Jacobs, G. M., & Loh, W. I. (2003). Using cooperative learning in large classes. In M. Cherian & R. Mau (Eds.), *Large classes* (pp. 142-157). Singapore: McGraw-Hill.

Using Cooperative Learning in Large Classes

George M Jacobs and Loh Wan Inn

Abstract

This chapter describes how cooperative learning provides one means of making the best of the less than ideal situation that teachers face when facilitating learning in large classes. The chapter begins with a description of some of the difficulties teachers confront when using group activities with large classes. Next, background on cooperative learning is presented, including theory, research, principles, differences between cooperative learning and traditional group activities, and details of a few cooperative learning techniques.

The rest of the chapter offers practical solutions to problems and concerns of teachers who use cooperative learning in large classes. These include matters such as how to form groups, getting students' attention when they are working in their groups, arranging the seating of groups, dealing with the noise level, selecting cooperative learning techniques appropriate to large classes, and delegating responsibility to students.

Using Cooperative Learning in Large Classes

Introduction

Some concerns and questions we hear when we recommend group activities for large classes in Southeast Asia. "Our classrooms are too small." "It will waste a lot of time for students to get into groups." "How can we possibly monitor so many groups?" "A class of fifty students is hard enough to control already. Won't there be chaos if they start working in groups?" "Won't discipline suffer?" "The noise level will be too high" "Young children are too self-centered to work in groups"

Southeast Asia is a very diverse region, with a wide variety of religions, languages, and ethnic groups represented, as well as great variance in terms of wealth, with per capita incomes ranging from less than US$1000 a year to levels as high as those found in the world's wealthier countries. However, one thing the region does have in common is large class sizes. Even in relatively wealthy Singapore, forty pupils per class is the norm. Classes of fifty and sixty are common in less well-to-do nations.

How do we respond when teachers express reservations about using group activities in their large classes? First, we acknowledge that larger classes make teaching more difficult and put a strain on teachers. We express the hope that soon the only place in school that large classes will be found is in the history books in the section about how school used to be before the situation improved. That said, we go on to express our belief that group activities, when organized according to concepts and techniques from cooperative learning, help us teachers cope better with large classes.

What is cooperative learning?

Cooperative learning can be defined as concepts and techniques for enhancing the value of student-student interaction. Cooperative learning has a long history going back at least to the 19th century (Johnson & Johnson, 1999). Indeed, the ideas that "two (or more) heads are better than one" and that "many hands make light the work" have ancient roots in many of the world's cultures. In the Philippines, they call it the "Bayanihan spirit". In the Indonesian and Malay languages, it is called "gotong rayong."

Slavin (1995) notes that a wide range of theories support the use of cooperative learning. Theories that underpin cooperative learning are supported by research (for reviews, see Johnson, Johnson, & Stanne, 2000; Sharan, 1980; Slavin, 1995). Indeed, cooperative learning is perhaps the sub-field of education on which the most research has been done in many countries across all ages of students. What these studies show is that usually, but not always, group activities organized along cooperative learning principles lead to gains on an impressive variety of key variables in education, starting with gains in achievement as measured by standardized tests and other instruments. Other variables on which cooperative learning appears to have a positive impact include liking for school and for peers, self-esteem, locus of control (i.e., the idea that we have some control of our own fate), relations between different ethnic groups, acceptance of mainstreamed pupils, such as students with learning disabilities in the same class as other students, and thinking skills.

Here are a few examples of such studies. Slavin and Karweit (1984) compared the effects of cooperative learning and mastery learning on the mathematics achievement of secondary school students and found that those students who studied via cooperative learning outperformed those who used mastery learning. Calderon, et al. (1997) found that when compared with other instructional methods, cooperative learning was generally associated with higher achievement in reading among primary school students enrolled in bilingual education programs.

As noted above, in addition to achievement, cooperative learning has also been associated with better results on affective measures. For instance, Johnson and Johnson (1981) conducted a study of friendships between handicapped and non-handicapped primary school students. They reported that when compared with individualistic learning experiences, working in cooperative learning groups promoted more cross-handicap friendships among students.

What are the major principles of cooperative learning?

Different approaches to cooperative learning exist, each with a slightly different list of principles (Sharan, 1994, in press; Slavin, 1995). Below are eight principles we use in our own application of cooperative learning.

1. Positive Interdependence

This principle lies at the heart of cooperative learning. This is what encourages group members to care about and support one another in the learning process. Positive interdependence represents the feeling among group members that they "sink or swim together," that what helps one member succeed helps all members succeed, and whatever hurts any group member, hurts all (Johnson & Johnson, 1999).

Positive interdependence among group members can be encouraged in many ways. A common goal that they need to work together to achieve, such as understanding a mathematical procedure, answering a set of questions, preparing to

do well on a quiz, or writing a letter. Another means of promoting positive interdependence is via a common identity, such as a group name or handshake. We can also divide resources that group members need to share in order to complete a task, such as when each group member has unique information. Additionally, there can be a common celebration or reward that groupmates will share if they achieve their goal, such as recognition from the teacher, performing of their silent team cheer, or bonus points. Further, each group member can play a different role in helping the group to function. Some of these rotating roles include timekeeper, encourager (who encourages everyone to participate), checker (who checks that everyone has understood), noise monitor (who reminds groupmates to use quiet voices), and recorder (who takes notes on what the group has discussed and decided).

2. Individual Accountability

Whereas positive interdependence involves group members supporting one another, individual accountability is about the pressure on each group member to learn and to help their group mates learn.

Individual accountability can be encouraged in many ways (Jacobs, Gan, & Ball, 1997). For instance, each student can take a turn to tell their ideas to one or more group mates. Alternatively, one at a time, students can write their ideas on a paper that circulates among the group. Another way to foster individual accountability is for each group member to take an individual quiz or hand in an individual assignment. Yet another way is for a teacher to randomly select a group member to report and explain to another group or to the class what their group thought or did.

3. Heterogeneous Grouping

Most approaches to cooperative learning recommend that students usually, but not always, work in heterogeneous groups (Cohen, 1994). An advantage is that students learn to work with people who are different than them. In that way, they are exposed to diverse ideas and perspectives from a variety of people. Heterogeneous groups may be formed using criteria such as past achievement, ethnicity, gender, first language, and personality (for instance, talkative-quiet, hardworking-relaxed).

4. Collaborative Skills

Rather than assume that students already have the skills needed to work together, teachers provide explicit instruction and structured practice in these collaborative skills (Johnson & Johnson, 1999). Also, the class discusses the importance of such skills. Many collaborative skills play key roles in effective group function. These include asking for help, providing reasons, disagreeing politely, checking that others understand, using quiet voices, listening attentively, and taking turns.

5. Equal Participation

A common problem in groups is that some group members end up doing most of the work and, as a result, most of the learning. Cooperative learning seeks to address this by attempting to structure the interaction in the groups so as to make the participation more equal (Kagan, 1994). Cooperative learning seeks to encourage equal participation in a number of ways.

First, in some techniques no one speaks or writes twice until everyone in the group has spoken or written once. Another means is for students to have rotating roles in the group (for example, first they are the interviewer and then they are the interviewee). A third means is for each student to be given a set amount of time to

share their ideas with one or more group mates. Also, groups do not have a permanent representative who always speaks for the group. Instead, everyone gets a chance to play that role.

6. Simultaneous Interaction

This principle provides a central rationale for the use of groups, particularly in large classes. In the typical teacher-fronted classroom, the interaction pattern is sequential interaction. In other words, one person talks at a time. The classic pattern of sequential interaction involves teacher talk, then teacher nomination of individual students to talk (often to answer a question by the teacher), student response, and teacher evaluation of the student's response. In this interaction format, each student has very little opportunity to talk. This is particularly the case in large classes.

Group activities radically alter this one-at-a-time scenario, because instead of one person per class talking, now one person per group is talking simultaneously, hence the term "simultaneous interaction" (Kagan, 1994). Thus, if a class of forty-eight students are working in groups of four, twelve students (one in each group of four) are talking at the same time. If the class is working in pairs, twenty-four are talking simultaneously. The principle of simultaneous interaction is one reason for keeping groups small. With eight students per group in our class of forty-eight, only six students are talking simultaneously during group activities.

7. Group Autonomy

For many people – students, administrators, parents, and teachers – teaching means the teacher talking. So, what are we teachers supposed to do when our students are working in groups? What we should not do is to jump in and take over a group the first time students face difficulty. Instead, we should encourage groups to solve their own problems. We want to shift some of the power about what happens in the classroom and some of the responsibility for learning and behavior away from ourselves and give it to students in their groups (Baloche, 1998; Cohen, 1994).

By encouraging groups to feel more autonomous from their teachers, we are not abandoning students. We are not giving them a task to do cooperatively and then heading to the school canteen for a glass of mango juice or burying ourselves at our desks to catch up on marking. Instead, we are walking around monitoring the groups to see how well they understand concepts, how well they perform skills, and how well they work together. Sometimes, we intervene to help the groups function more effectively, but other times we do not.

8. Cooperation as a Value

Last, but definitely not least, comes the idea that cooperation represents not only a way to learn but also a value to appreciate and to incorporate in all aspects of our lives (Forest, 2001; Sapon-Shevin, 1999). This does not mean that competition should be banned or that students should never work alone. However, in much of today's world, cooperation is devalued and unappreciated (Kohn, 1992).

By making cooperation a value, we broaden the concept of cooperation beyond what happens in small groups of 2, 3, or 4 students. We extend the concept by encouraging students to recognize and act upon the positive interdependence that exists between themselves and others throughout the class, throughout the school, throughout their community, throughout their country, and around the world, including not just humans but other species as well. We can use man ways to promote

cooperation as a value and enhance the positive interdependence of our actions on the lives of all around us.

For instance, groups can each do an aspect of a class project. Class and school goals can be used rather than only group goals. When these goals are achieved, class or school celebrations can be held or other rewards can be given. Cooperation can extend beyond the school as well. For example, students can be involved in projects outside the school to help others and to protect the environment. Along the same lines, communication and joint tasks can be carried out with students from different schools in the same country and internationally.

Examination of these eight cooperative learning principles clearly shows the difference between cooperative learning and traditional group work. In traditional group work, we ask students to form groups and hope that everything will go well. With cooperative learning, we plan, prepare, and follow-up in order to give the group activities the best possible opportunity to succeed. Part of this planning and preparation involve drawing upon cooperative learning principles, as well as sharing ideas with other educators by discussing and examining the literature on cooperative learning.

Four Cooperative Learning Techniques

There are over 100 different cooperative learning techniques that can be used in any subject area and with any age of student. What we do is to take a cooperative learning technique, add some content, and we have a cooperative learning activity (Kagan, 1994). These four techniques have been selected because they are simple to use and do not involve students moving from one group to another. The examples given along with each technique have been taken from elementary school so that they are understandable to all readers of this chapter, but, as stated above, the techniques can be used with all ages of learners, including adults.

1. **RallyRobin** (Kagan, 1994)

This technique is done in pairs. One person is #1 who gives an idea; the other is #2 who gives another idea and #1 who gives yet another idea, etc. The teacher calls a number and then selects a few students with that number (not every student with that number) to share their partner's idea with the class.

a. Examples

- General: #1 answers Question #1 in a textbook exercise, #2 answers Question #2, #1 answers Question #3, etc.
- Mathematics (multiplication): #1 says "1 x 5 = 5," #2 says "2 x 5 = 10," #1 says "3 x 5 = 15," etc.
- Science (plant parts): #2 says "stem" and describes its function; #1 says "roots" and describes their function, #2 says "flowers" and describes their function, etc.

b. A variation is RallyTable (Kagan, 1994) is the same, except that students write instead of speaking, passing a piece of paper between them.

2. **Review Pairs** (Johnson & Johnson, 1991)

Groups of four begin as two pairs, each working with the same set of problems or questions. #1 (the Thinker) in the pair reads aloud the first problem/question and thinks aloud as they work on it. #2 (the Coach) listens, watches, and coaches. This coaching involves suggestions, encouragement, and questions, but it does not involve doing the work for the partner. Partners exchange the roles of Thinker and Coach for each subsequent problem/question. After every two problems/questions, the two pairs

in the foursome get together to discuss their responses and try to reach consensus about possible answers. After the discussion, they thank each other for their ideas and continue with the next two problems/questions.

Examples
- Language Arts: The questions that appear after a reading passage can be used.
- Social Studies: Students can think aloud about hypothetical situations that involve changes to the current situation, e.g., How would the place we live be different if no one had cars?

3. **Question-and-Answer Pairs** (Johnson & Johnson, 1991)
In this technique, each member of a pair writes questions/problems. These questions can involve only retrieval of information already covered, or the questions can involve higher order thinking. Then, students write answers to their own questions. Next, students trade questions, answer each other's questions (providing support for their answers), and then compare answers.

Examples
- Mathematics: Students write problems that are similar to the ones in their textbook. In their answers, they show the steps involved in solving the problems.
- Science: After finishing a chapter on water in their textbook, students write multiple choice and open-ended questions to trade with their partners.

4. **Numbered Heads Together** (Kagan, 1994)
In this technique, each member of a group of four has a number, for instance, 1, 2, 3, or 4 if students are in a foursome. The teacher asks a question and group members literally and figuratively put their heads together to develop an answer to the question and reasons to support their answer. Then, the teacher calls a number (1, 2, 3, or 4) at random. Students with that number give and explain their group's answer.

Examples
- General: Teachers can use the questions in the textbook or workbook.
- Language Arts: The teacher can give students sentences with grammar errors. Students need to find the error, say why it is an error, and redo the sentence in a correct form.
- Science: Students put their heads together to plan an investigation to answer a question.

Why Use Cooperative Learning in Large Classes

Now, let us return to the specific case of cooperative learning in large classes. Is cooperative learning more difficult in large classes? Yes, but so is any type of teaching. The point, however, is that the problem of large classes makes cooperative learning even more necessary than it is in smaller classes. Here are three reasons why cooperative learning is particularly useful in large classes.

First, in a teacher-fronted mode of instruction, the larger the class, the less each student gets to speak. As mentioned in the principle of Simultaneous Interaction, cooperative learning helps students become more active. The talking that students do in groups pushes them to understand better so as to be able to put their understanding into words. Second, in large classes, it is difficult for teachers to provide much

feedback to individual students. In contrast, with cooperative learning, group mates are right there to supply feedback. Third, in large classes, students may easily feel lost and anonymous. However, with cooperative learning, each person is part of a group that cares about whether they are present and how they are doing.

The Details of Using Cooperative Learning in Large Classes

As mentioned earlier, cooperative learning requires planning, preparation, and follow-up. In this part of the chapter, we share detailed ideas for dealing with the issues raised in the opening paragraph of this chapter. These ideas come from our discussions with teachers in Southeast Asia, our observation of their classes, our own teaching, and books on cooperative learning (Jacobs, Power, & Loh, in press).

"Our classrooms are too small"

With twenty-five students in a normal-sized classroom, arranging the seating for cooperative learning poses few difficulties. However, with a lot of students in a cramped classroom, careful planning is needed so that the seating works. Here are some pointers.

(1) Students should sit close to one another. This facilitates the sharing of materials, the use of quiet voices that do not disturb other groups (e.g., 15 cm voices – ones that can only be heard 15 cm away), and a feeling among group mates that they are, indeed, part of a group. (2) The seating arrangement should allow space for us to walk around the room and monitor all the groups. (3) Keeping group size small, four or less, makes it easier to arrange the seating. In fact, pairs are probably the easiest size to arrange. Big groups make individual accountability and equal participation more difficult, because individuals are more likely to avoid responsibility or be left out in a large group. (4) A uniform arrangement for all groups is preferred. Each pupil has a number in their group, e.g., 1, 2, 3, or 4, with all the number 1s seated in the same place in their groups. In this way, students and teachers know who in each group has which number.

"It will waste a lot of time for students to get into groups"

We have seen students take five or more noisy, chaotic minutes to arrange themselves into their groups. Here are some things we can do to avoid this.

Firstly, students should be in the same group for at least five weeks. As noted above, these should be heterogeneous groups. When students stay in the same group for such a length of time, they immediately know whom they should be sitting with. Also, students have time to build a feeling of positive interdependence with their group mates.

Secondly, if possible, students should sit with their group mates all the time and desks should be arranged so that students are already sitting in groups whether or not they are working as a group. In this way, no moving is necessary. Thirdly, if movement is necessary, the class should practice moving quickly and quietly into groups. Finally, if chairs or desks, not just students, need to move, tape or other kind of marking on the floor can make this easier.

"How can we possibly monitor so many groups?"

Another disadvantage of large classes is that teachers have more students to monitor. As stated previously in regard to the principle of group autonomy,

cooperative learning reduces this burden a bit because peers, not just teachers, are doing the monitoring. Here are some ideas on how we can observe groups.

After an activity has begun, we can make a quick tour to check that all the groups seem to be on track. Later, we can focus on a particular group that experience tells us is likely to have more difficulties than most. If that group seems to be doing well, probably most other groups are also doing well. On the other hand, we may want to spend some time with one of the groups that seems to be doing particularly well. That group may be using strategies that we can pass on to the rest of the class. If groups call on us for assistance, we can use the TTT policy. TTT means **T**eam **T**hen **T**eacher. In other words, students should first turn to their group mates for help. We teachers come into the picture only if the group cannot help. TTT fits with the principle of group autonomy.

"A class of fifty students is hard enough to control already. Won't there be chaos if they start working in groups?"

One of the agreeable things about teaching is that everyday is full of surprises. One of the disagreeable things about teaching is that not all those surprises are pleasant. Lessons go wrong, even lessons that have worked beautifully in the past. With a small class, we can quickly go around to each group and repair the damage. This is much more difficult with a large class. Thus, we need to try to give very clear directions. Here are a few suggestions for doing that.

We need to have everyone's attention before giving directions. One way to do this is by an attention signal. A popular attention signal is RSPA. It works like this. The teacher claps and raises a hand. Upon hearing and/or seeing this, students **R**aise their hand. When they raise their hand, they **S**top talking at the end of the sentence they are speaking. Students **P**ass the signal to groups/classmates who have not heard/seen it. Finally, students give their **A**ttention to the teacher or whoever else has given the signal.

Another key to successful lessons in large classes using cooperative learning is for students to understand the objectives of the lesson, how a particular task fits into the overall plan for the course, and how their work will be evaluated. With this understanding the directions will make more sense to students, and they will have a clearer purpose for following them.

Instructions should be written somewhere that students can refer to them, such as on an OHT, data projector, or blackboard. We might want to give the instructions step by step, rather than all at once. Also, we can demonstrate how to do the activity, with students as our group mates, or a group of students can demonstrate. As a further check, before students begin the activity, we can ask a member of the class to repeat the procedure to the whole class and/or ask a member of each group to repeat it to their group mates. Yet another idea is for one student per group to act as a facilitator who is responsible for their group working efficiently. At the same time that we try to make directions clear, we may also want to be flexible about how the activity is done, either by asking students for their suggestions or by letting them change the instructions as they go along.

"Won't discipline suffer?"

Discipline is an important factor in learning. The potential for discipline problems is greater in larger classes. Here are some ideas how cooperative learning can aid, rather than impede classroom discipline.

Because group activities add a social element to learning and provide students with a better chance to succeed (thanks to help from peers), students may enjoy class more and be more on-task. We also need to exam the tasks we use: they should be do-able, as frustration can lead to misbehavior; and they should be interesting, as boredom can lead to misbehavior.

Additionally, group activities give students more responsibility for what happens in class. Hopefully, they will exercise that responsibility wisely. This responsibility sharing can be achieved by involving students in formulating and enforcing class policies on how to behave during group activities. Such policies might include everyone has a chance to participate, everyone helps others understand, everyone asks for help when needed, everyone speaks in quiet voices, everyone follows the Attention Signal, "Together is Better,"and "We > I."

"The noise level will be too high."

One of the great things about group activities is that they give students many opportunities to talk as they brainstorm, plan, share ideas, explain, debate, question, and summarize. However, in the case of large classes, the more students in the class, the more voices there are. The more voices there are, the greater the noise level can become. Here are some ideas for achieving a noise level that, as Robert Slavin (1995, p. 142) states, "[S]hould sound like a beehive, not a sports event."

We can explain to students why the sound level should be kept down. At the same time, we can tolerate a somewhat higher sound level in return for having students be more active. Additionally, students can learn to use two different voices: a 15-centimeter or 6 inch voice in their groups (discussed above); and a class-size voice when they are speaking to the entire class.

The way students are seated can also affect the sound level. The smaller the groups and the closer together the group members are sitting, the smaller the distance their voices need to travel to be heard by their group mates. Further, one group member can act as a Noise Monitor. This is another means of sharing responsibility with students.

In addition to an attention signal, such as RSPA, we can have another signal that says, "Please continue discussing, but do so more quietly." Last, but not least, the quietest way for students to work together is by writing. Many cooperative learning techniques, e.g., RallyTable described earlier in this chapter, involve writing in addition to or instead of speaking. This writing can be done on paper or with a computer.

"Young children are too self-centered to work in groups."

Some teachers express reservations about using group activities with large classes of very young children. The characteristics of young children such as self-centeredness and impulsiveness are seen as factors that make group work difficult. As teachers, we should be facilitating children in their development of their self-concept. Group work based on the principles of cooperative learning, such as positive interdependence, helps us nurture young children's sense of identity, belonging, and acceptance by fostering care and support for one another rather than undue focus on the self. Further, the need to collaborate with peers provides a venue for young children to practice restraint.

With young children especially, it is best to start off with pair work, moving to work in slightly larger groups when they have improved their collaborative skills. Pairs can do such tasks as working on a shared puzzle with each child holding

different pieces of the puzzle, dressing a doll with each child taking turns, or working on a collage with each child making contributions. Such cooperative work teaches children to consider another person's viewpoint while nurturing their own self-confidence.

Conclusion

In this chapter, we began with a brief introduction to cooperative learning. Next, we looked at why cooperative learning should be used in large classes and made some suggestions for how this can be achieved. We have only skimmed the surface in this chapter, as the facilitation of student-student interaction is a huge topic. Fortunately, a large body of literature now exists on cooperative learning. The reference list below offers an entry point into that literature.

Faced with the difficulties that large classes can pose, teachers' first reaction may be to resort to methods of control that utilize our power over students. The authors of this chapter have at times succumbed to this temptation. Happily, what we have learned about cooperative learning provided us with better ways of dealing with large classes. When teaching large classes, we remind ourselves of the cooperative learning principle of Cooperation as a Value and imagine the world we are hoping to foster from within our classrooms. It is not a world in which people are controlled by the more powerful; it is a world in which people collaborate for the welfare of all. Toward this goal, we urge you, the readers of our chapter, to try cooperative learning in your classes large and small.

References

Baloche, Lynda. 1998. The Cooperative Classroom: Empowering Learning. Upper Saddle River, NJ: Prentice Hall.

Calderón, Margarita, Rachel Hertz-Lazarowitz, Ivory, Gail, and Robert E. Slavin. (1997). Effects of Bilingual Cooperative Integrated Reading and Composition on Students Transitioning from Spanish to English Reading. Report No. 10. Center for Research on the Education of Students Placed at Risk, Johns Hopkins University & Howard University. ERIC Document Reproduction Service No. ED 405 428

Cohen, Elizabeth. 1994. Designing Groupwork: Strategies for the Heterogeneous Classroom (2nd ed.). New York: Teachers College Press.

Forest, Liana. 2001. Crafting Creative Community: Combining Cooperative Learning, Multiple Intelligences, and Nature's Wisdom. San Clemente, CA: Kagan.

Jacobs, George. M., Gan Siowck Lee, and Jessica Ball. 1997. Learning Cooperative Learning via Cooperative Learning: A Sourcebook of Lesson Plans for Teacher Education. San Clemente, CA: Kagan Publications and Professional Development.

Jacobs, George M., Michael A. Power, and Loh Wan Inn. in press. The Teachers' Sourcebook for Cooperative/Collaborative learning. Thousand Oaks, CA: Corwin.

Johnson, David W., and Roger T. Johnson, 1991. Cooperative learning lesson structures. Edina, MN: Interaction Book Company.

Johnson, David W. and Roger T. Johnson. 1999. Learning Together and Alone: Cooperative, Competitive, and Individualistic Learning (5th ed.). Boston: Allyn and Bacon.

Johnson, David. W., Roger T. Johnson, and Mary Beth Stanne. 2000. Cooperative learning methods: A meta-analysis. Retrieved July, 2000 from the World Wide Web: http://www.clcrc.com/pages/cl-methods.html.

Johnson, Roger T. and David W. Johnson. 1981. Building Friendships between Handicapped and Non-Handicapped Students: Effects of Cooperative and

Individualistic Instruciton. *American Educational Research Journal 18*: 415-424.
Kagan, Spencer. 1994. Cooperative Learning. San Clemente, CA: Kagan Publications and Professional Development.
Kohn, Alfie. 1992. No Contest: The Case Against Competition. (2nd ed.). Boston, MA: Houghton Miflin.
Sapon-Shevin, Mara. 1999. Because We Can Change the World: A Practical Guide to Building Cooperative, Inclusive Classroom Communities. Boston: Allyn and Bacon.
Sharan, Shlomo. 1980. Cooperative Learning in Small Groups: Recent Methods and Effects on Achievement, Attitudes and Ethnic Relations. *Review of Educational Research 50*: 241-271.
Sharan, Shlomo. (Ed.). 1994. Handbook of Cooperative Learning Methods. Westport, CN: Greenwood Press.
Sharan, Shlomo. in press. Differentiating Methods of Cooperative Learning in Research and Practice. Asia Pacific Journal of Education.
Slavin, Robert E. 1995. Cooperative Learning: Theory, Research, and Practice (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.
Slavin, Robert E. and Nancy Karweit. 1984. Mastery Learning and Student Teams: A Factorial Experiment in Urban General Mathematics Classes. *American Educational Research Journal 21: 725-736.*