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Group Work Can Be Gratifying: Understanding & Overcoming Resistance to Cooperative Learning

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Despite decades of successful implementation at the K–12 level, cooperative learning (CL) has been slow to catch on at the college level. Resistance by instructors and students alike has slowed its diffusion. Some resistance stems from poor experiences with CL, but potential adopters often fail to realize that effective CL rests on a set of principles that are not intuitively obvious. Drawing on research on group processes and CL, we discuss what instructors need to do to implement CL successfully. We focus on a three-stage model of group formation and development, the components of successful group processes, how these components respond to typical students' complaints, instructors' roles in group operations and processes, and how these roles can best be carried out.

Keywords: group work, cooperative learning, group formation, student teams

Cooperative learning (CL) aspires to shift the focus of teaching from lecturing to groups of mostly passive students to instruction through orchestrating students' interactions with each other. In CL, instruction focuses on coordinating, stimulating, and encouraging interactions among students, with students expected to learn from their own activities and interaction with their peers. Table 1 provides an overview of the principles of CL.

In this article, we offer some suggestions for instructors who have been reluctant to try CL. First, we briefly review the claimed benefits of CL. Second, we offer a three-stage model of group formation and development. Third, we present some typical student objections to CL and discuss what instructors can do to overcome the objections. We believe that a systematic approach to the design and implementation of CL, based on sound social science principles, can overcome many of the anticipated problems.

Claimed Benefits of Cooperative Learning

We identified six claimed benefits of CL for students, as shown in Table 2. First, CL promotes deep learning of course materials through a diversity of perspectives fostered by interactions between peers (McKinney & Graham-Buxton 1993). Second, students achieve better grades in CL than in competitive or individual learning (Felder 1995; Weitz 1995; Stearns 1996; Pray Muir & Tracy 1999). Third, students learn social skills and civic values that are valuable in their later life (Abrami & Chambers 1994; Johnson, Johnson & Smith 2007).

Fourth and related to the first benefit, students learn higher-order, critical thinking skills (Windschitl 1999). Sharing their views with peers allows students to reflect upon taken-for-granted assumptions held before taking the course and gives them opportunities to explore new ideas proposed by peers. Fifth, students achieve personal growth that helps them maintain psychological health and a positive attitude toward their college experience (Johnson, Johnson & Smith 2007). Sixth and finally, students develop positive attitudes toward autonomous learning (Johnson, Johsnon & Smith 2007).

We found two mentions of practical benefit to instructors. First, CL gives instructors more time to reflect on what is happening in the classroom, as they observe students grappling independently with the material. Rather than constantly being "on stage," instructors can step back and gain a larger perspective on how well students are learning the material. Second, CL can decrease an instructor's grading load by reducing the number of assignments to be graded. For example, if students complete assignments in groups of four, rather

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TABLE 1
Principles of Cooperative Learning

We use the term cooperative learning, or "CL," in this article to refer to instruction organized around work in small groups, organized according to five principles (Johnson, Johnson & Smith 2007).
1. Positive (outcome) interdependence between members
2. Individual accountability
3. Face to face interaction (frequently if not all the time)
4. Development & improvement of interpersonal skills
5. Regular self-assessment of group functioning

than individually, an instructor needs to read only one-fourth as many assignments.

What Instructors Need to Do and Why: Getting Help from Group Process Studies

The life cycle of groups comprises three stages: a design and development stage, an operations stage, and an output and disbanding stage (Oakley et al. 2004; Rousseau, Aube & Savoie 2006). Each stage requires different types of guidance and intervention and thus generates different problems. First, at the design and development stages, problems arise concerning goal definitions, group formation, and students' lack of social skills. Second, the problems relevant to the operation stage are designing reward systems, monitoring groups' performance, and intervening effectively to solve group problems. Third, the biggest problems relevant to the output and disbanding stage are providing effective feedback and closure. We summarize our arguments in Table 3.

The Design and Development Stage

The design and development stage begins when a group forms and starts developing the necessary competency to work as a group by developing rules, policies, and strategies for working together (Hare & O'Neill 2000; Oakley et al. 2004). In addition to these practical aspects of group operation and processes, groups must establish the normative aspects of their work that will last throughout their life cycles. They have to develop trust, confidence, and interdependence among members (Van den Bossche et al. 2006).

TABLE 2
Cooperative Learning: Benefits to Students and Instructors

Benefits to Students
1. Promotes deep learning
2. Helps earn higher grades
3. Teaches social skills & civic values
4. Teaches higher order thinking skills
5. Promotes personal growth
6. Develops positive attitudes toward autonomous learning

Benefits to Instructors
1. Gives more time to reflect on how well students are learning
2. Decreases grading load

TABLE 3
Keys to Successful Group Processes in CL

Stage 1: Design and Development Stage
1. Establish group goals and rewards, e.g. thoroughly explain process to students, create positive interdependencies.
2. Control group composition, e.g. determine optimal diversity and team size.
3. Develop students' social skills, e.g. via training before classroom activities actually begin, team building, acting as positive role model.

Stage 2: Operation Stage
1. Design task & transparent reward systems, e.g. start with simple assignments, clarify expected outputs.
2. Monitor group performance, e.g. through peer evaluation and feedback, and intervene quickly when problems arise, e.g. rearrange groups' memberships.

Stage 3: Output and Disbanding Stage
1. Provide prompt feedback and take groups' outputs seriously, discuss output in class.
2. Maintain consistency in the reward system: satisfy individual as well as collective needs, e.g. give individualized feedback to each student.

Establishing group goals and rewards. *Common student complaint: "I've always had bad experiences with group work. Why don't you just lecture?"*

Concerning the definition of goals, instructors should clearly, not vaguely, encourage students to work in groups (Lou, Abrami & d'Apollonia 2001) and should state goals as specifically as possible. Students need to understand *why* they have to work in groups, rather than just being ordered to do so. In CL, instructors are responsible for designing how to evaluate students' achievements and contributions, and thus they need to explain the system and ensure that it is consistent and transparent. Research has shown that when people are given reasons to do something, however brief, their resistance lessens. Instructors must make sure they assign a task that truly requires cooperation, rather than one that can easily be decomposed into separate tasks that individuals undertake independently and then "paste together" at the end.

At the design and development stage, group members need to understand the reward system and gain trust in it. Reward systems should meet both extrinsic and intrinsic needs, satisfying members' senses of achievement both as a group and as individuals. Instructors should tell group members how they will evaluate achievements and contributions, and members must believe that the method of evaluation justifies committing themselves to group work. Otherwise, if there is a gap between what a CL proponent advocates and what students believe, they may perceive the evaluation system as unjust and withdraw their support. For example, group grading is said to "undermine motivation" when students do not see a justifiable link between their own efforts and their grade (King & Behnke 2005).

A reward system for students' achievements needs to incorporate positive social interdependence among students as well as individual accountability (Lou, Abrami & d'Apollonia 2001). To prevent poorly performing students

from exploiting their peers through free-riding during group work, on which grades may be much higher than the poorly performing students' individual grades, instructors can announce that students who fail their individual exams will not benefit from the grades for the group products (Felder & Brent 2001). If instructors adopt this system, they will need to set aside extra time for working with failing students to reintegrate them into their groups.

Determining group composition. *Common student complaint: "I don't want to rely on strangers. Why can't I form a group with my friends?"*

At the design and development stage, instructors should take responsibility for group formation rather than leaving it to chance, especially for member selection, group composition, and group size. Concerning member selection, CL proponents suggest it is better that instructors assign students to groups (Felder 1995; Lighfner, Bober & Willi 2007), because random grouping or self-selection by students is likely to exclude or negatively affect minority students (Rosser 1998; Hinds et al. 2000). To aid in assigning students to groups, instructors should collect data about students on the first day of class, using a standard format (Oakley et al. 2004).

Findings about group composition in research on CL are mixed regarding whether to form heterogeneous or homogeneous groups (Abrami & Chambers 1996; Springer, Stanne & Donovan 1999; Neber, Finsterwald & Urban 2001; Baer 2003; Delucchi 2006; Peterson & Schreiber 2006). Lou, Abrami and d'Apollonia (2001) suggested that groups composed via mixed criteria, instead of ability only, are better at promoting students' achievements. A meta-analysis of twelve studies suggested that low-ability students benefited in heterogeneous ability groups, whereas medium-ability students benefited in homogeneous groups, but ability groupings did not matter for high-ability students (Lou, Abrami & d'Apollonia 2001). A later meta-analysis of twelve studies by Neber, Finsterwald and Urban (2001) argued that whether homogeneous, heterogeneous, or mixed-ability groupings are beneficial to gifted, high-ability students remains controversial, because some of the studies have been methodologically unsound. Felder (personal communication) has argued that the CL's principal benefit to high achievers is that it frequently puts them into a teaching role, leading to a deeper conceptual understanding of the material than would otherwise be possible. However, most assessments of learning do not measure such deep understanding and thus miss CL's positive consequences for high achievers.

Concerning member stability, Delucchi (2006) argued that it is better to keep membership stable throughout the group life cycle, whereas Lou et al. (1996) asserted that group stability does not have a significant effect on outcomes. Felder and Brent (2001) recommended using "practice groups" for the first two weeks and then forming permanent groups, considering that students add and drop courses at the beginning of the semester.

CL advocates agree that groups should be kept relatively small. Some recommend three to four, saying it is better for students' achievement (Lou, Abrami & d'Apollonia 2001; Caulfield and Persell 2006), whereas others recommend three to five (Oakley et al. 2004). Based on our own experience, we believe the ceiling on group size should be four, given that the chance of shirking/social loafing among group members will exponentially increase with group size. For example, in a group of four, there are six relations to be managed, whereas in a group of five, the number increases to ten, and in six-person groups, the number of relations to be monitored increases to fifteen. Thus, the difference between groups of four versus five members is consequential enough to suggest caution in going beyond three or four members per group.

Developing students' social skills. *Common student complaint: "We waste a lot of time in our meetings. No one wants to take responsibility. "*

Students sometimes lack the social skills necessary for successful group operation and thus instructors must attend to this issue early in the group formation process. Proponents of CL note that effective student groups are not produced automatically by dividing them into small groups (Cohen 1994; Rousseau et al. 2006; Van den Bossche et al. 2006; Johnson, Johnson & Smith 2007). Accordingly, some small group researchers recommend teaching students necessary social skills *before* group work begins. Instructors can teach such skills directly through oral and written instructions and indirectly by structuring students' interactions with peers in early practice sessions.

To develop students' social skills, researchers have suggested simple team-building exercises on the first day of class (Oakley et al. 2004; Caulfield and Persell 2006; McKinney et al. 2006) and the use of written instructions about group operations and processes. Instructors can describe effective group processes in the classroom through lectures and demonstrations (O'Donnell & O'Kelly 1994; Felder & Brent 2001), such as by modeling functional teams (Lighfner, Bober & Willi 2007). Pre-warning students about the danger of domineering group members (Felder 1995) will prepare them for handling the problem and possibly deter potential dominators. Providing students with templates to record their activities and findings (Oakley et al. 2004) will help them work as effective groups, as well as give them a concrete model for successful group operations.

Assigning roles to group members is a way to encourage students to cooperate, and a clear division of labor is an effective way to prevent free-rider problems (Cohn 1999). Some CL proponents recommend that assigned roles be rotated and suggest that instructors monitor the rotation to help students obtain new role skills, especially if they are taking on unfamiliar roles (Rosser 1998). Not all CL proponents advocate role rotation, however. We think the major contingency in whether to rotate roles or make them permanent is class size coupled with the level of resources available to instructors.

In large classes without teaching assistants, role rotation may consume more time than it is worth.

The Operation Stage

At the operation stage, group members start to invest more time and effort in working toward group goals, given that the instructor has helped them develop rules, policies, and strategies for working together. However, this does not mean the members work together by simply repeating routines. Instead, they will need to solve emerging problems such as free-riders/hitchhikers, domineering members, and cognitive and social loafing (Johnson, Johnson & Smith 2007).

Members need feedback from their instructors for assurance concerning the solutions they have devised, and they need time to reflect on and evaluate their performance (Hare & O'Neill 2000). Some CL researchers recommend using peer review and evaluation so that instructors can get information on students' contributions and cooperation in groups for monitoring or grading (Felder & Brent 2001; Oakley et al. 2004). We recommend that peer review and evaluation be used mainly to monitor group processes and help group members themselves work better together, rather than to grade groups. Indeed, instructors should avoid conflating an assessment of a group's processes with an evaluation of their task outcomes. Otherwise, a group might cease working on process problems themselves and simply wait for an instructor to intervene.

Psychological and task supports among members and from instructors are necessary for effective group work at the operation stage. Members achieve a sense of security when they know that they can get help from peers or the instructor. Such feelings of security increase members' confidence in their groups and free them from the fear of being exploited or abandoned, even when they have problems in fulfilling group goals. As a result, members will be able to make greater contributions than otherwise (Springer, Stanne & Donovan 1999; Bradley, White & Mennecke 2003).

Designing tasks and reward systems. *Common student complaint: "I don't know what we are supposed to do or why we are doing it."*

At the operation stage, members should cooperate with each other and work independently to prepare something to contribute. Cooperating as a group does *not* mean everything starts only when group members meet. On the contrary, the quality of outcomes from group work is determined *before* the group meets, as it depends upon how well the members are prepared to contribute something when they gather for each session. Not much can be achieved if members meet and simply question, "What should we do?" or even worse, "what does the assignment say?" Group meetings will be most productive when rules, policies, and strategies for working together were created previously at the design and development stage. Instructors' responsibilities thus begin well before the groups ever meet. An instructor's investment of time in course design at the beginning of the semester will reduce transaction costs and hence the sense of awkwardness felt by both instructors and students.

Concerning task design, open or ill-structured tasks have been shown to increase group productivity (Lou, Abrami & d'Apollonia 2001). Because group members will have to work simultaneously on assigned tasks and rule making, policy making, and strategy making during the early phase of group work, it is better to start with easier and simpler assignments (O'Donnell & O'Kelly 1994). When tasks become complex, explaining the steps for working out those tasks will be helpful. In addition, limiting the size of tasks based on the duration and frequency of group activities, such as three times in a semester or term, will be reasonable. Instructors should clearly define what the expected output for each task is, and instruct students on how to report the output. If a collective paper is required, requiring each student to write at least one section of the paper helps prevent free riders (Delucchi 2006). If possible, we recommend putting all such instructions in writing, either in handouts or on a course web page.

Monitoring and intervention. *Common student complaint: "I have to do all the work and don't get the credit. I feel exploited."*

Depending on students' social skills and ability in problem-solving, instructors may need to alter interactions among group members at the operation stage. This act of control starts with close monitoring of group work. In addition to giving students chances to provide negative feedback about group activities to instructors, peer evaluations that rate member citizenship rather than only contributions will be useful. As with other aspects of CL, instructors should teach students how to assess citizenship (Oakley et al. 2004). Measuring students' performance and participation by querying them anonymously and regularly requiring them to summarize how they are working as a group will likewise be helpful (Felder 1995; Johnson, Johnson & Smith 2007).

If instructors suspect problems have occurred, they need to quickly intervene. Instructors can require groups with serious problems to meet with them (Felder 1995). For example, if students have trouble finding a time to get together, instructors can reserve a portion of class time for group activities. When students themselves cannot handle free riders or domineering members, instructors have to encourage them to contact missing members, discuss problems, and propose solutions (Caulfield & Persell 2006). When groups cannot function due to animosity among students or uncooperative members, instructors can "fire" students or dissolve group as necessary, but it is not a good idea to make this option available to students at the beginning of group work. Otherwise,

students may not feel motivated to put in the effort required to deal with difficult group members.

If students themselves decide to dissolve their group, members then must be redistributed among different groups. Felder (1995) makes the option available under the condition of unanimous consent of group members. In any case, dissolution should be allowed only once, because of the difficulties it poses for grading and the loss of learning opportunity about solving interpersonal problems. We note that instructors have to be available in and out of class so that students are able to report or consult about their problems.

The Output and Disbanding Stage

The output and disbanding stage of groups is reached when groups wrap up their work and cease to exist. Disbanding may occur at the end of an instructional unit or at the end of the course. At this stage, a sense of achievement both as a group and as an individual is important. A successful group product is one thing, whereas individual growth is another. Unless group members feel they have a chance to gain new knowledge, skills, networks, and views, or to refresh, refine, and update old ones, working in a group will be less attractive to them than working independently, even though they succeed in generating group products.

Providing feedback. Common student complaint: "This group work just feels like busy work to me. What's the point?"

Instructors should provide prompt feedback on group outputs, rather than just collecting papers or calling on groups orally. They can set aside class time to summarize the results of groups' efforts and let the class know what they themselves have learned from the groups' outputs. In addition to treating groups' output seriously, and grading free-riders/hitchhikers or intentional social/cognitive loafers separately as done at the operation stage, instructors should continue being impartial, consistent, and transparent.

Throughout the process, instructors should maintain a consistent and transparent reward system. In such a system, preserving consistency might require instructors to grade free-riders/hitchhikers or intentional social/cognitive loafers separately (Felder & Brent 2001). At grading time, it is essential to treat groups' output seriously. If something is wrong with the output, it is possible that the group has not functioned effectively. In such cases, instructors who have held off intervening need to consider how they might compensate for their inaction. For example, they may need to separately grade the members of poorly functioning groups, and they should certainly make a note of the problem to prevent it from happening in the next unit of the course.

Maintaining consistency in the reward system. Common student complaint: "I worked a lot harder than other people in my group but I got the same grade. That's not fair."

To maintain group learning as a positive experience, not only collective but also individual needs must be satisfied. Thus, a reward system needs to be responsive to both the extrinsic and intrinsic demands of group members. Especially when it comes to learning in the college classroom, we know that students want to be evaluated positively for their own growth and not only for their group products. A sense of being evaluated and rewarded impartially and justifiably is necessary for the closure of successful group operation and process.

Conclusion

Although CL changes the *content* of instructor-student relationships, it has become clear that instructors' *roles* are just as significant in CL as in conventional pedagogy. Instructors play critical roles in guiding, monitoring, and framing students' group activities. As a director, facilitator, role model, and guide in and out of the classroom (O'Donnell & O'Kelly 1994), instructors have to convince and motivate students to participate in CL. It is also an instructor's responsibility to insure that students' groups work appropriately.

If CL is to succeed, it is essential for instructors to understand and respond to students' resistance to CL, and we have noted some of the common complaints heard from students about CL. At the design and development stages, it is necessary to emphasize the collective nature of learning and the positive outcomes of CL. Instructors might consider sharing with students the findings from CL researchers. Conducting ice-breaking activity in the classroom, as well as discussing "tips from survivors" of CL (Caulfield & Persell 2006) will help mitigate students' anxiety about CL. At the operation stage, when students have started accumulating both positive and negative experiences in their group work, ask them to write down concerns about group operation and then talk about the concerns with students in other groups (Felder & Brent 2001; Oakley et al. 2004). Other students might help them regain comfort or find solutions to problems. Students must be free to express their concerns, problems, opinions, and complaints about CL, and instructors have to create and maintain a positive climate and sense of community in their classrooms (McKinney et al. 2006).

It is important that instructors serve as positive models, maintaining a helpful, encouraging attitude toward CL. An instructor needs to embody the ideal of CL in students' eyes, and thus instructors should communicate CL's contributions toward student learning existence by their deeds and demeanor. In our experience, students are aware when instructors are using CL simply to fill up class time, and they respond in kind with desultory cooperation and even shirking. That is why we recommend that instructors explain the rationale for CL on the first day of class and tell students what to expect. In particular, instructors should explain why they have

chosen to use CL rather than straightforward lecturing or other instructional modes.

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