COLLABORATIVE LEARNING:
A MEMORABLE MODEL

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Abstract
Reform movements envision schools that will involve greater levels of cooperation and collaboration. Collaborative learning strategies provide a powerful mechanism not only to address affective goals in education but also to enhance students' cognitive development; to deepen their understanding of concepts; and to press them to examine, articulate, and elaborate their ideas with greater clarity and rigor. Unless teachers have effective means to manage the complex problem solving involved in implementing collaborative learning strategies, the rich possibilities offered will not be realized. This paper proposes a five-part conceptual framework to guide teachers' decision making in order to capitalize on these powerful strategies. The framework incorporates a "G" mnemonic to make the elements memorable.

Educators who gaze into the crystal ball envision future classrooms filled with collaborative learning activities (Howey, 1996). They imagine communities of interdependent learners functioning in structures of group accountability rather than constellations of independent learners competing in solo performances. This vision is being fueled, in part, by the demands of business and industry calling for employees who can work productively in teams to solve complex problems. Collaboration also is being supported by new views of learning that emphasize active processes of constructing knowledge that are supplanting older conceptions that see learners as passive recipients of discrete packets of information. In addition, collaborative learning activities are valued for the social and affective dividends they can bring. Such activities can serve to enhance student motivation and engagement in learning tasks. They also can improve social skills and attitudes by promoting teamwork, fostering the social cohesion of the group, and teaching tolerance for people from different backgrounds or with different abilities (Slavin, 1995).
Cooperative learning strategies are an important component in teachers' repertoires. Increasingly, teachers are expected to use collaborative strategies, and yet most teachers do not understand how to use them to their greatest advantage. Without this understanding, the initial enthusiasm many teachers have for collaboration strategies has been dampened or squelched altogether. Even those teachers who persist with cooperative learning techniques often are doing so without an adequate conceptual framework to guide them through the complex decisions necessary to take full advantage of the approach.

Teachers often understand cooperative learning as a method or set of procedures, but do not have a clear sense that different activities fit different goals and are likely to encourage different learning outcomes. They do not have the tools to assess the capabilities and challenges of their students or to identify appropriate strategies to match their learning goals with the unique characteristics of a given group. Once a group-learning process is underway, teachers often are ill-equipped to understand the underlying causes of the difficulties that arise and do not have an arsenal of remedies to address particular problems based on their underlying causes. Finally, teachers are not taught mechanisms for post-instruction evaluation so they can assess new information gained about the group, what progress was made, and what new goals are now feasible. With greater understanding of how to design and implement collaborative learning activities, teachers can use them more adeptly to foster both social and cognitive learning gains for their students (Woolfolk, 1998).

In order to organize the considerations involved in planning, implementing, and assessing collaborative learning, a five-part framework was proposed. All five parts in our framework were made to begin with the letter "G." Thus, the five "Gs" of collaboration are identified as: Group Characteristics, Goal Setting, Getting There, Guiding the Process, and Gazing Backwards and Glimpsing Ahead. The intent is to make the elements more easily remembered and to provide mental hooks for key ideas in the model. Each element is grounded in extensive research on development and learning. The overarching purpose of the framework is to help teachers design collaborative learning situations in which the quality of communication and interaction supports learning (Cohen, 1994; King, 1999; Meloth & Deering, 1999, Palincsar & Herrenkohl, 1999; Ross & Raphael, 1990; Webb & Farivar, 1999). Although
there is a certain sequence to these five elements, they should not be seen as steps to be followed in order but rather as processes that spiral and may be revisited as needed.

**Group Characteristics**

The maturity of the group as a group—how well members know each other, their comfort with one another, and their ability to work constructively together—affects the goals that the group can attain and the activities the members can accomplish to reach those goals. In addition, the maturity and developmental level of individuals within the group, the assets and liabilities each student brings to the group process, affect both goals and processes.

In planning for a collaborative learning experience, teachers should consider the developmental issues and needs typical of children at the age being taught. For example, children in fifth grade may be receptive to new intellectual challenges, while by seventh grade, social and emotional concerns may dominate and need to be addressed before energy and attention can be devoted to cognitive challenges. Beyond what is typical, however, teachers must be aware of the developmental level of their particular group of children. This may be an unusual group of ninth graders who are comfortable with themselves and with each other, who are motivated and ready to be challenged intellectually. Or it may be a group with particularly high levels of interpersonal tension, difficulties in communication, and other factors that make cooperation difficult.

Teachers need to have a sense of the continuum of social and cognitive skills for students at their grade level, how to diagnose where a particular group of students falls on that continuum, and what are reasonable next steps or goals. If social skills are lacking, then direct teaching of those skills may be required. Skills such as encouraging, asking for and giving help, or monitoring voice level may be improved with instruction but may take extensive teaching and modeling over a period of time (Webb & Farivar, 1999; Swing & Peterson, 1982). More sophisticated communication skills (e.g., checking for understanding, checking for agreement) can be added as more basic skills are mastered (Webb & Farivar, 1994). In addition, classroom norms of cooperation need to be established (Webb & Palincsar, 1996).

Teachers also must be aware of the intellectual capabilities of the students in a group. Is there a wide or narrow span of achievement levels in the group? This range affects the assignment of students to groups. Is the task likely to be relatively easy or more difficult for the...
students? A teacher whose goal is to concentrate on developing group process can choose a task that is relatively easy for the students, while a teacher who has mature, well-functioning groups, can choose a more cognitively challenging task. Special challenges such as the inclusion of children with special needs or specific learning disabilities, students with behavior difficulties, or students who struggle with the language spoken in class add to the complexity of understanding the needs of a particular group of children. In sum, teachers can take Group Characteristics into account when planning by keeping in mind these considerations and principles:

1. Get a sense of the cognitive development of the group, the span of achievement levels in the group, and the group's readiness for new challenges.

2. Assess the social and emotional maturity of the group adequate for the kinds of activities planned.

3. If necessary skills, classroom norms, or attitudes are lacking, then take steps to address the deficits, either through direct instruction or activities that will encourage their development.

**Goal Setting**

Collaborative learning techniques are designed for varying purposes. Teachers who are not clear about their own goals and who are unaware of the specific purposes of different collaborative learning strategies may be perplexed when one approach seems to work while another fails. The problem could be a mismatch of strategy and purpose.

Strategies for collaborative learning can serve two general purposes, affective or cognitive development. In the affective realm, cooperative learning techniques may be used to cultivate social skills, promote teamwork, or enhance motivation by encouraging an individual or group to put forth greater effort and persist in the face of setbacks (Johnson & Johnson 1997, 1999; Kagan, 1994; Slavin, 1995). Students learn negotiation skills and the ability to resolve the inevitable conflicts that arise when individuals with different preferences and propensities attempt to accomplish a task together. They also can learn to set attainable goals, develop plans, and manage complex tasks. Well-designed cooperative learning experiences have the potential to improve the ability to see the world from another person's point of view, to foster better relations among different ethnic groups in schools and classrooms, and promote greater acceptance of students with disabilities and low-achieving students.
(Slavin, 1995; Stipek, 1996; Webb & Palincsar, 1996). Students become more altruistic and more willing to help and encourage fellow students.

Cognitive approaches, on the other hand, are designed to enhance the quality of students' thinking and problem-solving skills (O'Donnell & O'Kelly, 1994). Group discussion helps participants rehearse, elaborate, and expand their knowledge. As group members question and explain, they have to organize their knowledge, make connections, and review—all processes that support learning. Interactions in groups can create the cognitive conflict and disequilibrium that lead a participant to question understandings, to "go beyond his current state and strike out in new directions" (Piaget, 1985, p. 10). Cooperative learning also provides the social support and scaffolding that students need to move learning forward. Children can accomplish mental tasks such as reasoning, comprehension, and critical thinking with social support before they can do them alone. Thus, these higher mental functions originate in social interactions and are then internalized by individuals (Tudge, 1990; Vygotsky, 1978). Studies have demonstrated that when a task involves complex learning and problem-solving skills, cooperation leads to higher achievement, especially for low-ability students (Johnson & Johnson, 1997, 1999; Slavin, 1995).

Although cognitive and affective goals are distinct, they are to some extent interdependent. It may be that certain affective issues need to be addressed before cognitive objectives can be effectively pursued (Miller & Harrington, 1993). An awareness of the two general types of goals that can be pursued through cooperative learning will help teachers design processes that cultivate development in each. Principles and considerations related to Goal Setting are:

1. Be aware of a basic continuum of social skills and affective processes that are age appropriate for the students in the class.
2. Be aware of a continuum of cognitive development for individuals and the group as a whole.
3. Whenever possible, mesh these two developmental processes so that they build on one another.

Getting There

Once teachers know something about the characteristics of a group of students and have set some realistic and achievable goals, they must structure a process for achieving those purposes—one that
fits the goals (Good & Brophy, 1996). Many interrelated and complex actions are required including designing the groups' tasks; selecting learning strategies or structures; setting the size of the groups and assigning students; determining what instructions, rewards (if any), and resources to provide; and deciding how student progress will be assessed. Decisions about each of these issues involves balancing a great many conditions and contingencies.

Tasks for cooperative groups may be more or less structured. Highly structured tasks include work that has right answers—drill and practice, applying routines or procedures, answering questions from readings, computational or algorithmic mathematics, and so on. Ill-structured tasks have multiple answers and unclear procedures, requiring problem finding and higher order thinking. Ill-structured, complex tasks are more likely to be true group tasks; that is, they are likely to require the resources (knowledge, skills, problem-solving strategies, creativity) of all the group to accomplish, whereas highly structured tasks often can be accomplished just as effectively by individuals. These distinctions are important because ill-structured, complex, true group tasks appear to require more and higher quality interactions than routine tasks if learning and problem solving are to occur (Cohen, 1994; Cohen & Arechevála-Vargas, 1987).

**Highly Structured, Review, and Skill-Building Tasks**

A relatively structured task such as reviewing previously learned material for an exam might be well served by a structured technique such as Student Teams Achievement Divisions (STAD; Slavin, 1983; 1995). In STAD, teams of four students compete to determine which team’s members can amass the greatest improvement over previous achievement levels. The use of recognition or extrinsic rewards can enhance motivation, effort, and persistence under these conditions, and thus increase learning. If the task is collaborative seatwork or a routine task, then constraining the dialogue through narrow roles, especially roles that focus attention on the work to be accomplished, also may be productive.

**Ill-Structured, Conceptual, and Problem-Solving Tasks**

If the task is ill-structured and more cognitive in nature, then an open exchange and elaborated discussion will be more helpful (Cohen, 1994; Ross & Raphael, 1990). Thus, strategies that encourage extended and productive interactions are appropriate when the goal is to develop higher order thinking and problem solving in ill-structured situations. Several strategies developed by Alison King...
(1990, 1994, 1997), such as reciprocal questioning, may be helpful here. Elements that might be unhelpful are a tightly structured process, competition among groups for rewards, and rigid assignment of roles. These features are likely to inhibit the richness of the students’ interactions and thus interfere with progress toward the goal. In these instances, the use of rewards may well divert the group away from the goal of in-depth cognitive processing. When rewards are offered, the goal often becomes achieving the reward as efficiently as possible, which could mean ignoring some group members or having the most able do the work (Anderson, Holland, & Palincsar, 1997; Webb & Palincsar, 1996). The size of groups also will have an impact on the kind and quality of interactions in the group. Groups of four or fewer are more likely to give all participants a chance to contribute, ask, and explain.

**Social Skills and Communication Tasks**

When the goal of collaborative learning is enhanced social skills or increased intergroup understanding and tolerance of differences, the assignment of specific roles and functions within the group might facilitate communication (Cohen, 1994; Kagan, 1994). In these situations, it can be helpful to rotate leadership roles so that minorities and females have the opportunity to demonstrate and develop leadership skills and all group members can experience the leadership capabilities of each individual (Miller & Harrington, 1993).

**Group Composition**

The composition of the group affects participation rates, particularly participation in cognitive activities that are most strongly linked to achievement (O’Donnell & O’Kelly, 1994). Achievement levels, status, race, ethnicity, and gender may influence students’ participation within a group. Academic status is the most powerful of the status characteristics in the classroom, but collaborative status—perceived attractiveness or popularity—also can have an impact on group interactions. Students with high status may tend to dominate a group, while low status students may well be excluded from making equal contributions (O’Donnell, 1999).

To overcome status effects and nonparticipation, teachers can use strategies such as assigning a true group task that requires wide participation, giving low status students access to information or resources vital to the group, or emphasizing instructions that highlight the importance of different kinds of contributions. Because girls or students of color may be overshadowed in groups where
they are outnumbered, it may be helpful to work toward even distributions of male and female or majority and minority students, especially in groups unfamiliar with group work. Consistently assigning students to groups based on gender or racial differences, however, may perpetuate students' inclinations to relate to each other on the basis of these classifications. Rather than distributing minority students across groups in an obvious attempt to have different categories of students in every group, it may be better over the long run to assign students based on interests, skills, or other characteristics that give students common ground (Cohen, 1994; Miller & Harrington, 1993).

Assessment

Assessment is another potentially thorny issue. Teachers need to be aware of the ways that group assessment can provide disincentives as well as incentives for participation. For example, when scores on an assignment or exam are averaged for a group score, students who have loafed will be rewarded while hard-working students are punished. Students may feel resentful when their grades are jeopardized by an unmotivated or underachieving student, especially when the students perceive that they have even fewer resources than the teacher for dealing with the problem individual.

Slavin (1995) recommended reward interdependence along with individual accountability in situations where cooperative learning is used to motivate more capable students to help less able peers on a collaborative or collective seatwork task. However, Cohen (1994) noted that reward interdependence does not appear to be necessary for achievement when students are motivated to complete a challenging and interesting group task that requires everyone's contribution for a good outcome.

There is no single best way to assign students to groups or one perfect order of goals. Over the year, teachers will do well to try out a number of groupings. As teachers attend to the complex issues of group dynamics, making use of the considerations listed here, the more likely it is that they will make sensible choices in tailoring structures for cooperative learning. Principles and considerations related to Getting There are:

1. In assigning students to groups, be sensitive to issues of status, achievement level, gender, race, ethnicity, and special needs and yet be aware that assigning group members by "category" may encourage the students to continue to think of one another as members of a category rather than as individuals.
2. If the task is collaborative seatwork or a routine task, then constraining the dialogue through narrow roles may be productive. If the task is ill-structured and more cognitive in nature, then a more open exchange and elaborate discussion will be more productive (Cohen, 1994).

3. If the learning goals include complex, higher order thinking and the group tasks are ill-structured, then strategies that encourage questioning, explanation, challenge, elaboration, exchange, and critical thinking should be valuable.

4. In making decisions about incentive structures, consider the potential for unanticipated consequences such as goal displacement (focusing on rewards rather than learning) and the likelihood that these consequences may have a negative impact on the motivation of some students.

5. In many cases it is helpful to structure individual as well as group accountability.

Guiding the Process

Group Characteristics, Goal Setting, and Getting There provide a rough framework for planning collaborative learning experiences. But even with the best planning, "the wild lies in wait" (Shulman, 1995)—unanticipated dynamics are bound to emerge as the activity unfolds. Teachers must respond or repair when interactions do not go as expected (Webb & Palincsar, 1996). In addition, as groups progress, teachers need to be willing to relinquish some control to the students, while not relinquishing all guidance of the process (Miller & Harrington, 1993).

Once the learning activity is underway, teachers have the opportunity to revisit the first three phases in the decision-making process to determine whether midcourse adjustments are necessary. In moving around the room, sampling segments of dialogue from various groups, you can ask, "Have I accurately gauged the cognitive and affective abilities of these students (group characteristics)? Is the task more difficult for them than was anticipated? If so, do the difficulties arise from problems with social or cognitive skills?"

Next, how do the students understand the goal of the activity and are their goals in keeping with your goals? For example, in one examination of group learning, the teacher's goal was for the students to engage in "thinking scientifically," but for the students, the goal of maintaining status relationships within the group took precedence (Meloth & Deering, 1999, Palincsar & Herrenkohl, 1999). This became clear only as the activity unfolded over several days.
Finally, a fundamental consideration in determining whether students are moving productively toward the learning goals (whether they are “getting there”) is the quality of the interaction in the groups. In monitoring the group work, teachers need to notice both the quantity and the quality of interactions taking place (Cohen, 1994; Meloth & Deerin, 1999). Do the processes unfolding support learning, or are problems developing that will interfere with achieving the goals of the activity? Each collaborative learning technique has its own set of potential pitfalls. Teachers must monitor group interactions to detect these problems and develop strategies for dealing with them.

Students fail to participate for a variety of reasons including lack of appropriate skills, knowledge, or interest; shyness; intentionally seeking a “free ride”; or experiencing some form of discrimination (Mulryan, 1992; Webb & Palminsar, 1996). For a structured cognitive activity, one remedy for these problems is to add individual accountability to group interdependence in the design of group activities and assessments. However, for less-structured tasks, giving attention to the underlying causes of students’ nonparticipation and changing classroom norms may be required (Cohen, 1994; Weinstein, 1996; Weinstein & Mignano, 1997). Students may need to be taught skills that are unfamiliar to them.

The level of conflict in a group, in particular, is an issue that requires careful attention. Bearison, Magzamen, and Filardo (1986) suggested that the relationship between conflict and productivity is curvilinear. Too little conflict may indicate passivity and less than full participation on the part of some students, whereas too much conflict can be counterproductive in reaching group goals. Teachers must judge whether the level of conflict is productive and if not, intervene—either to increase or decrease the conflict in the group. It may be helpful just to ask some focused questions to get the students back on track or it may be useful to give a directive, a reminder, or quick answer and then move on. In some situations, it may be most fruitful to send complaining students back to their group to work out problems for themselves. Teachers also need strategies for intervention when things completely break down. In these cases, it might be helpful to abandon the task temporarily, ask students to reflect on their functioning as a group, and engage in problem solving to address the difficulties that have arisen (Johnson & Johnson, 1988).

In reviewing the choices made during the first three phases of the problem-solving process (Group Characteristics, Goal Setting, and
Getting There) and noting how the choices are affecting the groups, teachers begin gathering information for the final phase—reflecting on the experience. By continually monitoring the interactions taking place in the group, being sensitive to the level of conflict, and noting whether progress is being made toward the goals, astute teachers will adapt their roles to the needs of the group so they can guide the group toward enhanced thinking and increased productivity.

Principles to consider related to Guiding the Process are:

1. As group activities begin, revisit the decisions made during planning to make adjustments if necessary and gather information for reflection and future planning.
2. Be ready to adapt your role according to the needs of the situation and the group.
3. Develop a sense of what is a productive level of conflict and when an intervention is necessary to get the process back on track.
4. Be aware of typical problems in collaborative learning and intervention strategies to address those problems.

Gazing Backwards and Glimpsing Ahead

When using cooperative teaching processes, it is not necessary to have all the strategies and remedies defined in advance. What is necessary is to have a way to learn from the experience in order to fine tune the goals and structures for future sessions. As collaborative learning progresses and when projects end, teachers need ways to think about what happened and derive implications for next steps. A teacher who does use post-instructional time to take note of the dynamics—what went well and where there were difficulties—has lost an opportunity to hone the process and to gather information about what may be productive in the future.

Teachers also need to assess their own participation in the activity (Meloth & Deering, 1999). Were my directions clear enough so that students knew what to do? What information was missing? Did I adapt my role to changing group needs and intervene in a way that was helpful? Did my plans provide the time and resources needed by the groups to be productive? What problems could have been foreseen and how could they have been avoided? How has the group progressed and what are the next steps the group is now ready to face? What are the ways that collaborative learning can go astray or be misapplied and how can I prevent them?
Group interactions not only can improve thinking and learning, they also can impede learning and reduce rather than improve interpersonal attraction. McCaslin and Good (1996) suggested several potential hazards or disadvantages of group learning. There is no guarantee that working in groups will mean more active engagement on the part of students. Apprehensive students may simply shift dependency from the teacher to the "expert" in the group. Then learning is still passive, and what is learned can be wrong. Rather than challenging and correcting misconceptions, students support and reinforce misunderstandings. Instead of increasing motivation to learn, some students may learn to "loaf" because the group progresses with or without their contributions. Others are even more convinced that they are helpless to understand without the support of the group. Socializing and managing interpersonal relationships may take precedence over the teacher's goals for the lesson, and students may value the process or procedures over the learning. In addition, speed and finishing can take precedence over thoughtfulness and learning. Finally, even goals of increased tolerance and understanding across lines of difference may be undermined and status differences may be intensified rather than dissolved. Naively implementing cooperative methods without a clear understanding of how to use them effectively can actually do more harm than good.

Teachers need a framework, a way of systematically considering what has happened in a cooperative learning lesson and why, so that they can take constructive action to respond. Without such a framework, teachers may have a sense that things went poorly or things went well but have no notion of why or of how to modify the process in the future. Teachers can enrich their understanding over time by starting with only a few procedures and some simple strategies for preventing or responding to problems and then analyzing the results using the model we have proposed to organize new thinking and experiences. In this way, collaborative learning can be more than a method, it can be a powerful and flexible set of teaching approaches for a variety of student-learning goals. Principles and considerations related to Gazing Backward and Glimpsing Ahead are:

1. Develop a conceptual framework, a way of thinking about what happened, to assess what new information was gained during the process.
2. Beware that collaborative learning strategies can inhibit rather than enhance learning and be prepared to deal with these potentially dysfunctional aspects.

3. Our model is circular. The evaluation of one collaborative learning activity begins the process of setting goals and planning for the next.

**Bringing Order to Complexity: Where to Begin?**

Planning, guiding, and evaluating collaborative learning are complex processes. There are developmental considerations in selecting tasks and in structuring groups. Both tasks and students' interactions should support learning. Some direct instruction along with appropriate monitoring of the groups may be necessary to make the best use of collaborative interactions for learning. The decisions about the composition of the group have implications for the quality of the interactions within the group and for the kinds of tasks that can be accomplished. Teachers may need to assume different roles at different stages in a group's maturity or to help students accomplish different tasks. Even the best of plans and procedures can unravel and require repair. To complicate matters further, all of these challenges are embedded in the larger complexity of teaching.

Classrooms are complicated, multidimensional places (Doyle, 1986). Furthermore, life in classrooms is simultaneous—everything happens at once. Classrooms are crowded with people, tasks, and time pressures. Many individuals—all with differing goals, preferences, and abilities—must share resources, accomplish various tasks, use and reuse materials without losing them, move in and out of groups, keep track of what is happening, and so on. In addition, actions can have multiple effects. Assigning a student whose English is limited to a group role that requires oral communication may give that student needed practice in speaking, but could threaten the flow of action in the group and create management problems.

Because classrooms are public, the way teachers handle unexpected intrusions is seen and judged by all. Students always notice if the teacher is being “fair.” Is there favoritism? Do some groups seem privileged? Teaching is inherently not only a social but also an ethical enterprise (Anderson et al., 1995). All choices are influenced by values, and all decisions have implications for students. At times, a choice that favors one child or group will disadvantage others. In the realm of group learning, teachers' decisions can affect the statuses and opportunities of students. Finally, classrooms have histories. The meaning of particular teacher’s actions or student's
actions depends in part on what has happened before. The tenth time a group member fails to contribute requires a different response from the teacher than the first failure.

From the Gestalt psychologists to Piaget to modern cognitive views of learning, two insights recur. First, to make sense of situations, humans use what they already know and second, they impose order on complexity by detecting patterns, seeking predictability, and sometimes creating simplified models (Gardner, 1985). But what is a reasonable simplification—a good beginning?

Our advice is to start small. Initially, expectations for what can successfully be orchestrated should be small and reasonable. As skill and knowledge develop, more complicated procedures can be attempted. Begin by teaching students how to work in groups and how to cooperate. Focus on one or, at the most, two communication skills. Define, model, explain, and seek student examples of the skills. Have them practice skills and make sure everyone participates. Use a simple, nonacademic task as a group project for practice. See Cohen (1986), Good and Brophy (1996), or Kagan (1994) for exercises that lend themselves to learning and practicing communication skills.

When moving to use collaborative learning for cognitive outcomes, again start small by using formats similar to approaches that are already familiar to the students. This may mean you simply tell students during instruction to turn to another student and decide on an answer to a question or summarize the key points so far. Kagan (1994) described a structure called numbered heads together in which four students—numbered one to four—“put their heads together” to be sure everyone knows the answer to a question. Then the teacher picks a number and all the students with that number raise their hands or stand up. The teacher calls on several for their answers. This structure is similar to whole-class question-and-answer, so it is an easy transition for students. A reasonable first effort for beginning teachers would be to use helping or tutoring approaches to collaborative learning before attempting more advanced forms. All the considerations of our model could be applied to plan and implement these experiences, but complexity would be lessened in making the decisions. As a sense of efficacy in planning and implementing collaborative learning strategies developed, more complicated structures, tasks, and goals could be attempted.

Summary and Conclusions

Using collaborative learning in a classroom involves a complex set of decisions around a number of considerations. In order to cope

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with this complexity teachers need a conceptual framework, a way of thinking about the decisions they must make. Before choosing a strategy, teachers should assess the capabilities and challenges in their class and choose goals that are appropriate to enhance both affective and cognitive development. When goals have been established, teachers must decide on tasks and structures to facilitate those goals, taking into account the unique characteristics of the group and individuals within the group. Once a group process is underway, teachers have a new set of decisions about how to participate in and guide the process. Finally, unless teachers have a means to reflect on the collaborative learning experience they will not be prepared to determine realistic next steps and set future goals. One last caveat—to apply all these considerations thoughtfully is indeed a formidable challenge. Teachers need to be encouraged to start small and then to add new knowledge and learning as they gain experience in using collaborative learning methods. We suggest the mnemonic below to highlight these considerations: (a) Group Characteristics, (b) Goal Setting, (c) Getting There, (d) Guiding the Process, (e) Gazing Backwards and Glimpsing Ahead.

Reform movements envision schools in the 21st century that will involve greater levels of cooperation and collaboration. Collaborative learning strategies provide a powerful mechanism not only to address affective goals in education but also to enhance students' cognitive development, to deepen their understanding of concepts, and to press them to examine, articulate, and elaborate their ideas with greater clarity and rigor. Unless teachers have effective means to manage the complex problem solving involved in implementing collaborative learning strategies, the rich possibilities will not be realized; collaborative learning may be abandoned as just another educational fad. With a memorable conceptual framework to undergird teachers' knowledge of collaborative learning strategies and guide their decision making, collaborative learning holds promise to enhance children's learning across the curriculum in the century ahead.

References


*Author Note*