hard work, this radically improved edition would not have been possible. Laurie Robertson kept an eye on getting this abstract ex-professor to write for teachers - she got me to focus more on teachers' needs, and provided suggestions, resources and encouragement. If this version is more understandable and friendly than previous editions, it has a lot to do with her input and her insistence that I not rush to press. Laurie got me to read and edit most of what I have written - and although it has been an embarrassing experience, the book is much improved for the effort. Jeanne Stone did a major job in proofreading. If there are errors still in the book, it is because we added them after she got done. Ben Taylor, with his positive spirits and a fresh approach, turned my scribbling into formatted words, and added graphic elements and fresh layout ideas. Catherine Gardner joined Resources in time to do final formatting.

My thanks go to so many people who have given me ideas, support, and help. Numerous teachers have contributed ideas and are mentioned in the text. Ted and Nan Graves gave me Simultaneous Roundtable, Team Word-Webbing, several teambuilding activities, and contributed to the resources section. Robert Slavin provided the material for STAD and Jigsaw II. David and Roger Johnson provided the material for Learning Together. Over the years I have come to have a deeper and fuller appreciation of their

Preface

work as I have seen the power of social roles and reflection time within teams and within classrooms. Liz Cohen wrote the section on Finding Out. Noreen Webb provided the helping role play lesson as well

as some helping processing forms based on her excellent work demonstrating the importance of teaching students how to help. Dee Dishon and Pat Wilson O'Leary provided forms from their excellent book, *A Guidebook for Cooperative Learning: A Technique for Creating More Effective Schools*. Chris Harrison created and allowed me to share Co-op Jigsaw I; Dolores Sasway contributed Workstation Jigsaw; Doug Wilkinson designed Leapfrog Jigsaw and suggested Team Worksheets. Gayle Hughes provided cooperative skill development materials and permission to reproduce materials from *Working together, Learning together! The Cooperatively Structured Classroom*. Shlomo Sharan, inspired me with his vision of cooperative learning which includes a concern for the total education of the student. Although my Co-op Co-op and his version of Group Investigation were developed independently, they share a similar philosophy and structure.

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Roger Skinner is the principal who first opened to me his school (Chaparral Middle School, Diamond Bar, California) providing me a wonderful place to experiment and learn. Chaparral has received many honors and has become a model school, leading the middle school movement. The staff continues its strong commitment to cooperative learning, serving as a visitation site for hun-

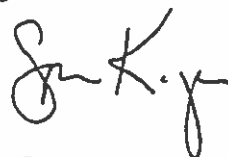
Above all, I am deeply appreciative of the many teachers, theorists, trainers, administrators, student teacher supervisors, student teachers, and students who have had the courage to turn students around. What a daring idea: Have students face each other, rather than each other's backs. In the process of this revolution, we are all students, learning from and with each other.

dreds of teachers and administrators each year, and putting on trainings for neighboring middle schools.

Those who have allowed me to work with them on their district-wide cooperative learning implementation plans include: Helen Fried (ABC School District), Frank Encinias (Coachella Valley Unified School District), Yolanda Gutierrez Miller (Pajaro School District), Dolores Sasway (Vista Unified School District), Bill Manahan (Saddleback Unified School District), Henrietta Sakamaki (Franklin-McKinley School District), Lu Hishman (Los Angeles Unified School District) John Pennoyer (Lyons County Township) and Diane Wallace (Culver City Unified School District).

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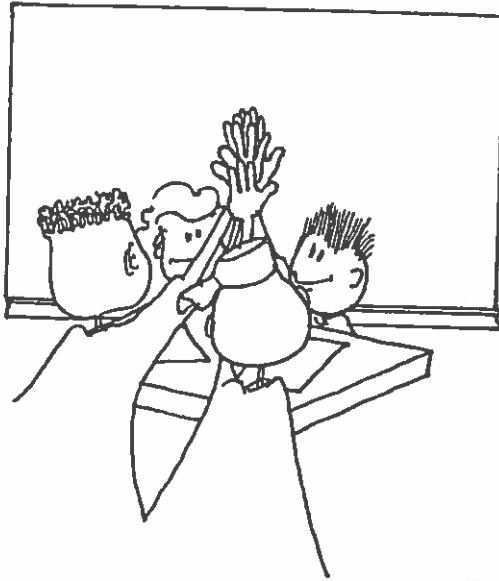
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Spencer Kagan
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Positive Outcomes



Cooperative Learning is the most extensively researched educational innovation of all time. And the results are clear.

Hundreds of lab and field research studies demonstrate that cooperative learning has a number of very positive outcomes. The three most important of these are (1) academic gains, especially for minority and low achieving students; (2) improved race-relations among students in integrated classrooms; and (3) improved social and affective development among all students. There is also evidence that cooperative learning has a positive impact on classroom climate, self-esteem among students, internal focus of control, role-taking abilities, time on task, attendance, acceptance of mainstreamed students, and liking for school and learning. References to reviews of the extensive research are provided. The following is a brief summary of the effects of cooperative learning and an examination of possible explanations of the many positive effects.

Positive Outcomes

What Does Cooperative Learning Do?

Academic Achievement.....	1
Ethnic Relations.....	1
Social & Affective Development.....	2

Why Does it Work?

Tutoring & Practice.....	3
Motivation & Rewards.....	4
Peer Support.....	5
Teachers Roles.....	6
Student Roles.....	6

What Does Cooperative Learning Do and Why?

ACADEMIC ACHIEVEMENT

Cooperative learning promotes higher achievement than competitive and individualistic learning structures across all age levels, subject areas, and almost all tasks. This conclusion is based on a number of major literature reviews including those of David and Roger Johnson (1981) who conducted a meta-analysis on 122 achievement-related studies and Robert Slavin (1983b) who analyzed 46 controlled research studies which were conducted for an extended time in regular elementary and secondary school classrooms.

Among the studies examined by Slavin, 63% showed superior outcomes for cooperative learning, 33% showed no differences, and only 4% showed

higher achievement for the traditional comparison groups. Achievement gains were found in almost all (89%) of the studies which used group rewards for individual achievement (individual accountability). When individual accountability was absent, achievement overall was about the same as in comparison classrooms.

The lowest achieving students and minority students in general benefit most, but the benefit obtained for the lower achievers is not bought at the expense of the higher achievers; the high achieving students generally perform as well or better in cooperative classrooms than they do in traditional classrooms.

ETHNIC RELATIONS

A consistent finding in cooperative learning research has been improved ethnic relations among students. In my own research involv-

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ing about 1000 students and almost 1 million bits of data, improvements in ethnic relations were greater than any other outcome from cooperative learning (Kagan and Associates, 1985). In summarizing the literature, Robert Slavin (1983a) examined 14 experiments involving students from grades 3 through 12. Overall, cross-ethnic friendships improved in the cooperative learning classrooms over control classes. In the studies using the original Jigsaw method, only one of the five ethnic relations measures showed improvement in cooperative over the control classrooms. In the remainder of the studies, however, 63 percent of the 19 tests of ethnic relations showed better ethnic relations in cooperative than control classrooms. The remaining comparisons showed no difference. Never were ethnic relations significantly better in control classrooms.

SOCIAL AND AFFECTIVE DEVELOPMENT

Social Skills

The ability to adjust one's behavior to work effectively with others and to communicate with others can be learned only in the process of working and interacting with others. Thus, cooperative learning becomes a necessary component of curriculum reform if we are to prepare our students for a job world of the future. Johnson and Associates (1981) and Slavin (1983a) have summarized the research: Cooperative learning results in more positive social development and social relations among students at all grade levels.

Dozens of studies have demonstrated that when students are allowed to work together, they experience an increase in a variety of social skills; students become more able to solve problems which demand cooperation for a solution, better able to take the role of the other, and are generally more cooperative on a variety of measures, such as willingness to help and reward others.

Self-Esteem

Almost all studies which compare the self-esteem of students following cooperative and traditional interaction, show significant gains favoring students in cooperative classrooms; the remaining studies show no sig-

nificant differences; none of the studies had results which favored traditional structures. This outcome is probably related to improved peer relations and to improved academic achievement.

Self-Direction

Students in cooperative learning classrooms become more internal in their sense of control in contrast to students in traditional classrooms who feel more externally controlled. Students from cooperative learning classrooms also have a greater sense of intrinsic, rather than extrinsic, motivation.

Liking For Class

Liking for class and improved classroom climate was found in about half of the studies comparing cooperative and traditional classrooms. Only one study favored traditional structures; in the remaining studies there was no difference.

Role-Taking Abilities

Cooperative learning results in increased cognitive and affective role-taking abilities. Theoretically, role-taking and cooperative interaction opportunities have been related to the development of a higher level of morality. Experiences in situations in which bilateral and multilateral communication are necessary probably increases the general sense of interdependence among students which, in turn, increases their understanding of the experience of others.

Why Does Cooperative Learning Work?

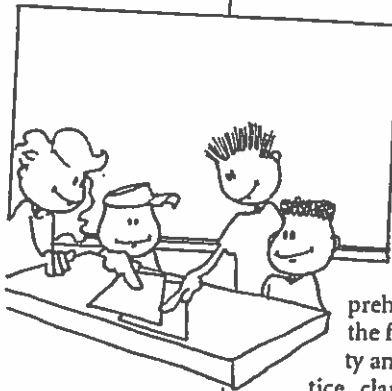
In all honesty, we do not know very much about why the use of small cooperative teams in the classroom produces such general and large positive academic and social gains. There has been considerable theorizing and speculation, but few definitive explanatory studies. In reviewing the literature on that topic, I am struck by the great number of plausible explanations for the ob-

The positive results are caused in so many ways cooperative learning is a teacher's dream, and a researcher's nightmare.

Chapter 3. Positive Outcomes

served gains. In fact, there are so many possible ways in which the cooperative techniques produce gains, that the topic is a nightmare for the serious researcher: It is probable that each technique works differently with different groups of students, and that there are many reasons for the gains observed with each technique. In this case, however, the nightmare for the researcher is a dream for the educator. There are so many positive elements in cooperative learning that adoption of cooperative classroom structures is bound to impact favorably on a number of educational outcomes. The following is a very brief outline of possible causes for observed gains in cooperative learning.

TUTORING & PRACTICE



The learning task in cooperative classrooms is different from that in traditional classrooms in a number of ways that are likely to foster academic achievement. Those ways include, as indicated, the amount of comprehensible input, complexity of input, and amount of comprehensible output. In addition the following are increased: quantity and quality of tutoring and practice, clarity of task structure, subdivision of learning unit, time-on-task, practice opportunities, and frequency and quality of rewards.

Peer Tutoring

Peer tutoring results in positive outcomes for both tutees and tutors. A meta-analysis of 65 objective studies of peer tutoring concluded that peer tutoring was effective in producing positive academic and social outcomes for both tutors and tutees. In 87 percent of the studies, students from classes that included tutoring programs outperformed students from controlled classes. The aver-

age effect size across studies was equivalent to raising the performance of students from the 50th to the 66th percentile. Importantly, in all of the eight studies that included tutee attitudes toward subject matter, student attitudes were more positive in peer tutoring classes. The effects on tutors were equally impressive. Tutors moved in achievement an equivalent of from the 50th to the 63rd percentiles and their increases in positive attitudes toward the subject matter exceeded that of the tutees.

Frequency and Type of Practice

In the well-structured mastery oriented cooperative learning methods, students spend a great deal of practice on the items they most need to learn. The students use flash cards and worksheets to master and practice skills and information, receiving repeated contact with missed items. There also is an opportunity for drill and practice also in the Jigsaw methods following the expert presentations. This structured, frequent, and often interactive practice in cooperative learning methods is probably superior for most students to group-paced work on worksheets or in workbooks. There is evidence that cooperative learning groups involve more frequent helping, tutoring, and practice than do competitive or individualistic class structures.

Time-on-Task

A consistent finding in cooperative learning research has been that students spend more time-on-task. Of ten studies examining time-on-task in cooperative and control classrooms, seven showed time-on-task is greater in cooperative classrooms. As with academic achievement, those cooperative learning methods that provided group rewards based on individual achievement most consistently related to increased time-on-task. Increased time-on-task has been associated with increased achievement across a variety of learning methods.

Increased time-on-task in the cooperative learning methods results from the game-like nature of the learning tasks, the clarity of task structures, the

The desire to express oneself to a peer, a constant problem in the traditional classroom, is channeled in the cooperative classroom toward academic achievement.

subdivision of the task into easily mastered parts, and most importantly, the interactive nature of the task. Students like to talk. The desire to express oneself to a peer, a constant problem in the traditional classroom, is channeled in the cooperative classroom toward academic achievement. So, rather than taking time away from task in the cooperative formats, peer interaction directs students toward the academic task. This is especially true because of the incentive reward structure; peers are motivated to keep their teammates on task because that behavior will result in higher rewards for their team.

MOTIVATION AND REWARDS

The reward structure in cooperative learning classrooms is radically different from that found in traditional classrooms. Rewards in cooperative learning classrooms are frequent and peer supported. In most of the methods rewards are group based. In some of the methods, the rewards are also individually-normed and equally accessible. Although in most cooperative learning methods, there are no explicit rewards for cooperative behavior (because cooperative behavior is instrumental in achieving group success), peers become supportive and rewarding of cooperativeness among their teammates; therefore, a social reward system evolves which is parallel to the academic reward system.

Pro-Academic Peer Norms and Rewards

Of eleven studies which have examined peer norms, over half showed students in cooperative learning develop significantly more positive pro-academic norms; no study revealed students in traditional classrooms to have more positive peer norms for achievement. Over a dozen studies demonstrate that cooperative learning groups involve more facilitative and encouraging interaction among students than do competitive or individualistic learning situations. This finding is particularly important as there has been a relative shift in the importance among students of peer norms as opposed to parental and teacher norms.

Frequent, Immediate Rewards

Rewards for achievement in the cooperative learning methods are more frequent and immediate than individual or competitive classes. In many of the approaches there is immediate reinforcement from peers following academic gains. In addition, there are weekly quizzes, newsletters, and/or classroom bulletin boards that give recognition to team and individual achievements. The frequency and immediacy of rewards in cooperative learning classrooms are in contrast to those received in traditional classrooms. If rewards are grades and/or written praise by the teacher following a good test performance, the rewards probably follow the learning by days. Such rewards are pitifully weak in contrast to peer praise immediately following learning successes.

Rewards for Improvement and Equal Reward Opportunity

In a number of the cooperative learning methods all students have an equal opportunity to receive rewards each week, but for different reasons. In STAD and Jigsaw II, each student's performance is compared with his or her past performance; therefore, weak and strong students have an equal chance to earn top grades. In TGT it is the bumping system that ensures that students compete against those of equal ability. In TAI, progress through the individual workbooks can occur at an equal rate for those working on beginning or advanced workbooks. Students bring their new knowledge to each workbook; therefore, difficulty remains relatively constant as students progress through the individual learning materials. With the Color-Coded Co-op Cards, students earn improvement points, as each student works on material he or she has not yet mastered. That rewards are equally accessible to all students is quite in contrast to a traditional classroom in which grading is on the curve and the basis for comparison is not individual past performance but rather the performance of other students.

Group-Based Rewards

Some cooperative learning methods include group-based rewards. A revealing set of experiments demonstrated that group rewards have a direct effect on peer tutoring and student achievement. The experimenters manipulated which students' scores would be used to determine the group grade and also how many students in a group would receive the group grade. As more students' grades were dependent on the scores of the lowest three members in the group, peer tutoring and student achievement rose. When the group grade was contingent on the scores of the highest achievers, it was the highest achievers who learned most; when the group grade was contingent on the scores of the lowest achievers, it was the lowest achievers who learned most. The group grade motivates achievement among those students who are responsible for it. Group rewards also promote prosocial behaviors; group rewards create interdependence among students which increases cooperative behaviors.

Culturally Appropriate Rewards

Certain cultural groups place a special value on working for the group -- individuals in those groups are more motivated to work hard if it will benefit the group than if it benefits only themselves. If a culture places a strong value on cooperative work and the school chooses to use competitive and individualistic structures to the exclusion of cooperative structures, there is a mismatch between home/culture values on one side and school/classroom values on the other. The school, without intending, devalues the home culture, and undermines the identity of the pupil. The likely consequence of this mismatch is alienation of minority students. Tragically, these students may be caught be-

If a culture places a strong value on cooperative work and the school chooses to use competitive and individualistic structures to the exclusion of cooperative structures, there is a mismatch between home/culture values on one side and school/classroom values on the other. The school, without intending, devalues the home culture, and undermines the identity of the pupil.

tween the two value systems, and end up alienated to some extent from both home and school values. When there is alienation from the school value system, there is a consequent alienation from the language of the school. In the struggle to form an identity which expresses the mismatch between home and school values, some minority students may avoid acquisition of speech patterns provided by the school; part of the formation of a counter culture is the formation of speech patterns which distinguish it from the mainstream culture. If schools respect the range of home cultural values represented by students, there will be less of a need for oppositional identities.

The cooperative classroom structure is more compatible with the social values of minority and other cooperative students. Students who value helping and sharing will find achievement rewarding in a cooperative classroom, whereas they will have little motivation to achieve if achievement is associated only with gains for themselves. Considerable research demonstrates that minority students are relatively more cooperative than majority students in their social orientation. Thus the particularly strong gains of minority students in cooperative classrooms may be due to the compatibility of the classroom structure with the individual social values of minority students. The choice of exclusively competitive and individualistic classroom structures may bias academic and social outcomes against the achievement of minority students.

PEER SUPPORT; LOWERED ANXIETY

In the traditional classroom almost all content related student talk occurs in one situation: Students respond to a teacher's question, speaking with the whole class as an audience. In this situation there is usually a strong competitive element. The teacher's question has a right or wrong answer, and a wrong answer is met with the waving of hands of other students more than ready to prove their ability by correcting the mistake.

Chapter 3. Positive Outcomes

In the cooperative classroom most content related student talk occurs either in pairs within teams, or in the small group. Team-members are supportive, hoping their teammates will perform well. If there is correction, it is in the process of negotiation of meaning, not in the process of evaluation. In such a situation, talking is adaptive -- it leads to content and language acquisition. And to the thing which means most to most students -- peer support and recognition.

TEACHER ROLES AND BEHAVIORS

Teachers in cooperative classrooms are freed from the responsibility of always lecturing and directing. They can become consultants and gravitate to those students who can benefit most from their attention. Further, in the properly managed cooperative learning classroom teachers are freed from many of the problems of management inherent in keeping most students quiet most of the time. In cooperative classrooms students are allowed to do what they most want to do -- communicate with their peers, and teachers are not forced to fight the natural tendencies of their pupils. The teacher in the cooperative classroom is on the same side as the students, serving not to dam up their natural expressiveness, but rather to channel it in positive directions.

STUDENT ROLES AND BEHAVIORS

Students in cooperative teams are more active, self-directing, and expressive, all of which may be associated with achievement gains. Students take direct responsibility for teaching each other and receiving help from each other. There is structural support for peer tutoring and mutual support, so peer norms for achievement emerge. Importantly, students are often given differentiated roles so that students of different ability levels have relatively equal status within their groups. ~

References:

- Johnson, D.W., Johnson, R., & Maruyama, G. Interdependence and interpersonal attraction among heterogeneous and homogeneous individuals: a theoretical formulation and a meta-analysis of the research. *Review of Educational Research*, 1983, 53, 5-54.
- Johnson, D.W., Maruyama, G., Johnson, R., Nelson, D. & Skon, L. Effects of cooperative, competitive and individualistic goal structures on achievement: a meta-analysis. *Psychological Bulletin*, 1981, 89, 47-62.
- Kagan, Spencer. Cooperative learning and sociocultural factors in schooling. In Bilingual Education Office, California State Department of Education: *Beyond Language: Social and Cultural Factors in Schooling Language Minority Students*. Los Angeles: Evaluation, Dissemination and Assessment Center, California State University, Los Angeles, 1986.
- Kagan, S., Zahn, G.L., Widaman, K.F., Schwarzwald, J. & Tyrrell, G. Classroom Structural Bias: Impact of cooperative and competitive classroom structures on cooperative and competitive individuals and groups. In R. E. Slavin, S. Sharan, S. Kagan, R. Hertz-Lazarowitz, C. Webb & R. Schmuck (Eds.) *Learning to Cooperate, Cooperating to Learn*. New York: Plenum, 1985.
- Sharan, Shlomo. Cooperative learning in small groups: recent methods and effects on achievement, attitudes, and ethnic relations. *Review of Educational Research*, 1980, 50, 241-271.
- Sharan, S., Kussell, P., Hertz-Lazarowitz, R., Bejarano, Y., Raviv, S., & Sharan, Y. *Cooperative Learning in the Classroom: Research in Desegregated Schools*. New York: Erlbaum, 1984.
- Slavin, Robert, E. *Cooperative Learning*. Review of Educational Research, 1980, 50, 315-342.
- Slavin, Robert, E. *Cooperative Learning*. New York: Longman, 1983. (a)
- Slavin, Robert, E. *When Does Cooperative Learning Increase Student Achievement?* *Psychological Bulletin*, 1983, 94, 429-445. (b)
- R. Slavin., S. Sharan., S. Kagan., R. Hertz-Lazarowits., N. Webb., R. Schmuck. (Eds.) *Learning to Cooperate, Cooperating to Learn*. New York: Plenum, 1985.

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Six Key Concepts



Traditional classroom organization is characterized by competitive or individualized social organization; collaborative group work includes students working together, but does not necessarily include the key concepts of cooperative learning.

Cooperative learning refers to a set of instructional strategies which include cooperative student-student interaction over subject matter as an integral part of the learning process. Cooperative learning practices vary greatly. Interaction over subject matter can be as simple as having students in pairs briefly discussing points of a lecture. Or the cooperative learning can be very complex, including the following: development of student teams, including a variety of complex teambuilding activities; development of a

Not all cooperative learning lessons implement all six of these key concepts, and some aspects of a cooperative learning lesson may include none. Nevertheless, competence in the following six key areas define a teacher's ability to successfully implement cooperative learning.

cooperative class atmosphere, including classbuilding activities; special training in social roles, communication skills, and group skills; assignment of specialized roles for students within teams; specialized tasks for teams; students consulting with students from other teams; complex, multi-objective lesson designs for mastery of curriculum and thinking skills; and special scoring, recognition and reward systems for individuals, teams, and classes.

Underlying the diversity which is cooperative learning are six simple concepts. Not all cooperative learning lessons implement all six of these key concepts, and some aspects of a cooperative learning lesson may include none. Nevertheless, competence in the following six key concepts defines a teacher's ability to successfully implement cooperative learning.

Six Key Concepts

1. Teams.....	1
2. Cooperative Management.....	2
3. Will to Cooperate.....	2
4. Skill to Cooperate.....	5
5. Basic Principles.....	5
6. Structures.....	9

1. Teams

What is a Team? A group may be of any size, does not necessarily have an identity or endure over time. Cooperative learning teams in contrast, have a strong, positive team identity, ideally consist of four members, and endure over time. Teammates know and accept each other and provide mutual support. Ability to establish a variety of types of cooperative learning teams is the first key competency of a cooperative learning teacher.

The most common cooperative learning team formation method assigns students to maximize heterogeneity. The heterogeneous team is a mirror of the classroom, including, to the extent possible, high, middle, and low achievers, boys and girls, and an ethnic and linguistic diversity. Heterogeneity of achievement levels maximizes positive peer tutoring, and serves as an aid to classroom management. With a high achiever on each team, introduction and acquisition of new material becomes easier. Mixed ethnicity dramatically improves ethnic relations among students.

How are Teams Formed? There are a variety of methods of teamformation. Students can group themselves by friendships or interests, random teams may be formed by the luck of the draw, or teachers can assign students to teams. Almost all theorists prefer heterogeneous teams (mixed in ability level as well as race and sex), at least most of the time, because heterogeneous teams maximize the probability of peer tutoring and improving cross-race and cross-sex relations.

One very important exception to the general use of heterogeneous teamformation methods is use of homogeneous language teams for specific objectives.

There is some disagreement about whether to create heterogeneity by forming random teams and having students become members of many teams over time, or by carefully as-

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Chapter 4. Six Key Concepts

signing students to teams mixed in ability level as well as racial and sex composition. An argument for membership in many random teams is that students learn and transfer cooperative skills to many situations. A disadvantage of random teams is that the luck of the draw can place the four lowest achievers together on a team! Unless you have a very homogeneous class, random teams generally cannot stay together very long without substantial differences in achievement among teams.

An argument for teacher assignment is that teams can be held together for a long time and students can form a strong team identity. Teams learn to learn together.

Teachers can have the best of both worlds by having heterogeneous teams and occasional random teams. The methods and issues of teamformation are covered in Chapter 6: Teams.

How Long Should Teams Last? If random teamformation is used, teams must be changed frequently, because the luck of the draw could result in "loser teams" -- the four lowest achievers in the class could end up on the same team. If teams are carefully designed by the teacher, they can stay together for a long time and students can learn how to learn together. I suggest changing teams after five or six weeks, even if they are functioning well. It enables students to transfer their new social and academic skills to new situations.

How Big Should Teams Be? Teams of four are ideal. They allow pair work which doubles participation and open twice as many lines of communication compared to teams of three. Teams larger than four often do not lead to enough participation and they are harder to manage.

~ See Chapter 6: Teams ~

2. Cooperative Management

Efficient management of a classroom of teams involves quite a number of skills not

necessary in the traditional classroom. The room is arranged so that each student has equal and easy access to each teammate (ideally each student on a team can easily put both hands on a common piece of paper) and all students are able to easily and comfortably orient forward toward the teacher and blackboard.

The teacher establishes a quiet signal which at any time quickly focuses all attention away from peer interaction and toward the teacher. Extensive use of teacher and student modeling is an efficient cooperative management technique, as is extensive use of structuring. Noise level is managed while teamwork is in progress. Efficient methods of distributing materials are established, and class rules or norms establish team as well as individual responsibilities.

~ See Chapter 7: Management ~

3. Will To Cooperate

There are three ways in which the will to cooperate is created and maintained: teambuilding, classbuilding, and use of cooperative task and reward structures including recognition systems.

Teambuilding and Classbuilding. What appears like time off task can be viewed as a very important investment in creating the

Although for many theorists teambuilding and classbuilding activities are not a defining characteristic of cooperative learning, my own experience, and that of teachers with whom I have worked, leads me to encourage teachers to use a great deal of teambuilding and classbuilding.

social context necessary for teams to maximize their potential. Again and again, I have seen greater long run efficiency, learning, and liking of class, school, and subject matter if teachers take time for teambuilding and classbuilding. When there is a positive team identity, liking, respect, and trust among teammembers and classmates, there is a context within which maximum learning can occur.

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Teambuilding and classbuilding activities provide unique learning experiences not afforded by traditional exclusive emphasis on academic content. Today in the workplace, Americans are learning the value of teambuilding, as they follow the successful lead of the Japanese. When teambuilding and classbuilding are neglected, especially in classrooms in which there are preexisting tensions, teams experience serious difficulties.

~ See Chapter 8: Teambuilding and Chapter 9: Classbuilding ~

Task and Reward Structures. The will to cooperate is determined to a large extent also by the task and reward structures. Understanding task structures and reward structures allows a teacher to design cooperative learning activities in which there is an high motivation to cooperate among all students.

Cooperative task structures are created when no one individual can complete the learning task alone. The most common way of creating a cooperative task structure is to require a group product -- a product which no one group member can produce without the help of the others. Another way, as in Jigsaw, is to provide each student with a unique portion of the learning material and make it the job of the group to master all the material.

The reward structure describes how rewards are distributed. Rewards can be given to individuals, teams, or to the class as a whole. If a reward is given to the best individual in the class, competition will almost certainly result -- each student attempting to be better than each other. Weak students compared to strong students will fail over and over and

will sooner or later "drop out" of the race. Setting students in competition is a prescription for drop out.

If rewards are based on individual improvement, an individualistic reward structure is created, and students will not necessarily feel in competition with each other, especially if it is clear that all students can improve and receive recognition. On the other hand, they will have little or no motive to cooperate.

If rewards are given based on team or class improvement or performance, then a cooperative reward structure is created and students will begin to encourage and help each other.

Group Grades. Cooperative reward structures are commonly created by making the grades of students dependent on each other. For example, you might give a group grade based on the sum of the individual achievements of the members of the group. Research reveals that cooperative reward structures are very powerful in directing the efforts of the group. For example, if the grade of the lowest achiever in a group contributes heavily to the group grade, the lowest achiever will receive a great deal of tutoring and support, and his/her achievement will improve.

Although group grades can motivate students, they create two major problems. First, if one student consistently performs poorly, resentments will build up among the other students. They will see the weaker student as preventing them from achieving a goal -- a good team score. A solution to this problem is to use improvement scoring so all students can perform well, regardless of initial ability level. The second problem with group grades occurs when group grades feed into a report card. If so, a student's report card grade can be raised or lowered by the work of another student! This is never acceptable. A solution to this second problem is to have team scores, but to use them as part of a recognition system, never as part of a report card grade.

Warning!

Group Grades

Although group grades can motivate students, they create two major problems:

Problem 1: If one student consistently performs poorly, resentments will build up among the other students. They will see the weaker student as preventing them from achieving their goal -- a good team score.

Problem 2: When group grades feed into a report card, a student's report card grade can be raised or lowered by the work of another student! This is never acceptable.

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Motivating Cooperation

Among Teams. Cooperative learning methods range from fostering intense between-team competition, sometimes even including intense tournaments, to an emphasis on between-team cooperation. The amount of cooperation or competition within and between-teams is a function of the reward and task structures, as summarized in the following table. The most cooperative classroom has cooperative reward and task structures within and among teams.

Reward Structures. Relations among teams are largely a function of the between-team reward structure. If the team grades are summed and result in a class reward when the sum reaches a certain total, there is a cooperative between-team reward structure. In this case, teams will be motivated to help and encourage each other. In contrast, if only the best teams receive recognition there is negative interdependence among teams and there exists a competitive between-team

One of the easiest and most certain ways of improving class climate when using student teams is to include class goals and class rewards. If teams are always set against each other by recognizing the best teams, a "civil war of teams" results; if instead class goals are set up, a positive "our classroom" feeling emerges. Each student feels a belonging to the class, encouraging the gains of others.

reward structure. In the short run we can motivate students by setting them against each other, but in the long run that strategy is counter-productive because it necessarily produces losers, peer norms against achievement, alienation, and drop-out.

One of the easiest and most certain ways of improving class climate when using student teams is to include class goals and class rewards. If teams are always set against each other by exclusive use of competitive between-team reward structures, a "civil war of teams" results; if cooperative between-team rewards are used, a positive "our classroom"

Creating Cooperative and Competitive Relations by Task and Reward Structures

Relations	Reward Structure	Task Structure
Cooperative Within-Team	Team Score & Team Reward	Team Product; Division of Labor Among Teammates
Cooperative Among Teams	Team Scores Contribute to Class Score which Lead to Class Celebration	Each Team makes A Unique Contribution to the Class Product
Competitive Among Teams	Team Score & Reward - Best Team Wins	Identical Team Products Invite Comparisons

Note: Cooperative Relations Within-Teams can occur with either Cooperative or Competitive Relations Among Teams.

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feeling emerges in which each student feels a belonging to the class, and is identified with the gains of each other student. Occasional between-team competition can be healthy if it is in the context of fun and within a larger context of a basically cooperative classroom in which all teams feel themselves to be on the same side, encouraging each other to do their best.

The reward structure is easy to manipulate. For example, it is simple for teachers to change the competitive between-team reward structure of STAD or Jigsaw II into a cooperative between-team structure. All that is necessary is to have the improvement points of each team contribute to a class score, and to provide a class reward when the class score reaches a certain level.

Task Structure. The between-team task structure also can be cooperative, competitive, or independent as well. For example, the work of each team may contribute to the goals of the other teams, or there may be competition for limited resources between teams. Division of labor among teams (unique team products which contribute to a class goal) is the easiest way to create a cooperative between-team task structure; identical team goals for each team and competition for limited resources are ways to create a competitive between-team task structure.

See Chapter 16: Scoring and Recognition

4. Skill To Cooperate

Some theorists include social skill development as a defining characteristic of cooperative learning -- others do not. There is no social skill component to the STAD and Jigsaw II structures. The need for instruction in social skills depends in part on the classroom and in part on the kind of cooperative

learning which is to occur. When very highly structured methods are used such as the mastery methods, which include drill and practice and little unstructured social interaction, little cooperative skill development is necessary. On the other hand, when students move to complex cooperative projects, they need help in learning how to listen to each other, resolve conflicts, set and revise agendas, keep on task, and encourage each other.

There is a variety of ways of fostering the development of social skills, including modeling, defining, role-playing, observing, reinforcing, processing, and practicing specific social skills. It is also possible to structure for skill acquisition by role assignment and use of specific structures. The four most important methods are modeling and reinforcement, role assignments, structuring, and reflection.

See Chapter 14: Social Skills

5. Basic Principles

There are four basic principles to cooperative learning: Positive Interdependence, Individual Accountability, Equal Participation, and Simultaneous Interaction. The acronym "PIES" refers to these four basic principles. PIES define cooperative learning. When any one of the four principles is not implemented, we do not have cooperative learning. For example, simply giving a task to a group with no structuring or roles is *Group Work*, not *Cooperative Learning*. Group work does not hold each individual accountable for his or her contribution (it lacks individual accountability) and group work almost always results in some students doing most or all of the work while others do little or none (it lacks equal participation). Established and effective cooperative learning structures incorporate all four of the PIES principles. If a teacher wishes to modify established cooperative learning structures, or create new cooperative learning activities, lessons or projects, an understanding of the basic principles is fundamental. For how to apply the PIES principles to cooperative projects, see Chapter 15: Cooperative Projects.

Basic Principles (PIES)



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1. Simultaneous Interaction

Cooperative learning involves simultaneous interaction among students. This simple fact goes a long way toward explaining the advantage of cooperative learning over traditional teaching.

In the traditional classroom, one person at a time speaks, usually the teacher, but occasionally a student, as the student is called on by the teacher. This is a sequential structure, in that each person participates in turn, one after the other in sequence.

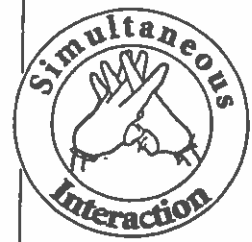
The mathematics of sequential structures are disastrous because they leave unacceptably little time per pupil for active participation. Let's examine the mathematics of sequential structures -- it goes a long way toward explaining the failure of traditional teaching methods.

In the largest study of schooling ever conducted, John Goodlad (1984) demonstrated

that teachers on the average do almost 80% of the talking in a classroom. Because some time is taken for management, less than 20% of the time is left for student talk.

At first glance, it does not seem disastrous that out of every 50 minutes the students will be allowed 10 minutes for active participation. But because the 10 minutes are spent in a sequential structure, as one student after another is called upon, the average per pupil active participation time is 10 minutes divided by 30 or just a third of a minute per student! No wonder that the dominant emotion of many students going through traditional education is boredom. They are allowed to express themselves on the average of 20 seconds a class period and listen to others, mostly the teacher, for the remaining 49 minutes and 40 seconds.

Contrast that outcome with what happens when we reorganize the classroom using the simultaneity principle. Although in the cooperative classroom the teacher would never



Sequential v. Simultaneous Structures



Goal	Sequential Structure	Simultaneous Structure
Distribute Supplies	Teacher or student walks around and hands out materials one at a time.	Materials Monitor from each team distributes materials to teammates.
Discuss Topic	One student at a time states their viewpoint.	All students discuss views in pairs.
Form Teams	Sequential reading by the teacher of students' names and assignments.	Students simultaneously look for names on tables.
Share Answers	Teacher calls on one student at a time.	All students engage in choral response.
Receive Help	Students raise hands and wait for teacher to come over.	Students ask a teammate and receive immediate help.

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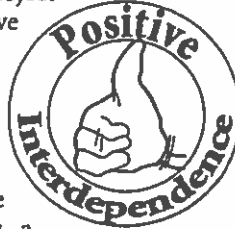
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take 40 out of the 50 minutes for him/herself to speak, for purposes of comparison, let's take the same ten minutes of time for student talk. If we abandon the sequential organization of the classroom and adopt a simultaneous structure, say a pair discussion, then active participation is not occurring for just one student at a time. At any one time half the class is talking. Thus, during the ten minutes, the average speaking time per pupil is not just 20 seconds, but rather a full five minutes. There is 15 times as much student language production over subject matter. Further, the other five minutes is also far more active than in the traditional classroom, because students are far more involved when one is speaking directly to them than when another student somewhere in the classroom is answering a question the teacher has posed.

Thus knowledge of and ability to apply the simultaneity principle is another key to maximizing positive outcomes in cooperative learning. Essentially, when all else is equal, pair work is better than teamwork, team work is better than whole-class work, and smaller teams are better than larger teams.

See Chapter 7: Management

2. Positive Interdependence



A second basic principal of cooperative learning is positive interdependence. Positive interdependence occurs when gains of individuals or teams are positively correlated. If a gain for one student is associated with gains for other students, the individuals are positively interdependent. Similarly, if the gains of one team contribute to the probability that another team will be successful, then the teams are positively interdependent.

It is important to distinguish strong and weak forms of positive interdependence. If the success of every teammember depends on the success of each member (if one fails, all do), then a very strong form of positive interdependence is created and teammembers are very motivated to make sure each student does well. For example, if our team rewards depend on all of us scoring 80% or better, we will work hard to make sure everyone performs above 80%. In contrast, if the team has to average 80% to receive the reward if we have two students who usually get around 100%, we won't be too worried if some of our teammates fall below 80%. Thus, if the success of each member depends on the success of every member, strong positive interdependence is created. If, in contrast, the team can receive a reward even if one student does very poorly, then only a weak form of positive interdependence exists, and teammate encouragement and tutoring of the weakest members is less certain. Therefore, the type of positive interdependence created has a dramatic impact on the tutoring and encouragement teammates give each other. When there is strong positive interdependence, cooperation follows.

Types of

Positive Interdependence



Weak Forms

1. The success of each teammember is likely to contribute to success of others.
2. The success of teams is likely to be facilitated by success of individual members.

Intermediate Forms

1. The success of each teammember contributes to success of all teammates, but a teammember could succeed on own.
2. The success of a team is facilitated by the success of each member, but team could succeed without success or contribution of every member.

Strong Forms

1. The success of every teammember is not possible without success/contribution of each.
2. The success of a team is not possible without success or contribution of each member.

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Positive interdependence can be created by the task structure (having a single team or class product, including division of labor among teams or individuals, limiting resources, or having a rule that a group cannot progress to a new learning center until all the students have completed an assignment). Positive interdependence can be created also by the reward structure (creating a team score which is an average of individual scores or the sum of how many students reached a predetermined criterion, choosing a randomly selected individual paper as the team score, selecting the lowest score on the team as the team score). Other ways of creating positive interdependence involve roles, goals, and resources. See box.

If positive interdependence exists, students have the subjective experience of "being on the same side" and will behave cooperatively toward each other. If, for example, I know our team will receive a grade on our team report, I will hope my teammates do well on their portions of the report and I am likely to offer encouragement and help.

A competitive social organization of the classroom exists if students are negatively interdependent. Negative interdependence exists when the gains of one are associated with losses for another. Ways to create negative interdependence are grading on the curve, posting only a few best papers, or calling on only one student when a number of students raise their hands. In situations of negative interdependence, as the teacher recognizes or rewards one student the probability of recognition or reward for other students is decreased and individuals feel competitive toward one another. For example, if I know only five papers will be posted, I am unlikely to hope for five other students in the classroom to do extremely well on their essay, and I am unlikely to offer them encouragement and help.

An individualistic social organization exists when there is non-interdependence. Non-interdependence occurs when there is no correlation between the outcomes of individuals. For example, if all students are working alone at their own pace in individual work books, and the grades of each student have no relation to those of the other students, there is non-interdependence among students; we may then speak of indi-

vidualized instruction. It is important to note, however, that the students often feel competitive toward each other during individualized instruction because of the social comparison process. For example, it is unlikely that all students will receive top grades, and those who do not are unlikely to hope for the continued success of those who do -- by the comparison process the top students make the other students appear less successful, even if the outcomes of one student do not actually influence the outcomes of others.

Structuring

Positive Interdependence



1. Goals

We all have same goal: A team mural, essay, model, or report.

2. Rewards

Team recognition based on the contributions all make.

3. Task

The task is structured so we can't do it alone: We need eight hands for this job; division of labor is more efficient; we all have important mini-topics.

4. Resources

I have the scissors, you have the paper, Jim has the glue, and Mary has the marker.

5. Roles

Complementary and necessary roles: Materials Monitor, Question Commander, Coach, Encourager, Reflector, Quiet Captain, Praiser, Cheerleader, Checker, Gatekeeper, Taskmaster, Recorder.

Two ways to avoid a competitive social comparison process if there are individualized grades are (1) to have students taking different tests, and (2) use improvement scoring.

See Chapter 16: Scoring and Recognition

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3. Individual Accountability

Including individual accountability contributes to academic gains in cooperative learning. Methods which provide a group grade or a group product without making each member accountable for his or her contribution, do not consistently produce achievement gains (Slavin, 1983).

Individual accountability can take different forms, depending on the content and cooperative learning method. One form is reward accountability. For example, if each student takes an individual test and a team grade is formed by summing or averaging the individual quiz scores of team members, there will be reward accountability if each student knows the contribution of his/her teammates to the team score. A second form of individual accountability is task accountability which occurs if each student is made accountable to the group for her/his portion of a project.

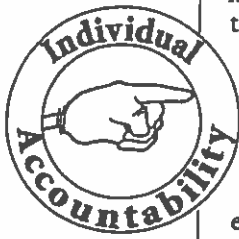
Students can be made individually accountable by having each student receive a grade

on his or her portion of the team essay or project; by having each student responsible for a unique portion of a team learning material, presentation, or product; or by instituting the rule that the group may not go on to another learning center until everyone finishes his/her task at the present learning center. Whatever the form of individual accountability, the contribution of each individual is made known to the team.

If evaluation is not based on individual products or tests, it is possible for a freerider and/or a workhorse to develop. The freerider is an individual who will accept the team grade but who does no work. The workhorse does more than his/her share. After all, if I am on a team which will have one grade on a group product, and there is no accountability for who does what, I will do different things depending on my achievement level. If I am a very bright student, I may decide the best way to ensure continued high marks is to do it all myself. If I am a low achieving student, I may decide the road to success is to let the bright student do what he or she does well -- in fact, do it all. To this end, I might loaf or even play dumb or helpless. If there is individual accountability, everything changes. If our grade is to be based on the individual work of each of us, then I and my teammates know that if each of us does not do our share, we will be letting down our teammates. This line of reasoning indicates that group test taking should be reserved for "Thursday practice time." The bottom line toward which the students are working must be improved individual achievement.

Individual accountability may exist not just for academic achievement. For example, if the teacher lets students know that following a discussion they will be asked to list ideas they have heard from others, then there is individual accountability for listening and the group will be less likely to have everyone talking and no one listening.

All of the formal cooperative learning structures except Team Discussion and Brainstorming have built-in individual accountability, but in different ways. For example, the third step of Three-Step Interview makes students accountable for listening; the last step of Numbered Heads Together makes students individually accountable for aca-



Structuring

Individual Accountability

For Achievement

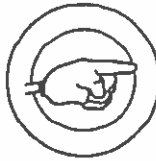
1. Color code individual contributions
2. Team scores based on individual scores
3. Give teams time to reflect on individual progress & role performance
4. Assign & grade Mini-Topics
5. Use structures like Numbered Heads Together

For Participation

1. Use Talking Chips
2. Have students summarize their participation
3. Have students take time to reflect on participation

For Listening

1. Use Paraphrase Passport, Three-Step Interview
2. Share ideas heard from others "I heard from..."



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ademic achievement, as they must respond on their own when their number is called. Similarly, individual accountability is provided in cooperative lesson designs: by the mini-topic presentations in Co-op Co-op, the individual quizzes in STAD, and the expert presentations in Jigsaw.

4. Equal Participation

Participation is an integral part of the learning process. Students learn by interacting with the content and with fellow students. Participation is an essential ingredient for student success; equal participation is an essential ingredient for the success of *all* students. If we do not structure for equal participation, it will not occur magically: Without structure, volunteer participation in heterogeneous teams gravitates toward unequal participation.

Equal participation is distinct from simultaneous interaction. The critical question to determine if there is simultaneous interaction is "*What percent of the class are active participants at any one moment?*" The critical question to determine if there is equal participation is "*How equal is the participation?*" During a Pair Discussion the simultaneity principle is satisfied (50% of the class are producing language at any one moment), but the equality principle is not (in many pairs one person does all or almost all the talking). Cooperative learning as opposed to group work satisfies all four of the PIES principles, so we conclude a Pair Discussion is group work, not cooperative learning.

During a Timed-Pair-Share (Person A in each pair shares for a specified time, followed by Person B) there is not only simultaneous interaction in the classroom, but also equal participation. A RallyRobin (A and B repeatedly take turns naming items or stating ideas) also produces not just simultaneous interaction, but also equal participation. Thus a teacher would do well to frequently substitute a Timed-Pair-Share or a RallyRobin for a Pair Discussion, if possible. Timed-Pair-Share and RallyRobin are true cooperative learning structures; in the long run they will result in learning for a larger percent of the class.

Traditional whole class structures result in very unequal participation. A Whole-Class Discussion or a Whole-Class Question-Answer session involve participation almost exclusively by the high-achieving and extroverted students. What about the timid students? Low achievers? Introverts? As educators, isn't our goal to educate all students? The traditional structure of calling on students who volunteer by raising their



hands results in our calling most on those who least need to be called on, and calling least on those who most need to be called upon! It is always the same students with their hands up and the same students who seldom or never volunteer.

In general, equal participation may be created by: 1) turn allocation and 2) division of labor. Turn allocation establishes a participatory norm. Students are not only given the opportunity to participate, but they are expected to contribute during their turn.

A Team Discussion lacks both turn allocation and division of labor and results in unequal participation in most groups. To equalize the participation we might substitute for Team Discussion a turn allocation structure such as RoundRobin or Team Interview. Alternatively, we might use division of labor to equalize participation, assigning each student a portion of the task. Division of labor is often established by assigning *task roles* (Student One is to research the historical character's early life; Student Two, his inventions; Student Three, his married family life; Student Four, his major inventions) or *maintenance roles* (Student One, you are the Quiet Captain; Student Two, you are the Materials Monitor; Student Three, you are the Task Master; Student Four, you are the Recorder). Maintenance roles alone will not ensure equal participation in the academic task.

Division of labor is at the heart of many cooperative learning lesson designs (see Jigsaw, Telephone, Co-op Co-op, and Partners). Division of labor makes each student responsible for part of the task. Students become individually accountable to their partners, teammates or classmates for doing their share. In addition to bolstering

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individual accountability, division of labor equalizes the participation as each student performs a different, but roughly equal part of the task. In some cases, because of ability differences it is more appropriate to focus on the equitability of the parts students perform rather than equality of the parts. For example, in Co-op Co-op it may be more appropriate to ask if each each student has a mini-topic at the correct level of difficulty given each student's abilities, not if all the mini-topics are equally difficult.

Participation is highly correlated with success. Students who participate are more likely to enjoy the process and to learn. If we want to provide learning for *all* our students, we must not leave equal participation out of PIES.

6. Structures

As we have seen there are many cooperative learning structures, each with a different domain of usefulness. Much of this book is an introduction to structures. Because each of the structures presented performs at least one function better than any other structure, knowledge of each structure is essential if a teacher is to be as efficient as possible in reaching the range of learning objectives.

See:

Chapter 5: Three Schools of Cooperative Learning

Chapter 10: Mastery Structures

Chapter 11: Thinking Skills Structures

Chapter 12: Information Exchanges Structures

Chapter 13: Communication Building Structures

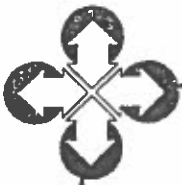
References:

Slavin, Robert, E. *When Does Cooperative Learning Increase Student Achievement?* Psychological Bulletin, 1983, 94, 429-445.

Goodlad, John, I. *A Place Called School*. New York: McGraw-Hill Book Company, 1984.

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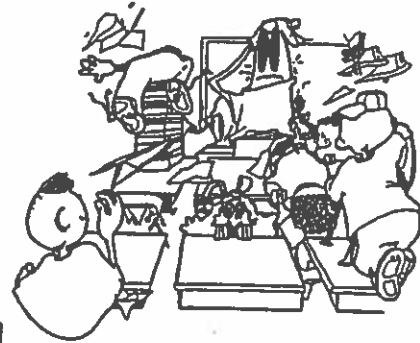


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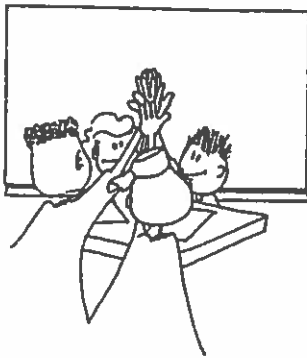
1. Teams



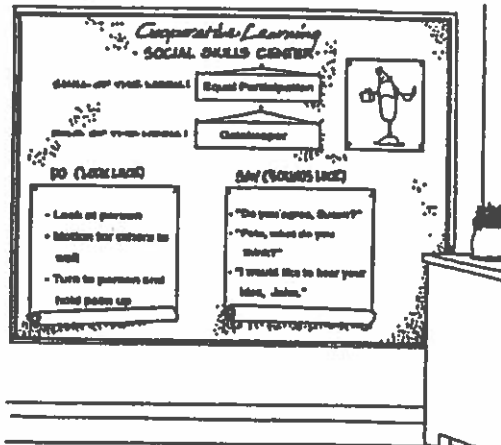
2. Management



3. Will



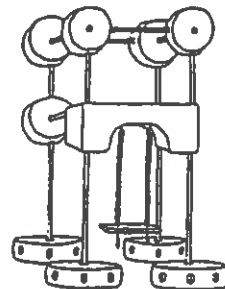
4. Skill



5. Principles



6. Structures



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