Collaborative Learning Techniques Workshop Handouts
April 23, 2010

1. Responses to Participants' Questions about Collaborative Learning
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From: *Collaborative Learning Techniques Workshop*, presented by Bill Cerbin, April 23, 2010
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Responses to Participants' Questions, Interests and Concerns about Collaborative Learning

Below are responses to all the questions from participants who attended the *Collaborative Learning Techniques* workshop Friday, April 23, 2010. Some responses reiterate our workshop discussion. In some cases I suggest resources or readings for more elaborate answers to your questions.

Questions about Grading

- How to grade equitably.
- Recommendations concerning assessing the learning of each individual within a collaborative environment?
- How does collaborative learning work with assigning grades to individuals?
- Grading group work

Most authors advocate a grading procedure that combines the evaluation of students' individual learning/performance with a summary evaluation of the entire group learning/performance. Researchers stress that individual accountability is important in order to insure fair and equitable grading within the group. If you assign the same grade to all group members you run the risk of over-rewarding students who don't deserve it and under-rewarding students who do.

The dilemma is how to devise a grading procedure that combines individual and group evaluation. If a group produces a paper, project or presentation it is not always obvious how to assign a grade to the group and then assign separate grades to group members. In the workshop we discussed several examples and approaches for grading group learning.

Grading scenarios:

Individual + Group Grades on Tests: Students work in study groups to learn and teach one another the course material. Students take a test individually and get an individual test score. Then they re-take the same test in their groups, and receive a group test score (all members of the group receive the same score). The instructor decides how to weight and combine the scores into one grade, e.g., Overall grade = 2/3 individual grade + 1/3 group grade.

This approach combines individual grades with a group grade. This example illustrates a way to assess student learning individually and then overall group learning. But it is different than trying to assess individual contributions to a group project or presentation—which I think is much more difficult.

Collaborative work as "class participation." Give credit, but don't grade it. This approach does not include individual accountability. But it is a low-stakes way to give credit for CL work. In a class where students do group exercises or activities regularly, you can assign class participation credit. For example, students do a 15 minute exercise and must produce a written group summary to hand in. Based on the group summaries students receive full participation (good faith effort), partial participation (marginal effort), or no participation (poor effort). If you adopt this approach it is important to identify the characteristics of summaries that reflect a good faith effort, marginal effort, and poor effort.

Research team model. Some collaborative work is analogous to team-based research. In research teams there may be differential contributions by group members which are reflected in terms of authorship when the work is published. In classes where students do group projects/presentations, group members could decide who deserves authorship for the work. Freeloaders could be excluded from authorship and receive no credit, and students who contribute very little might be a junior author. Joint authors receive the same grade for the work, junior authors receive a fraction of the grade and non-authors receive no credit. Caveat: Need Plan B for junior and non-authors, e.g., must complete a separate assignment.

Contract Grading for Group Projects Instructors might try "contract grading" for group projects. The instructor and students devise a contract that specifies "the content and group process learning activities to be undertaken, the criteria by which the work is to be evaluated, and the grade or amount of credit to be assigned upon completion" (Barkley, Cross, & Major, p. 89). The advantage of this approach is that it clearly describes what is expected of students and makes their involvement more transparent. Instructors can more easily monitor or trace the contributions of individuals to the final project. It also provides a more objective way for students to evaluate one another's contributions if they can use a set of criteria that clearly identify what they were supposed to do.

Additional grading ideas:

Students should know and understand the learning goals, criteria and standards for collaborative work before they start their work

1. Always define the learning goals, criteria and standards for collaborative work.
2. Put the learning goals, criteria and standards for collaborative work in writing.
3. Review the learning goals, criteria and standards for collaborative work with students.

Questions about facilitating group learning and responding to student problems

- What techniques work to ensure that all members of a collaborative team are learning and contributing?
- How do you structure the group to let each student's strengths shine?
- How to construct/guide collaborative learning exercises that support all students taking an active role and that avoids one student taking the lead/doing all the work while others miss out on the learning opportunity
- How to deal with freeloaders.
- How do you structure the group work so that students who work hard won't fail if someone in their group doesn't pull his weight?
- Concern about quieter students finding a stronger role in group work
- Outside class collaborative project; 1) group members who fail to collaborate and 2) keeping groups on task

If group learning is a significant part of your course—where students work in groups a lot and a significant part of their grade is based on group work—it is helpful to explain to students the purpose of group work, goals for student learning, and why you have decided to orient your class around group learning. It's important for students to understand the reasons for your choices, and recognize the differences between what they will experience in your class versus one with minimal group experiences. Many instructors include this in a section of the syllabus or a special handout (e.g., Two handouts I've used in the past are called, *Learning in This Class* and *Establishing a Critical Learning Community*).

In the workshop I advocated establishing conditions that support group learning in your course. A description of the "big picture" is one small step toward doing this. Equally important is to involve students in creating the norms and ground rules for group learning in the class. They can identify positive and negative characteristics of groups and individual behavior in groups. You can convert the list into a set of guidelines for the class. Students can then use them to monitor their own individual participation and their group's behavior.

Give students clear directions about how they are supposed to work together. I think this should go beyond general statements such as, "everyone should participate and contribute to the discussion." The workshop handout called *Discussion Evaluation* identifies the characteristics of productive discussions. It's kind of a blunt instrument but makes explicit what behaviors are productive and counterproductive in group discussions. Students can use the form to monitor themselves and other group members

Monitor groups during class.

- Ask groups periodically for updates on their progress.
- Off Task behavior
- Students go off task occasionally. It's only a problem if they stay off task too long. If I see a group off task I pay them a visit and ask for a brief update on their progress—it's non-threatening and tends to re-orient them to the task.
- If you are concerned about off task behavior you can ask each group to assign a monitor whose job is to make sure the group stays on task.
- Keep the pace moving—Don't give groups too much time to complete their work—Visit groups during class. The devil finds work for idle hands.

Closure at the end of the class period. Take time at the end of class to determine what groups have accomplished, i.e., they hand in a summary or report out. Give parting instructions and deadlines for unfinished business.

Unequal participation among group members.

- Use the class guidelines to remind students about the nature and quality of their participation.
- Assign roles to group members and rotate roles around the group
- Ask groups to assign a monitor to keep track of participation and to encourage quiet students to contribute and discourage dominant members from holding the floor. Suggest strategies for monitors such as—drawing out non-participants by asking them a question; asking members to write answers before speaking; how to interrupt dominant speakers and solicit others' ideas, etc.
- Openly discuss in class ways to respond effectively to conflicts that jeopardize group learning. The instructor can talk about problem behavior without naming individual students and without students feeling like they are being singled out for criticism.
- Instructor intervention. Try to diagnose the reasons behind the student's behavior before intervening.
    - Withdrawn, quiet, passive students. A student may be quiet and withdrawn for different reasons, e.g., social anxiety, being overwhelmed by the subject matter and unable keep up, anger and resistance about having to work in groups, lack of familiarity with English and so on.
    - Domineering, overbearing, loquacious students. Again, assign and rotate roles so that students have various responsibilities within the group.
    - Free loaders. Free loaders don't contribute to the group's work. Their lack of effort often angers other group members and can poison the group process. Try to intervene before the situation is irreparable.

Additional Questions

- Using collaborative learning techniques in a large class setting (~100 students).

  Some of the techniques we discussed in the workshop work very well in large classes. There are books and articles about group and team learning in large classes with additional information about planning and implementation. See,

  1. Team-Based Learning: A Transformative Use of Small Groups in College Teaching by Larry K. Michaelsen, Arletta Bauman Knight, and L. Dee Fink
  2. Team-Based Learning: Small Group Learning's Next Big Step: New Directions for Teaching and Learning, No. 116 (J-B TL Single Issue Teaching and Learning) by Larry K. Michaelsen, Michael Sweet, and Dean X. Parmelee.
  3. Cooperative Learning in Higher Education: Across the Disciplines, Across the Academy (New Pedagogies and Practices for Teaching in Higher Education) by Barbara Millis and James Rhem.

- Student-centered collaborative learning via asynchronous online communication (facilitating discussions, using chat room for collaborative dialogues with peers).
- Ways to incorporate group work and other discussion activities into online instruction.

Some strategies can be implemented easily within D2L. You can set of groups and discussion forums to create different levels of interaction among students. The technology enables collaboration but the instructor has to orchestrate it in the same way one would in a F2F class. Some resources: see

1. *Collaborative Learning Techniques* by Barkley, Cross & Major. They include a discussion about how to use each technique online
2. Empowering Online Learning: 100+ Activities for Reading, Reflecting, Displaying, and Doing by Curtis J. Bonk and Ke Zhang
3. A group of UWL instructors will be doing a project this summer to try out and evaluate various strategies for group activities and interaction in online classes. If you are interested let me know and I will put you in touch with them.

- When NOT to assign a collaborative project (as in, there are good reasons and bad ones, and students who hate them and students who don't have time outside of class)
- How to address collaboration burn-out (some students have group projects in several classes).
- How to think about class time/out of class time and collaborative work.
- How can I respond to student complaints about working in collaborative groups that begin during class time and then needs to be completed outside of class?

  I agree that instructors need to think about the time commitment and scheduling problems involved in out-of-class group work, especially if students are doing group projects in other classes. Some suggestions: 1) poll students at the beginning of the semester to see what their CL load is, 2) use class time for groups to meet, and 3) try to use technologies such as wikis, Google Docs, Office Live so that students can do some of their project work online.

  There is also a question about whether CL is always necessary. Sometimes individual learning is preferable or more effective. Students don't have to learn everything in groups or discuss every topic or issue in a group. I think it's up to each instructor to consider which methods are best suited to specific learning situations.

- Will students need to do group work in their careers after school?

  Certainly the incidence of team work varies across professions and occupations. I believe that surveys of business leaders indicate that teamwork skills are very important. Higher education organizations also promote these skills as essential for graduates. For example, The Association of American Colleges & Universities report Liberal Education and America's Promise lists teamwork as an essential goal for liberally educated students. See http://www.aacu.org/advocacy/pdfs/leap_report_final.pdf

- Creating collaborative learning opportunities that are open ended in which students create/construct their learning. In particular, an activity to help students learn not only how to evaluate information but *why* they need to evaluate their sources. Not sure how to keep it open ended and beneficial for students while also being able to manage it from an instruction point-of-view.

  There are some pedagogical approaches that provide basic structure for students but engage them in extended, open ended tasks. Problem-based learning is one example. Experiential learning is another. See these Wikipedia citations, http://en.wikipedia.org/wiki/Problem-based_learning and http://en.wikipedia.org/wiki/Experiential_learning

- I'm interested in collaborative learning with colleagues across campus. I know about Google Docs but would like to have some direction.

  In CATL we've been using a Wiki to work collectively on various documents. Office Live is another tool, like Google Docs, that allows individuals to work collectively

Is anyone using web 2.0 tools with students to connect them to one another outside of class or to work on projects asynchronously?

- Getting groups to keep working beyond easy answers.
  It's difficult to respond to this question without knowing a specific situation. I have experienced this problem in my own classes, especially with open ended tasks. I would give complex problems to students and they would "solve" them in several minutes. Their responses were "person-on-the-street" answers and far from what I expected. I don't of any sure fire remedies but it can help to: 1) give students the criteria and standards that will be used to judge their work, 2) provide examples of exemplary work, 3) make sure that students understand that they are supposed to use or apply course material to tasks and problems and not simply "make up" answers, and 4) intervene with groups—listen to their ideas and challenge them to go deeper.

- Is collaborative learning more or less effective than individual learning?
  There is a fairly strong research base demonstrating the effectiveness of group learning. But, that doesn't mean that CL is superior to individual learning in every instance. Here is a meta-analysis that compares various types of cooperative learning techniques against individualistic learning http://www.tablelearning.com/uploads/File/EXHIBIT-B.pdf . The abstract below summarizes the study's findings.

Cooperative learning is one of the most widespread and fruitful areas of theory, research, and practice in education. Reviews of the research, however, have focused either on the entire literature which includes research conducted in non-educational settings or have included only a partial set of studies that may or may not validly represent the whole literature. There has never been a comprehensive review of the research on the effectiveness in increasing achievement of the methods of cooperative learning used in schools. An extensive search found 164 studies investigating eight cooperative learning methods. The studies yielded 194 independent effect sizes representing academic achievement. All eight cooperative learning methods had a significant positive impact on student achievement. When the impact of cooperative learning was compared with competitive learning, Learning Together (LT) promoted the greatest effect, followed by Academic Controversy (AC), Student-Team-Achievement-Divisions (STAD), Teams-Games-Tournaments (TGT), Group Investigation (GI), Jigsaw, Teams-Assisted-Individualization (TAI), and finally Cooperative Integrated Reading and Composition (CIRC). When the impact of cooperative lessons was compared with individualistic learning, LT promotes the greatest effect, followed by AC, GI, TGT, TAI, STAD, Jigsaw, and CIRC. The consistency of the results and the diversity of the cooperative learning methods provide strong validation for its effectiveness.

From *Cooperative Learning Methods: A Meta-Analysis* by David W. Johnson, Roger T. Johnson, and Mary Beth Stanne, University of Minnesota, May 2000.

Examples of Collaborative Learning Techniques

Think-Pair-Share

The learning activity involves explaining answers/ideas to another student. The instructor poses a question to the class. Students write a response and then share it with a student nearby. Students clarify their positions and discuss points of agreement and disagreement. The instructor can use several answers to illustrate important points or facilitate a whole class discussion.

1. Instructor poses question to class
2. Students write a response (1-2 minutes)
3. Students pair up with another student nearby
4. Each student explains his/her response to the other
5. If they disagree, each clarifies his/her position and determine how/why they disagree

Why use it?

1. Keep students engaged in large classes
2. Prime students for whole class discussion
3. Target key concepts for review
4. Enhance students' metacognition—they become more aware of gaps in their thinking
5. Student responses are feedback to the instructor about how they are making sense of the material

Reciprocal Teaching

The learning activity involves students teaching to one another in groups. Students jointly read a text or work on a task. Students take turns being the *teacher* for a segment of the text or task. In their teaching role students lead the discussion, summarize material, ask questions, and clarify material.

An example focused on reading

1. Instructor preps students by showing how to read a text
2. In groups students jointly read course material (e.g., primary source, article, artifact)
3. Students take turns being the teacher and leading discussion of a segment of text
4. Student summarizes the segment, asks a question, and clarifies material

Why use it?

1. To improve students' ability to do specific intellectual activities such as reading primary sources, interpreting graphs, analyzing artwork
2. Role of teaching puts student in position of monitoring their comprehension and re-organizing the material
3. Exposes student to other ways to interpret the material

Think-Aloud Pair Problem Solving (TAPPS)

The learning activity involves solving problems. Students work in pairs and alternate roles. For each problem one is the solver while the other is the listener. The solver thinks aloud—narrating his/her reasoning process—while solving the problem. The listener prompts the solver to *keep talking* and asks for clarification but does not intervene to help.

1. Ask students to form pairs and explain the roles:
    a. Problem solvers: talk through their reasoning process as they solve a problem
    b. Listeners: encourage PS to think aloud and ask for clarification as needed
2. Pairs solve a set of problems and alternate role for each new problem

Why us it?

1. Emphasizes process rather than product.

2. Students can practice formulating ideas, rehearse routine skills, attend to sequence, identify gaps and errors in understanding.
3. Instructors can observe students' reasoning process.

Group Grid

The learning activity involves analyzing, classifying, organizing subject matter. The instructor creates a grid or matrix based on several categories or criteria. Students use the grid to classify course concepts. After groups complete their grids the instructor shows the *correct* version. Students compare their work, ask questions and revise their ideas.

1. Form groups and distribute blank grid as a handout
2. Give students uncategorized, scrambled items of information
3. Groups categorize the information in the grid. Instructor should recommend process—open discussion, take turns, divide categories w/in group
4. Instructor displays correct version of the grid. Students compare their work, ask questions and revise

Why use it?

1. To help students process and re-organize information.
2. Useful when students are trying to absorb a lot of new information. Analyzing and re-organizing the material is better than simply re-reading it.

Group Writing Assignments

The learning activity involves collaborative work that culminates in a group-authored document. Assign groups to write (and submit) Wikipedia entries on course-related topics or create study guides for the course.

1. Use a wiki, Google Docs, or Office Live for collaborative writing
2. Use assignment that has authentic purpose and audience such as creating Wikipedia entries or study guides for the course
3. Establish guidelines to scaffold the process

Why use it?

1. Use writing-to-learn to help students develop and revise ideas
2. Students have opportunities to see how other students view the same topic
3. An assignment with an *authentic* purpose and audience can increase students' interest and commitment

For additional information about these and other collaborative learning techniques see, *Collaborative Learning Techniques: A Handbook for College Faculty* by E. Barkley, P. Cross, & C. Major. Jossey Bass Publisher. If interested in borrowing a copy from CATL, contact us at 785-6872 or catl@uwlax.edu.

Using Collaborative Learning Techniques
Designing a Collaborative Learning Environment

Collaborative learning is likely to go more smoothly if you build an appropriate context for it in your class. This means deciding how to: 1) develop appropriate tasks, 2) orient students 3) form groups, 4) facilitate student collaboration and 5) evaluate student work.

Structuring Collaborative Learning Tasks
Designing tasks that engender collaboration and foster the kind of thinking important for learning. See the handout, *Task Prompts*, below.

The task **REALLY** matters:
- What are your learning goals? (knowledge, skills, abilities, habits of mind, qualities of character)
- Task prompts—questions that induce the kind of thinking you want to take place
- What kind of interaction and discourse should take place?

Orienting and Training Students to Participate
Many students do not know how to participate effectively in group learning situations.
- Do students know how to do the kind of thinking expected of them?
- Do students know how to interact in the ways expected of them?

Forming Groups
The composition of groups can influence how they function.
- Instructor assigns students to groups vs. students select group members vs. random assignment

Facilitating Student Collaboration
What can/should instructors do to facilitate student collaboration?
- Clarify collaborative expectations
- Monitor group work in class or online

Introducing the activity
- Explain activity
- Clarify objectives
- Outline the procedures
- Give examples if needed
- Remind groups of ground rules for group interaction
- Set time limits
- Provide the prompt, task or problem
- Field questions before starting

Observing, monitoring, interacting

Grading/Evaluating Students in Collaborative Learning Situations
How can/should you grade students in collaborative learning situations? How can grading promote or impede collaboration?
- Whether to grade, what to grade.
- Group grade vs. Individual accountability

Example of a DISCUSSION EVALUATION FORM

[The form conveys to students the characteristics of effective discussion. It could be given to students before group discussion to help guide their participation, and used following discussion to evaluate the discussion.]

Name: Date:

How much did you

learn from the group discussion	A. a lot	B. a little	C. nothing
participate in the discussion	A. a lot	B. a little	C. not at all
enjoy the discussion	A. a lot	B. a little	C. not at all

How effective was the group in allocating time and getting work accomplished:
A. very B. somewhat C. barely D. not at all

Incidence of Productive and Counterproductive Discussion Behavior- Check any you engaged in and circle any you observed in others.

__ asked, gave information
__ asked, gave reactions
__ asked, answered questions
__ restated ideas/points in articles
__ restated ideas/points of discussants
__ asked for/gave examples
__ asked for/gave summary
__ asked for/gave evidence or support for ideas
__ redirected group to return to task
__ monitored time
__ encouraged, supported other ideas
__ elaborated on others' ideas
__ OTHER-please specify

__ monopolized discussion
__ called attention to self
__ chronic interruptions
__ criticized others (put down)
__ changed subject often
__ frequent irrelevant comments
__ withdrawn, did not participate
__ apologetic
__ OTHER-please specify:

As a learning experience I would evaluate the discussion as
A. poor B. fair C. average D. good E. excellent

Give reasons for your rating. Be specific, give examples.

What, if any, aspects of your own behavior do you need to change to be a more effective group member?

What, if any, aspects of other group members' behavior need to change to enhance the group's learning?

What, if anything, did the instructor do that facilitated effective, whole-class discussion?

What, if anything, did the instructor do that inhibited effective, whole-class discussion?

What, if anything, should the instructor do or not do to improve the quality of whole-class discussion?

EXHIBIT 4.1

Sample Task Prompts

Question Type	Purpose	Example
Exploratory	Probe facts and basic knowledge	What research evidence supports ____?
Challenge	Examine assumptions, conclusions, and interpretations	How else might we account for ____?
Relational	Ask for comparison of themes, ideas, or issues	How does ____compare to ____?
Diagnostic	Probe motives or causes	Why did ____?
Action	Call for a conclusion or action	In response to ____, what should ____ do?
Cause and effect	Ask for causal relationships between ideas, actions, or events	If ____occurred, what would happen?
Extension	Expand the discussion	What are additional ways that ____?
Hypothetical	Pose a change in the facts or issues	Suppose ____ had been the case, would the outcome have been the same?
Priority	Seek to identify the most important issue	From all that we have discussed, what is the most important____?
Summary	Elicit syntheses	What themes or lessons have emerged from ____?
Problem	Challenge students to find solutions to real or hypothetical situations	What if? (To be motivating, students should be able to make some progress on finding a solution, and there should be more than one solution.)
Interpretation	Help students to uncover the underlying meaning of things	From whose viewpoint or perspective are we seeing, hearing, reading? What does this mean? or, What may have been intended by . . . ?
Application	Probe for relationships and ask students to connect theory to practice	How does this apply to that? or, Knowing this, how would you . . . ?
Evaluative	Require students to assess and make judgments	Which of these are better? Why does it matter? and, So what?
Critical	Require students to examine the validity of statements, arguments, and conclusions and to analyze their thinking and challenge their own assumptions	How do we know? and, What's the evidence and how reliable is the evidence?

Source: Davis, 1993, pp. 83–84; McKeachie, 1999, pp. 51–52