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ENGINEERING TEAMS IN STATICS- Ted Panitz

Engineers are expected to work in teams in industry and collaborate on projects, yet in college they are faced with a competitive learning environment where class rank and position on the grading curve are of primary concern. Collaborative learning techniques are rarely used. Even in laboratorys students work in pairs to collect data and then work independently to write up their reports. This is not just a problem associated with engineering programs. College professors in general rely on the lecture method and competitive testing to assess students progress. This article describes an alternate approach based upon cooperative learning theories. This technique is not limited to engineering courses but applies to all courses at all levels. The method utilizes teams in class to cover the desired content.

Some teachers assign group projects outside of class using pairs or larger groups. I use groups in class to present material initially (instead of my lecturing), review problem solutions and answer students' questions. I teach engineering and math courses at Cape Cod Community College. In my sophomore engineering classes I set the tone for collaboration and my high expectations for student participation and preparation even before the semester starts. I send each student a welcome letter and course syllabus describing my methods and a course procedures. I show up at the first class with a quiz on the first chapter of the text. I explain that my rationale is to see who is really serious about the class which would be demonstrated by their reading chapter 1 even before the class starts. I say this only partly tongue-in-cheek. After about 20 minutes when the shock has worn off I ask them to pair up and work together. During the last 20 minutes I ask the class to arrive at a consensus and put their answers on the board. At each stage I leave the class in order to encourage them to deal with this situation on their own, without an authority figure hanging over them. I do not grade this quiz, but use it to get their attention. It works! All you need to do is say the word quiz or test and everyone perks right up. With this little exercize we are off and running.

In the second class I use a warmup activity to help students get to know each other better. Many have been in other classes together and are familiar with each other but they have not worked cooperatively before. I use the Pair-Share-Report technique to learn more about why they are in engineering and what concerns they may have about the course. Most of the students are concerned about being able to use group learning techniques. This gives me a chance to discuss the concept of cooperative learning and what the class procedures and grading methodology will be. Grading consists of individual tests, group projects, team homework presentations and a factor for class participation. I form teams of 2-4 students depending on class size. Each team is responsible for solving and presenting in class at least one homework problem per assignment. Each student is responsible for all problems assigned and they are encouraged to work together outside of class. Several times during the semester I will assign a team homework project and give a group grade. I do not lecture in advance of the assignment. I wait for the students to present their solutions and then help them explain the concepts by asking key questions or by calling on other students to give their explanations. Students have a way of explaining things to each other that are often more effective than my explanations because they are closer to the process of learning than I am. Only as a last resort do I lecture and then I try to keep my remarks to 5-10 minutes. Beyond that time eyes begin to glaze over and body language tells me I am losing them. The students are not left completely on their own. There are several sources for extra help including other teams, the math lab and they can come to my office for help. This procedure does not remove me from it, quite the contrary it involves me much more actively and brings me closer to the students than when I lecture. By observing them in every class I am able to assess their understanding of the material well before they take an exam.

This procedure is familiar to the sophomores since I use teams in a freshman Engineering Graphics course which they take. Here I ask the students working in teams to develop lectures and presentations on the topics covered. It does take them time to get used to their new responsibility for presenting problem solutions and not all students participate at a high level. I monitor this closely and make changes in teams or allow teams to make changes. There is some disagreement in the literature about allowing teams to form themselves. I believe that since they are taking on the responsibility for their learning they need to be allowed to make other decisions such as team makeup, within reason. I discourage them from having all "A" students in teams or from leaving people out. However, if the group process fails to motivate individuals then those students can be dealt with by having them work independently. I have had cases where several non-performing students formed a team, somewhat involuntarily, and then started working. Likewise I have had cases where students are in the program for the wrong reasons and nothing I try motivates them to work. These students are be allowed to distract the serious ones. This is where the team approach is very helpful. Sometimes the team members can help another deal with non-academic problems or provide extra support. Some of the pressure is removed by having a few students responsible for a problem instead of focusing on one person at a time. It also helps insure that someone will have a solution. If no one in the group can solve a problem and other teams have trouble also then my intervention is warranted. Thus helps me identify problem areas which the entire class may be having and we can focus our attention there.

I have carried this class consensus idea to the other end of the spectrum. I had a small class of ten students who after working in teams for several weaks decided that they preferred a more individual approach with lectures. They were just too uncomfortable with the no lecture approach. It showed up in their presentations which became briefer with each class. We worked out a compromise where I used a lecture/discussion process with a few team projects scattered throughout the semester. The emphasis was on discussion and their participation increased markedly because they had significant input into the course procedures. They seemed surprised that I actually listened to them and agreed to their suggestions. I think this demonstrated the power of groups working together.

The team approach puts the student at center stage and takes the professor off it. Most tachers assume that it is their responsibility to present information to the students, yet when we go to work no one is there to hold their hands and lead them through problem solving techniques. There is a false presumption that giving students content through lectures and having them solve textbook problems will prepare the for the real world. Another false assumption is that students are not mature enough to take on the responsibility for their learning. Again, we want them to be responsible when the enter the world of work but do not give them the tools. We only test their knowledge base. It is almost too late to wait until students start working to introduce cooperative techniques. People learn best by constructing their own knowledge base. They do this by discussing concepts, arguing about problem solutions and advocating for their positions. This reflects what companies are looking for in their employees. This type of interaction does not take place in the lecture class. Many companies find that they need to train or retrain new engineers. If universities promoted cooperative learning at all levels they would produce more effective graduates, people ready to function well in the real world.   
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Students teaching a chapter on factoring in Intermediate algebra- Ted Panitz

By way of background I have two Intermediate Algebra classes. One at night with mostly adults and one during the day with mostly younger students. We have finished a review of elementary algebra where we have worked in pairs and groups of four for the past three weeks. The students are now relatively used to working together and have rearranged themselves to find people they are compatable with.

I started the section on factoring polynomials by announcing that this would be their chapter. They would be responsible for teaching themselves and the class this material with me swerving as their consultant ro assist in arbitrating disputes and helping them clarify any difficult concepts or procedures. To help the process along I suggested that each table of students (4-6 at a hexagonal table) be responsible for teaching one section of the chapter to the class. They "agreed" to try this approach.

We spent two days working on the material in class. A few groups did some work out of class in the math lab where they work as a study groups normally. There was a great deal of concern about their being required to "teach" the material. I assured them that they would not be graded on their performance, that this was as much an experiment for me as them and they relaxed a little. They worked on strategy for their presentations, what order of problems to discuss and who would do what. I asked for volunteers to start and two students offered to go first to end their ordeal quickly so they wouldn't have to sit in class a get more nervous. I congratulated them on their strategy. They worked together putting problems up and discussing them. There seemed to be comfort in their doing this together versus having to go to the board alone. Interestingly they worked on the side board not the board in the front of the class. The rest of the class was inspired by their approach and at one point an entire table went up together to work at the board. This required a little management on my part so everyone could see what was going on and have a chance to ask questions.

The students basically worked through their procedures for factoring without a lot of theoretical discussion. This was acceptable to me since the factoring topic is somewhat mechanical in nature. I stepped in to highlight important aspects being discussed and to emphasize particular areas of potential difficulty or mistakes. I did that as much to get involved in the process myself so that I would not be perceived as not doing anything to help them along. (This is a problem with group learning. The teacher is sometimes perceived as not being involved when they actually are motre involved helping individual groups).

In the end everyone made some kind of presentation. Some shorter than others as you might expect, some very detailed. We may have discovered a few budding teachers in the group. The students felt much better about the exercize after we completed it. Next i gave them a group test. I assigned 5 problems at a time and the group was responsible for getting the solutions. Each member had to write one problem on an answer sheet I provided. This was to prevent one person from doing all the work. I offered them a half a point for each correct answer to be tallied on the chapter test. In two days we worked through 40 problems in class. They worked extremely hard and cooperatively. It is amazing what students will do for half a point. I'm not sure I would have been able to cover that many problems in class if I did them all myself. Finally before they exam I asked each student to make up a test covering all the material with their accompanying solutions. This helped them focus on the nature of test making and what they might expect. Again there was a lot of variation here but overall a good effort by almost all of the students.

I then gave an individual exam to promote accountability and the results were excellent. Out of a class of 30 only 3 did not pass. These were students who were not partivcipating very actively in the process dispite my frequent interventions and exhortations. That is a subject for another discussion. There were 4 grades between 75-80 and the rest were above 90. The lower grades were also predictable based upon my observation of the students level of enthusiasm for this approach and perhaps algebra in general.

The biggest benefit for me is that I get to see students performing in every class and can assess their ability and level of effort before they take the exam. The students had a good time as evidenced by comments they made through an informal evaluation I did after we were through. And finally their individual performance demonstrated that they had mastered the material.

Peter Smith asked the following questions about students participating in the active learning process.

<<<What a great way to get students to become actively involved in their own learning. My concern has to do with students only focusing on one section, although the assessment results don't reflect this as a problem. How did students perform on material other than that which they prepared to presrent to the others? And how well do other students "tune in" to the presentations of the other student "teachers"?>>>

The students paid quite a bit of attention to the other presentations I think because they were nervous about their own and wanted to see what other students would do. It did take some management on my part because students would see something their peers were doing and then start chatting among themselves about whether they should also use a particular technique. That is a potential problem with group learning. Once students get into it you need to

keep encouraging them back to the group as a whole. I emphasize that when we are working as a class we need to stop individual converations so that everyone can hear the person talking. The respect that and after a while it no longer a problem.

Initially the students became "experts" in their section mainly. The group "testing" effort directed them toward learning the other sections. I started by giving them 5 problems from each section and then when they all seemed comfortable with all the factoring techniques I started mixing up the problems. The other aspect which encouraged them to look at the whole picture was the test I asked them to make up for the chapter covering all the material with

their solutions included. The results here were interesting in that students didn't just include the easiest problems but had a good cross section of different types. They indicated afterward that this exercize helped them think about what I must think about when making up tests. A few thought it would be fun to compare their tests to mine. Naturally they thought theirs were better.   
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SILENCE IS GOLDEN--- A silent math class-  Ted Panitz

I believe that what he is describing is not really what I consider a lecture. A lecture is the presentation of material by the teacher with the students listening and taking notes or what ever else they do. An interactive lecture has the teacher asking questions and leading the class through some line of reasoning or problem solving. This is a step up from a 50 minute lecture but the focus is still on the teacher as the

source of correct information. In the group process it is very helpful for the teacher to bring the class back together to focus on a particular problem or question through an interactive approach (a mini lecture) or by asking the groups to explain their ideas or rationale. Other groups can observe or comment or even discuss or argue their points. It is marvelous to see students debating mathematical problems just like they

would debate politics or art or peotry. If this process is used then the teacher becomes the facilitator and even participant rather than expert on high. Imagine the teacher being viewed as a peer versus controller. It takes a lot of confidence to put yourself in that position. I can tell you also that students resist this too. They think they want to be told what to do. Then they go home and wonder why they can't repeat what I did in a lecture in class. I rarely get that response when we work togewther in class and they resolve issues before they try the homework.

I get the feeling that some people who favor the lecture approach misunderstand group learning and presume it is anarchy with the teacher left out of the picture. A effective group process has the instructor deeply involved in every part of the process but is a more subtle fashion. It takes a lot of preparation to work up group exercizes and then to facilitate them. Also you cannot do the exact same thing every class or as

someone mentioned students will become bored with that too. Part of the lure of group work is the idea that you will do different things in class. For example I do a class where we cannot talk. I use it to highlight the exponent rules. Students may write on the board, try sign language or anything else they can think of to show/explain how multiple operations with exponents work. First we do it in groups of 4-5 then we come back and try to go over some complicated problems on the board, by having individuals or more use non-verbal communication to explain problems. At

first everyone is very hesitant and wary but as the class moves on they catch on to the visual nature of working with exponents and begin to have fun. By the end of the class everyone is quite tired because they are concentrating so hard, which is a byproduct conclusion of the lesson. Math takes great concentration and is physically tiring. Most students do not realize this. I could lecture them on the need to be rested and well fed to do math effectively but it would not make an impression on them. This way they live through the experience and some tell me later they never forget how tirted they were.

This brings people back to class to see what is going to happen next time. If we don't do anything unusual they are still happy to work with their friends and wait for the next special exercize. I am not bragging when I say that they tell me their algebra class is their favorite and they actually look forward to coming to a math class. I take only 33% credit the process gets the rest.   
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Regarding the math olympics:-  Ted Panitz

I put a grid on the blackboard with a column for each group with the problem numbers on each block. I usually use 4-5 problems per set. The entire class works on each set. At a specific time I ask each group to send up one member to record their answers on the blackboard. Initially I do not time their work. As they get used to the process I start calling for answers earlier and earlier depending on whether they are getting the material. In reality I do not want this to be a heavy competition or time pressured exercize.I keep track of each groups correct answers and offer bonus points on the next test for first, second and third (15, 10, 5). If we have a tie then I award tieing groups the points they have earned.

I use this for solving equations where we start with the addition principle and then move on to multiplication and the combined parts ending with using parentheses. I also have used it with polynomials and factoring. It can be used almost anywhere.

The amazing thing is that the class will work through 30 or more problems in a class period but doing this together. They do get tired and feel rung out by the end of the class. This gives me an opportunity to talk about how you need to be rested and in good physical shape to think hard. Many students are unaware of things like that. It becomes humorous when they start to make   
comments like "not another set, etc." but they keep working because they are actually having fun doing it.   
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From: Estelle Paget <PAGET@CSTUDIES.UBC.CA> sthle-l

For those of you out there in the Humanities, or languages, I just thought I'd mention that I've used a system similar to Ted's while teaching French. Because I also have an interest in "inclusivity", my motivations were threefold: encourage the interaction between students newly arrived from Pacific Rim countries (3/4 of the class) with those who had been born and raised in Canada; make the class interesting and workable for those with very different levels of language ability, from true beginner to grade 10; and give more responsibility for learning to the students.

Because there were 26 students in the class I was able to make the groups myself. Each group was composed of extremes - students with the most ability were grouped with those with the least. I explained my motivations and learning objectives to the students at the beginning of the year when they had 2 weeks to change to another class (it was a multi-sectioned course). One young woman left, but several students transferred in. Basically, I indicated that 1) I expected them to help each other so that we could move along at a pace that would enable us to finish the course, 2) that they would have the opportunity to work   
closely with students with very different backgrounds, ages and life experiences.

The results were very rewarding. Academically, it was a success. On the standard exam, set by the dept for all of the sections of the course, and marked by an exam team, every student in this class passed, though 3 students had been touch and go all year. There was a very high number of first classes. The marks, I was told, were several per centage points higher than in other classes. The greatest success, I felt, was the camaraderie and friendship that developed and lasted all year -- and beyond. After several weeks, students were getting together on Sundays for Dim Sum! I learned afterwards that an informal e-mail   
network had developed where students talked about the grammar points and vocab. I learned that they even e-mailed each other in French!

Students were very supportive of each other and proud of the achievements of the struggling students. In class the group set-up   
proved a great time-saver. If one student was away, someone else in the group took the hand-outs or homework for the missing student and taught them what they had missed, so that they could follow the next class. In fact, there were very few absences and students got into the habit of phoning ahead if they were ill or unable to attend. Sometimes, for variety, or if some students hadn't grasped a grammar point, I would say, "Please get in your groups now." In 2 min the groups were formed. The students would then work on exercises in their small groups and I would go from group to group.

Another activity that students participated in on a volunteer basis was keeping journals, in French. There was a very high participation rate and students wrote of their experiences, feelings and activities out of class, again, in French. I had originally asked students to note what they did to improve their French outside of class. Some students had misunderstood and written personal diaries instead. When I mentioned this in class, the rest of the students turned their journals into diaries too. There were some incredible works of art in these journals, photos and lots of vocab that wasn't in their textbooks.

So, I'm not really sure what contributed to the success of this class and the 2 previous ones, when I formally initiated the group set-up. I do know that the students became extremely culturally sensitive and explained their jokes before telling them, so that everyone in the class could laugh together. I used a similar set-up with an advanced oral communications course with equally fine results.   
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From: Dave Smith <dsmith@ACA.LASALLE.EDU>

In my sophmore level geology courses, I have taken to giving a homework   
assignment before each class. I used to just ask students to read on a   
particular topic and I gave a weekly quiz as a motivator, but the results   
were distressingly poor and the quizzes killed motivation instead of   
building it. Now, I give out a sheet with a reading assignment and 2-3   
essay questions, some of which are directly from the text, some of which   
involve synthesis of material from several sections, and some of which are   
completely open-ended and intended to provoke thoughts beyond the reading.

I give 5 points per day for attempting all the questions. I tell the   
students that the answers don't have to be right, but they have to have   
tried. I do not collect the homework, I merely scan it to see that it has   
been done. The quality of participation in class exercises has improved   
dramatically since I started doing this last semester.

One of my colleagues commented that this was more like high school than   
college and I have realized that so little is demanded of these   
students in high school that they are completely unprepared to deal with   
the level of organization and work needed to master the complex material we   
are covering. By breaking it down into daily pieces, I make the task   
managable. It seem that there is a critical cutoff between reading 5-10   
pages with questions and reading a whole chapter. The former is no big   
deal, the latter becomes an insurmountable task for reasons that I cannot   
fathom. I am hoping to gradually increase the level of expectation and   
decrease the level of organization in homeworks over the course of my two   
semester sequence in order to prepare these students for upper division   
courses where they are expected to work more independently.

I now spend class with the students either discussing problems raised by   
the homework or working on cooperative exercises reinforcing the concepts   
from the homework. If I were lecturing, I would have spent time covering   
what they already could have understood from reading. Now, we focus our   
time on the student's problems, a very efficient means of learning for   
them. My coverage is no worse and might actually be slightly better than   
when I used to lecture.

For assessment, I am asking for a portfolio from them and the homeworks   
will make up a big part of that. It's a chance for me to review their   
homeworks in more detail if there's a question about their mastery of a   
skill and it's achance for them to make up for any they didn't do the first   
time through.   
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From: Gail Shuster-Bouskila <gailsh@OUMAIL.OPENU.AC.IL   
"News on teaching with collaborative learning at Indiana University, Indiana."   
<CL\_NEWS@IUBVM.UCS.INDIANA.EDU>

The 8th English (English as a Foreign Language) grade class I teach is a group of nice but troubled kids. They just seem to fight more than they learn. One day I had to give them a review exercise of a homework reading passage. Having no wish to sit in front of the class and ask questions of kids who NEVER listen to one another's comments, I made it a cooperative learning exercise. I whited out different vocabulary words on all of the copies of the reading that I was handing out. Each student got a tailor-made copy, weak students had easier words wiped out and the one native speaker had all of the vocabulary missing. They were to ask one another for the words they needed. No one was allowed to copy, but each had to ask around for the words they were missing. (The native speaker really didn't need any help, but he was determined not to have to find all of the words on his own.)

As I had hoped, this extremely uncooperative group found a way to do the exercise without anyone hitting anyone or calling out names about their parent's profession and the like. (I really couldn't help them because I was going to tutor the student who can't read English during the time they were to be working.) I did mention that the grade they got would be an average of everyone's grade, so they had to help one another succeed.

It was our most pleasant class to date and I can't wait to do something like that again. I'd love to hear other ideas too.   
Gail Shuster-Bouskila gailsh@oumail.openu.ac.il   
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Barbara J. Millis   
At the Air Force Academy where cadets are on a grueling academic, athletic, and military schedule, I substitute taught a session on library research. The cadets were to have watched a 10-minute orientation tape and read a chapter on research procedures in their handbook. This material, needless to say, was terribly dry. I devised a series of questions and ran a game called QUIZO based on a bingo format. I gave each pair of students a QUIZO card, a sheet to record their answers, and some M&M's to use as markers. After the cadets had an opportunity to record their answers, I had a student roll a die for the number and draw a card for the letter of the space to be filled. Those answering correctly could put an M&M on the space called. At the conclusion, I awarded candy bars to the pair(s) who got "QUIZO" (five spaces filled in a row) and allowed everyone to eat their markers. While exiting, one of the cadets paid me a great compliment at the Academy: "Hey, nobody fell asleep in class today!"

If any of you are interested in a QUIZO game set, it can be purchased from a commercial firm. Unfortunately, I don't know which one. I got my set from its "inventor," Steve Sugar, whose home address is 9728 Byeford Road, Kensington, MD 20895. Phone: 301/949-1074.

Cooperatively yours,   
Barbara J. Millis Associate Director for Faculty Development   
United States Air Force Academy HQ USAF/DFE, 2354 Fairchild Drive   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: Jan Lofton Lundquist <janlund@umich.edu>   
To: ednet@noc1.oit.umass.edu

After using co-operative learning at the college level I found that it was highly successful if the kids first learned some skills for working in groups, so I put together a series of exercises with this in mind:

The first was a self-assessment test which helped them to evaluate their comfort level as a group participant. In the second I paired them into teams and had them play The Prisoner's Dilemma, and then we talked about the concept of win-win. The third was a listening exercise in which I read a passage that could lead one to make several assumptions and followed it with 3 or 4 simple questions. I had them write their answers to the questions and then discuss them. Once they had done this, I read the passage again and asked them to reflect upon which of their answers were based on facts they heard and which were based on assumptions they made, and let them discuss this for a while. The fourth and fifth exercises were devoted to problem solving. The fourth was an intricate scenario and each of them was given on fact on a card which would contribute to the solution. I witheld one card and let them struggle for a while, until someone realized that there was an important piece of information missing. We talked about this situation as a mirror of the way problems often manifest themselves in the real world.The final (fifth exercise) was a consensus seeking game. I used the one about the spaceship leaving the doomed planet and able to take only 8 people to recolonize their new world. They had to decide which 8 could  go, from the list I gave them.

The students seemed to thoroughly enjoy this series, and I often overheard them talking excitedly about it outside of class. I realize that not all classes lend themselves to adding this much new "stuff" to the curriculum, but I have a feeling that with the older students we often expect them to work in dyads, groups, teams, without realizing that we have never TAUGHT them how to do this.

Jan Lundquist janlund@umich.edu Graduate Research Assistant   
Center for the Study of Higher and Postsecondary Education University of Michigan   
(313) 747-3764 FAX (313) 747-3804   
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 Peter Pflaum <pflaump@MSN.com>

This is what I have found works for me in using groups and active learning. I have done this for years in school and industrial training and doing workshops. It's still experimental and you have to go with the flow of each situation and group. What makes it fun is that it is never the same. Don't worry about too many instructions, just do it! If you can find a small (really small) one-room type school (we think there are 10,000 of them) most will individualize and use many of these methods because they   
have to. You can't talk to a class of kids from 6 to 14 in one room.

Each student needs a loose leaf notebook, dividers, and the groups needs a hole punch and stapler. The notebook is called the portfolio and contains all their work. It is turned in at the end for the grade. (I don't keep them but just check them out -   
since I've seen all the work in there) Work can be put into a group notebook but individual notebooks are better. If they use individual notebooks group work has to be copied for those who contributed. If you use a collective portfolio then the individual journals are separated by name in the back.

I have a plastic milk carton hanging file. Each group has a folder. As they do their work they put it in the folder. I give points on the papers. After they are scored they take them back and put them into their notebooks (portfolio). I keep track of the points on Lotus 123 and make a graph of their progress. (They like that). I have a goal of 100 points. Everyone who get across that goal has a B. The A is a quality judgement. Evaluation is the points - I give 2 for A,B and C. A poor papers (project) gets .5 or .7, a OK is 1.5 excellent is 2. I don't have people evaluate each others work but I encourage group editing by a processor.

Each activity has a reading (A) and an action task (B). I have collected a few dozen activities that take about an hour each. I still us a textbook but using a paperback library or a library or INTERNET would be better. The C part is a journal. The journal   
is not a diary but the statement of the ideas or concepts learned. These concepts are then related to life, and other concepts learned. The journal should give examples that show the student understands what they are talking about. This is an individual responsibility but come together in a package - Reading and research, activities, and journals - with a nice cover go into the file under the group names - winners, achievers, etc something positive. You work with one group at a time - get them started then use the in and out papers and reports as feedback and suggestions. They should learn to ask questions.

The one room schoolhouse work this way, as does individualized instruction or multi-graded classes. For example there is an activity in housing, or lakes, or stories from history, etc. The group does some reading and discusses what they found. A member writes up a report (A). They then build a house, visit a lake, make a play, do a class report (Something active) (B) and have a report, video, whatever as a group effort. Each person then writes a journal on what did it mean to them(C). They earn   
points. My activities have to do with feeling, personality, creativity, setting goals, problem solving, growing up, sex race and age, conflict, listening, assertiveness training, human potential, institutions and political and social issues.

I use personality style to create groups. The concrete sequential on one dimension to the abstract random on the other. A 20 question instrument give scores from 30 to 70. I line them up and create groups. It come from a value clarification process. I also use a form of nominal group process. (ask if you want to know more about this). The biggest problem is FREE RIDER, people who what to take credit for others work - the Little red hen problem. I don't have a good answer except that's life and to have the groups assign roles so that everyone has an equal share of workto do. Group pressures are greater than anything I can come up with but even that doesn't always do it. I have a big sign up that says OUT WITH FREE RIDERS - if people don't do their part the group should not put their name on it and they get no credit. Its fun, its easy, the students are happier and do better. There is less conflict and every class is an adventure you look forward to.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: Brenda Dawe <daweb@k2.kirtland.cc.mi.us>   
To: heproc-teaching-learning@facteur.std.com

I appreciated the thoughts shared on cooperative learning even though it is on math class. I teach American Sign Language as a foreign language on the college level and have been practicing this approach from day one. If I do any lecturing at all, it is just to share cultural info or personal experiences from my position as an "inside 'outsider'". I encourage "hands on" learning (pardon the pun) and make sure every student in the class gets interaction with me and in pair or group practice (without voice). The quizes are graded "A" for 50% accuracy, "C" for less than 50%, or "E" if the student misses class on quiz day. My goal is to have them focus on the mistakes as an indication of their weak areas. This also allows me to guage the common mistakes and do further instruction in those areas.

There are always personality conflicts involved in the pairing up process, but I stress tolerance and flexibility and change partners every two lessons. I remind them they only have to be with each other a few hours---not live together. Occasionally the very ones that are adament about being paired end up liking that partner the best. Go figure!   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: Pete Jones <petejone@village.ca>   
Subject: Concept Attainment

I thought, if it's OK, that I would post some information on CONCEPT  ATTAINMENT. I

Below are some sample lesson plans for French class which use Jerome Brunner's instructional strategy of Concept Attainment. I hope that you may find them  useful. The explanation is quite lengthy, so you may wish to print it out. Concept Attainment is an inductive model or strategy of teaching. I was introduced to Concept Attainment by Dr. Barrie Bennett from the University of Toronto along with approximately ninety other teachers. We were all from different subject areas at the elementary and secondary school panels and we all created sample lessons for our different subject areas using Concept Attainment. I have been using Concept Attainment (CA) for 3 years in my French and German classes and find it an exciting instructional strategy to use in the classroom. I also weave small group cooperative learning strategies around it to make it even more powerful. I find that itreally increases active participation in the class. If you decide to go ahead and use it, could you let me know and share your experiences? Thanks.  So here we go!

Divide the class into groups of two and have the students number off 1/2 or A/B or Captain Kirk/Mr. Spok - whatever you want. This is important for later on Tell the students that you are going to present them with YES and NO examples and that in their groups of two they have to determine what the YES examples have in common and distinguishes them from the NO examples. (This is the first stage of CA which Brunner calls the focus statement). (Note: On the blackboard set up a YES side and a NO side. All of your examples will be on construction paper with masking tape on the back so that you can attach them immediately to the YES and NO columns on the blackboard.)

The second stage of CA is the presentation of the YES and NO examples or the presentation of the data set as it is called. I have placed below one lesson I used with CA. (The concept is the adjective adding an "e" if the noun is feminine.)

One by one I put up the YES and NO examples:

NO

Papa est fatigue   
Paul est grand   
Le livre est ouvert

The third stage of CA is the groups of two sharing their hypotheses. We do this by using Spencer Kagan's Think Pair Share. Another structure we were introduced to by  Dr. Barrie Bennett. With Think Pair Share (TPS), you give the students 15 seconds to think about what distinguishes the YES from the NO examples. They are NOT to speak, just to think. After the 15 seconds tell student A to share with student B his/her state of thinking re the data set then student B does the same. It is important to note that the students do not share their thinking with the rest of the class just within their group. It is also important to tell the students that if they think they know the concept after the presentation of the initial data set that they keep their thoughts to themselves and do not shout out the answer.

Once you have done the first TPS continue presenting more of the data set.

YES

Ma tante est francaise   
Sa soeur est petite   
Madelaine est occupee

NO

Mon oncle est francais   
Son frere est petit   
Pierre est occupe

You now ask the students to go back into TPS to refine their thinking a little more now that they have seen more of the data set. You can present more YES and NO examples of the concept if you wish.

The next stage is to present the students with what are called testers. Remember that up to this point the class has not shared its thinking, just the groups of two. Testers are random YES and NO examples. I will hold up on construction paper the sentence "Il est fache" and ask the students if it is a YES or NO - they do not respond verbally - they respond with thumbs up for YES and thumbs down for NO - if they don't know their thumb is parallel. If we see thumbs down because this - il est fache is a NO example then I will attach it to the NO column on the blackboard. You can use as many testers as you want.

The final stage of Concept Attainment is the whole class sharing what the concept is - here the differences between feminine and masculine adjectives and then applying  the concept. The concept here could be applied quite easily by giving students envelopes with sentences inside cut up into individual words. For example:

Marie est americaine.   
Paul est americain.

The students would assemble the sentences and write them out on a piece of  paper and then send the envelope to the next table while they receive another envelope with a different set of sentences from another table. So that is one way in which I have used Concept Attainement in the French class! The above lesson was very simple but you can make more complicated applications with: Going to and being in masculine and feminine countries. In French if you are going to a feminine country you use the preposition "en" and the preposition "au" if the country is masculine.

YES

Je vais en France   
Elle habite en Grece   
Nous sommes en Espagne

NO

Je vais au Danemark   
Elle habite au Japon   
Nous sommes au Tibet

You could also look at differences between present and past, apporter and amener, verbs followed by "de" and an infinitive and "a" and an infinitive, la derniere fois as opposed to mardi dernier - there is no end to the series of YES and NO. Sometimes we use colours rather than YES or NO - so you could have BLUE examples and RED examples. To add more cooperative learning to the class, you could model, using a  T-Chart the social skill of "Staying on Task" during the CA activity and then process it at the end.

I hope that you find this explanation of use. One of the English lessons I saw created during the workshop was on hononyms. I also saw a math lesson designed using Concept Attainment.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 Sylvia Edwards <sedwards@kcmetro.cc.mo.us>

My favorite collaborative tool of the moment are post-it notes. I'll ask students to brainstorm ideas--one per post-it. Then they work in groups to organize their notes to create a team list. Then we merge team lists. I use this in composition, but I bet it would have some application in math.

This week I color coded the notes and asked for most important point from each of four writers. First group organized by writers to see what points they had. Then they looked for similar points from different authors and reorganized by those points. Then whole class merged points and we ended up with five key points with support for each point from each of the four writers.

+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 Randolph Hollingsworth <RHOLL00@UKCC.UKY.EDU>

In a 100-level early European survey history course, students must simply KNOW certain historical terms for their essay exam. I have traditionally tested their knowledge base with short answer Identification (who-where- when-what-historical signicance) as 30-40% of the exam. This year I used collaborative learning techniques in class (including 20% of their grade for producing 3 terms per chapter with answers that I would comment on and put in the class notebook on reserve in the library so the whole class could see each group's work). For their exam, the group would answer the short ID terms, then break up to write individual essay. The trick that I found made the groups accountable -- and the students thought this was fair, too -- was that the essay must include appropriate group-chosen terms (I listed them all, per chapter, under the essay question part of the exam). I deducted points from the individual essay that did not include a class-chosen ID which would have enhanced the answer. In other words, everybody had to know the terms -- they couldn't just farm out individual terms and remain blithely ignorant of what their team member was doing. It was fun for me to watch them studying for the exam and critically analyze their peers' own answers and argue about why I graded some answers tougher than others. It livened up a usually dreary list of "stuff" from their perspective, and from my perspective I had higher quality essays -- and a cut-and-dry way to grade their use of historical terms!

\* Randolph Hollingsworth Associate Professor of History   
Lexington Community College Lexington, Kentucky 40506-0235 (606) 257-3635 FAX (606) 257-4339 rholl00@ukcc.uky.edu   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: Phyllis Oliveto <poliveto@OUTLAND.DTCC.EDU>

In Technical Writing, my students are required to participatein a   
collaborative writing effort in which they prepare a written (and oral) Problem-solving Proposal. They usually consider problems in the community or workplace; some focus on campus problems. Since this project is a formal report, it usually follows the following organizational plan:

Title page, Table of Contents, Abstract, Introduction, Background,   
Statement of Need, Plan of Action, Budget, Funding, Schedule, Evaluation   
Conclusions/Recommendations and Appendix(es)

This project ususally requires students to design questionnaires and conduct interviews or any other empirical research that may be needed. I found that groups of 3-4 persons work best; every group member has something valuable to offer. I have been very impressed with the way students work when their grades are dependent upon each other! There is a peer evaluation that is worth 25 pts. towards a possible grade of 200 pts. If you would like any more info- topics used, problems, specific project breakdown, I'll be happy to share with you. p.oliveto   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: "John Ufer. User" <OnSiteEdu1@AOL.COM>   
Subject: Re: Favorite teaching strategy

I would be interested in finding out what people use as methods of effective and interesting teaching strategy and why it worked. I enjoy trying out new ways to engage the students I teach.

I have been using overhead transparency problems that students do in groups or as homework and then use their examples and solutions for class discussions. I preview the example quickly and only place the good examples on the overhead.It has been very effective but I do lose a great number of overhead pens in the process A second method I use with blank overheads is to get three student to a group and have the group design an electronic circuit to fit an application, each member has a job within the group- the presenter, the secretary, and the researcher. They have data books on electronics parts and must design the circuit in 20 minutes. The class votes on the best design. Sometimes art wins over effective circuit design- student love it.. Has anyone else used overheads within groups or for problem solving problems ?   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: "BARBARA J. BASS, ENGLISH DEPT." <E7E4BAS@TOE.TOWSON.EDU>

Subject: Re: 2.5 hour-long Class Sessions

I've been taking graduate courses in the evening, and some of the techniques employed there might help you, along with some of the great suggestions that have been coming over the list. One thing that really works is FOOD! In the class I'm taking now, we rotate the food responsibiliity. People have gotten pretty creative with what they bring in, and a bit silly (like danish when we were reading Hamlet!). There is always a break, as someone has already suggested, and during that time we socialize and eat whatever's been brought in. Another technique this professor uses that I have employed in my own classes is letter writing. We begin each class by reading a letter written to someone specific, not Dear class...responding to something in the reading, or something we may have read or seen on tv that is relevant. It really helps in getting the discussion started. If you have a large group, you'll have to divide the letter-writers up...maybe 6 or 7 at the most per period. This professor also uses a class historian who does a sort of deconstruction of the previous class and reads it to the group. Finally, I'd like to add one of my own techniques that should work pretty well in a big block of time, although I have only used it in 50 min blocks. I have the class divide in groups, each group discussing a different reading. They have to find the most important sentence in the piece and come up with a question they have about it. Then we put that info on the board and use it to start the class discussion. It's a good way to review the material before you get started, too. If it's a long piece rather than short articles, you could divide it up, with each group discussing a different section.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 "MARIO W. CAPRIO" <capriom@SNYSUFAA.SUNYSUFFOLK.EDU>

I am moving into using more and more cooperative learning techniques in my introductory biology (non-majors) and my anatomy and physiology courses.In general, my approach is to provide short lecture vignettes (15-20 minutes) coupled with related group work. Students are working together to prepare for class presentations, to analyze flow charts and diagrams, develop questions that I will use on examinations, and much more. Each topic in the course lends itself to a different cooperative strategy.

During these work sessions I move from group to group, coaching and learning about the analogies they are developing and the insights they are having. Afterwards, we meet as a committee of the whole, and I try to incorporate some of these student-generated ways of knowing the subject into the concluding discussion.

One of the things I found difficult at the start was the loss of control. And there is also the need for the instructor to think on his or her feet. Every class will be different and the teacher's success will -- in large part -- be dependent on how well they can sieze the moment. This is risky business for teachers who may really not have the confidence they seem to possess in the lecture setting.

I used to think of myself as an excellent lecturer (everybody said so, anyway); but now if I do straight lecturing, I have the real sense of doing poor teaching. The students do like the new technique, but they do find it to be more work. The complaint I enjoy the most is, "Aren't you supposed to tell us what we have to know? I don't think it's right that you make us figure out everything for ourselves." Yes!

I only have one piece of advice for those who might be on the verge of trying cooperative learning and one hope for this list. The advice is that this is not an all or nothing thing: you can try one short cooperative activity to get the feel of it -- the risk can be minimal.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 maureen brilla fitzpatrick <mbf@vivanet.com>

With regard to group work, I have recently instituted the use of e.mail discussion groups in each of the courses I am teaching. A colleague of mine has been using this technique for the past 3 semesters with much success. This is the first semester I will be trying it out. So far (3rd week into a 14 week agenda) I have been very pleased. Each class is divided into random groups. Computer Services has assigned a separate e.mail address for each of the groups so that everyone is able to send and receive all ideas contributed within the group. I give them a theoretical/philosophical topic to toss around, to which they have one week to respond and develop. I evaluate them with regard to participation, quality of participation, originality of thought and research done to reinforce opinions. During the week, I am able to monitor the discussion and to toss in my ideas, keep them on track, and point out subjective vs.objective statements. It's great thus far, as well as a lot of fun. The students come to class having thought about issues rather than coming in frozen in need of thawing before any work can begin.

Maureen Brilla-Fitzpatrick Professor of Art Nazareth College Rochester, New York   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 belkina@mistral.ERE.UMontreal.CA (Alan Belkin)

I am supervising a similar project in the Faculty of Music at the University of Montreal. We are now in our 2nd semester of it, and although we have not yet arrived at a final evaluation, our experience is generally positive. Some observations:

1) We have found that some students take to this method much better than others, especially given that their computer literacy is very varied (our project is in a first year course). Apart from having made participation obligatory and subject to evaluation, we have found that \*focus\* is very important to keep students interested. Especially if the groups are large, there is inevitably a certain amount of repetition, generating superfluous mail. Well focussed discussion helps to avoid this.

2) We are looking into the question as to whether email is really the best vehicle for this sort of thing. In particular, we rather envision a structure more like that found on commercial online services, where people post to "bulletin boards" where messages are organized by thread (and where it is easier to select messages of interest), and wherein there are also "libraries" where completed (and possibly edited) threads can be archived, searched, and retrieved.

3) Finally it is my strong conviction that the role of the teacher (or as I prefer it, animator) in these discussions is to ask provocative questions rather than to give specific answers. We often request students to reformulate their questions in more general ways that will be more useful to others.

Prof. Alan Belkin Faculty of Music University of Montreal   
email: belkina@ere.umontreal.ca   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 Chet <cpryor@DGS.DGSYS.COM>

Some of the most unlikely situations avail themselves to collaborative inquiry. Our college has an outcomes-based freshman English program funneling into a first semester exit exam. One of the things that seems to put students at ease with the testing program involves allowing students to score sample (real) essays that come from previous semesters. I place groups of five students with copies of three essays previously holistically scored as fail, low pass and high pass. Students have the criteria that actual test graders use, and each group of five students is responsible for putting grades on each essay and justifying the grades to the class in terms of the grading rubric.

Resultingly, the students are harder on each other than our grading process is on the student body. These collaborative grading committees begin to see foibles in style, organization and mechanics on student essays that, in some cases, they fail to see in their own written work. At the end, even those students with test anxiety wind up buying into and taking ownership of the testing process.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 hthomp@lsumc.edu (Thompson, Harriet) ccforum-l

I teach microbiology to dental hygiene students. These female students are for the most part equivalent to sophomores in college (several college courses required for admission). They respond to most everything as a group, in fact we find this level of cooperation to be somewhat of a hindrance to getting everyone "up to speed". In response to hand-in work, there will be, out of a class of 30, 10 unique papers, and 3 or 4 groups of papers with identical misspellings, grammatical errors and naturally   
answers. So out of this group of 30, we have around 15 who can think and15 who can't or don't want to. With that said, we do set up tasks that encourage cooperation, and those usually turn out well. And if it has a participatory type of report, it is fairly easy to see who in each group has done work on the task.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 Collaborative Learning in a Netorked Classroom by Jane Lasarenko

Let me contextualize my answers first. Our second-semester comp course is  designed to serve as an introduction to literature, an intermediate composition course, and a research writing course. To my mind, that's an impossible mix to achieve well, since I don't assign topics to my students nor do I insist they write lengthy papers on  literature. Few of the students who take the course plan to become English majors. Moreover, most of our students come from essentially rural areas and exhibit generally poor reading skills. Having said all this, here's some of my thoughts about your questions:

I'm not sure that the use of the technology enhances the student's engagement with the literature \_per se\_. That is, the relationship seems to me to be more indirect. Once over their initial discomfort, students tend to get excited about their learning. This excitement spills over into their engagement with the literature. Also, since their  discussions of the works will be with students from other geographic areas, they tend to be more "serious" in their statements--they fear appearing "dumb" to the other class. I use each of the technologies very differently, though. They don't lend themselves to a single objective. MOOs tend to work best for brainstorming and peer  editing, listservs for more formal discussions of an aspect of a work, email for routine communications. I think all of these increase student awareness of writing and sensitivity to language, indirectly benefiting their ability to read and appreciate the  literature.

I think collaborative learning motivates individual learning (I hate to separate the two, though). Most students are shy and insecure when it comes to literature. Collaborative learning allows the shyer student to participate and to learn directly that others often have the same problems with the lit, that their responses are valuable, too. Collaborative engagement sparks questions that students pursue individually in the listserv or their reading folders.

In collaborative projects, my goal is that students become contributors, that they \*want\* their voices to be heard. That they can point to something and say "I did that part," or "I helped do that." Ideally, I want them to say something like "we did that!

Isn't that great!" The websites I have my students create are generally "critical." I see no point in having them develop a compendium of information that is probably already available elsewhere. If it's not already available, then a compilation is

necessary. I often structure these collaborative projects around a "debate" or an "issue" which they must argue. (The website on \_A Jury of Her Peers\_ was set up as a mock trial of the women--were they guilty of aiding and abetting a murderess.) Thus, the collaborative projects ask the students to define a critical or debateable issue, put together evidence from the text and elsewhere, and to organize and present that information.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
ENGMAN\_V@FORTLEWIS.EDU Ginny Engman

I teach at a 4-year college in the Teacher Education Department. It always strikes me as odd that future teachers frequently resist the strategy of cooperative learning. I have them work in groups to develop philosophies of education, learn historical patterns and significant characters in education, analyze the ten models of discipline and manyother topics. In the beginning, the students complain that they are "teaching themselves" and they do not understand my role. I avoid telling them that I structure the experiences so that they can explore the topics within some broad parameters. By the end of the course of study, most (not all) see me as a facilitator and mentor. The true test is in their translation of this knowledge into practice in their own classrooms during practica and student teaching. From feedback I've been receiving from cooperating teachers and the student teachers themselves, the strategy is being well utilized. I am certainly going to continue to use it because I can see obvious results: students taking responsibility for their own learning and the increased use of critical thinking and reflective practice.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
cwilkins@felix.TECLink.Net (cwilkins)   
Subject: Re: High expectations part deux

Hey Ted,

Thanks for the response. I feel that your method of grading tests will help   
immediately in my situation. We are are required to give a standardized   
exit test in Algebra I, and this year's test is new - based on application   
of concepts not just basic computation. We've started our review, and I   
have several practice tests planned during the next 3 weeks. I think the 80   
or above plan will be a fantastic motivator for the students.

At the beginning of each school year, I greet 150 students with virtually NO   
group working skills, so I start building them from day one. One of my   
first activities is all fun (using minimal materials provided by me, design   
and construct and test a parachute - collect data on mass and hang time,   
create a scatterplot and determine the overall best design based on the   
results). Students don't view this as math, and they love contests so it is   
well received. As part of the activity, I use an idea I ofund in one of   
these newsgroups - I notice who in each group is a 'do-it-all', a   
'do-nothing' and 'in the middle'. I list these names in three columns. My   
next groups consist of all 'do-it-alls', 'so-nothings' and 'others', with   
the third group being the best performers. Again I make a list, this time   
with two columns, of good group workers and not-good ones. My third   
activity allows the students to select their own groups, provided each   
member is from the same column on the list. By now the 'not-goods' are   
screaming about 'unfair' but I tell them they just have to demonstrate a   
willingness to work and their names will be moved to column A. By the   
fourth activity, I have maybe 2 or 3 'not goods' out of 150 students, and I   
haven't found a way to get that number down to 0.

My first mathematics group activity involves using a world almanac to   
research natural disasters. Each member of the group is responsible for   
creating one graph displaying one piece of information about the group's   
selected disaster, and the group must use these 4 or 5 graphs in a unified   
display, and create a presentation of their results. The overall effect of   
this activity is a group of students sitting close together doing their own   
thing, and only having to work as a team at the start and the end of the   
project. I can really begin building group dynamics during this project   
(requires 4 class periods to complete).

I am new at teaching at the college level - this is only my 2nd semester. I   
have high hopes and expectations for my students, and I hear them claim the   
same but their actions don't match their words. I teach graduate level math   
methods, and I emphasize methods over content. My goal this semester is to   
get these teachers (all of them practicing teachers with 5 - 12 years CR   
experience) comfortable with the new mathematics curriculum. These students   
have very high levels of high anxiety, which I have tried to lessen. I give   
no 'exams', but have projects instead. For example, my mid-term exam (the   
dean wants me to label which activities are exam replacements) involved the   
teachers selecting one grade level (preferably the one they teach or wish to   
teach) and finding or creating one performance activity for each objective   
(no more than 24 objectives in a grade). The second part required them to   
write an interdisciplinary math activity for each of the 6 strands under   
which the ogjectives are organized. The third part required an assessment   
rubric or grading scheme to be developed for one of these interdisciplinary   
activities. The interdisciplinary activities have been modeled every class   
period, because that is what I have them do in class. Out of seven   
students, 1 earned a grade of 5, 2 earned 3's and 4 earned 2's. Each one   
had omitted a section of the required work, yet each omitted a different   
section. We spent an hour in class going over their returned work, and they   
were surprised to learn that everyone did something different. I felt I had   
gotten them calmed down, and we continued on with class. (BTW - I   
calculated everyone's current average to show them that while the mid-term   
did not help their average, it did not kill it either). I was stunned when   
one of the students stayed after class to find out how to drop the course.   
She felt that since she had only received a 2 on her midterm, it showed she   
was not grasping the point of the course. I talked with her for quite some   
time, and she left calmer, but I don't know if she will drop or not. It   
would be a shame, because she has finished 5 of the 7 requirements for the   
class and has an 87 average. I mentioned this because of my first comment -   
high expectations. I hear the students talking about different classes, and   
the comments such as 'its such a waste of time - I wish we could learn   
something new - it's just the same old stuff" and such topics. Yet, when   
they have a class (such as mine) where everything is new, they complain it's   
too hard. I guess I'm still too fresh from being a student myself to have   
the proper distance, but I keep comparing what I expect from my adult   
students to what I expect from my 13 - 14 year olds - the same thing   
(stretch your mind, do your best, ask for help whenever and as often as you   
need, and never quit)! I am not met with nearly the same resistance from my   
teenage students as I am from my adult ones. Do you have any suggestions?

How do you keep standards high without losing students? I have met with the   
dean and reviewed my syllabus. He liked everything he saw and actually   
suggested I add an element (which I did). He did make the statement that he   
wanted to raise the standards of the methods courses, so maybe I'm just the   
first one to do so, and that makes my course stand out from the others.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
I've wanted to share with you some of my most successful experiences with CL. They have been in writing and critical thinking courses I taught previously, and although not straight math, might still interest you. My best experience was in teaching a theme-based writing course at Upsala College based on Deborah Tannen's book "You Just Don't Understand" on communication between men and women. I noticed in class discussion that the men and women were accusing each other but not listening, and with the help of a colleague designed a group activity where mixed-gender groups had to take a hypothetical scenario and analyze where each sex was coming from. The story was about how Tom comes home from work and opens up the newspaper when Mary wants him to tell her about his day and talk about his feelings. In the group, each sex had to listen to the other describe what they wanted the other to understand, and then write a paper pretending to be the opposite sex: if you were female, for example, you had to pretend you were Tom writing a letter to Mary explaining what he needed and how he felt. Well, you should have heard the fireworks! The students fought so much in the groups I had to go around and mediate, and teach them some listening skills. When they wrote the papers, however, they began to show some real empathy, and after two revisions and more discussion, many of them were quite good (especially those by men accused of being insensitive, I think unfairly). On the last day I had them write a course evaluation and they all said they had learned more from this assignment than any other. I don't think any of this would have been possible without the groupwork; even in class discussion, there were shy people who receded and let the few extroverts take over. In the groups, they all had a chance to get involved at low risk.

In critical thinking, we used word problems based on real-life experiences that you couldn't do just using a formula (e.g. how to build a wooden cover for a well on your property). Those also produced some wonderful interactive discussion about how to go about solving the problems because there was no clear-cut procedure they could memorize, and the problems were also too hard for most people to do without input from their peers. I'm hoping to teach critical thinking again at one of my present schools when a section becomes available; when it is clear that you are teaching process rather than facts to be memorized, using groups just seems to be the most logical way to go.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
mth\_mlk@shsu.edu (Mark Klespis)

Subject: Re: Combined Content & Methods? A response to Tracy Rusch

>Tracy Rusch wrote:   
>I discovered that making the transition from being a passive learner of   
>mathematics to being an active learner of mathematics is difficult for   
>students. There is a certain amount of deep-rooted (and completely   
>understandable) intellectual inertia to overcome. When I integrated the   
>methods into the content, it inadvertantly provided a choice for the   
>students: reflect on their own understanding or reflect on how they would   
>teach kids. The easier of the two was to reflect on how they would teach   
>kids. This meant that they did not attend as carefully to developing their   
>own understanding; plus they continued to think of teaching in the same old   
>way because they avoided actively engaging in the new experiences to the   
>degree that it would cause a shift in their perception of what math was all   
>about. I didn't win either way.+

I am not certain how Tracy integrated the methods and content into her   
course. My experience with an integrated course was not quite the same.   
Certainly there was the "intellectual inertia" to overcome. But by making   
the course laboratory-based (with a lab manual, not a textbook) and being   
in cooperative groups, the students were FORCED to be active. I did very   
little direct instruction. Also, the course was structured so that the   
students were learning content. They had to use the manipulatives, they   
had to record their work and explain what they were doing so that they   
could understand it and their group members could understand it. The   
approach was: use these manipulatives (C-rods, base 10 blocks, fraction   
pieces, MIRAs, etc.) to investigate mathmatical ideas. Compare your   
results with others in the class -- and so on. It was through these   
experiences learning content that the students (not all, unfortunately)   
began to get ideas on how to present this to students.

Alba Thompson followed with:   
>The inadvertent creation of a choice when merging content and methods and   
>the ensuing selection students tend to make which Tracy describes so   
>articulately (and which I think is quite insightful) is also consistent   
>with my experience. The only remark that I would like to add to is "the   
>easier of the two was to reflect on how they would teach kids." The fact   
>that the prospective teachers perceived reflecting on how to teach kids to   
>be the easier of the two choices provides irrefutable evidence of their   
>failure to grasp the depth and magnitude of the task of helping students   
>build these conceptual structures. Understandably, not having built them   
>themselves they are in no position to appreciate what it might take to help   
>students do so.

My students were required to do a clinical practicum as part of the   
"methods" component of the course. They visited an inner city Chicago   
elementary school and developed lessons on rational numbers (or   
measurement) for small groups of students. While some may still not have   
realized how difficult it is to help build conceptual structures in their   
own students, many of the preservice teachers at least came away with a   
sense of what to present to the students in their practicum that would   
foster conceptual development. (I will say there were still those lost   
souls who wrote out their lesson plans in the parking lot of the elementary   
school, 15 minutes before they entered the building.)   
All of this does make me wish we prepared teachers in a manner similar to   
the way medical doctors are trained: internships, residencies, etc.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
Cooperative Learning Activity   
CLASSROOM CLOSE-UP

In the example below, students who have been investigating similar   
topics share information they have gathered. They see how their   
information links together and relates to the overarching questions.   
This type of activity is particularly beneficial for students who have   
problems seeing relationships because it helps them synthesize and   
integrate information.

Students work in small groups to create "And . . . But . . ."   
discussions. One student starts a discussion by presenting a   
conclusion from his or her research. Then another student elaborates   
or disagrees by continuing with a sentence that begins with "and" or   
"but." Everyone in the group has a chance to add to the discussion.   
The activity encourages students to think in new ways about their   
information, provides them with additional ideas, and helps them to   
link their separate searches.

SETTING THE CONTEXT   
Sam wanted students to combine their information to answer the Coming   
to Americas unit's three overarching concepts . He explained, "Today   
you will be integrating information. I call this the And . . . But . .   
. activity. It involves drawing on your notes, linking information,   
and making comparisons.

DOING THE ACTIVITY   
Sam directed the students' attention to the overarching concepts on   
the bulletin board. "I'd like you to form groups according to the   
overarching concept that best relates to your I-Search topics," he   
explained. "Remember to take your note cards with you."   
Once students were seated in their groups, Sam explained the process.

One member of each group begins the discussion with one   
thought-provoking or controversial sentence that expresses a finding   
from his or her notes. Other members of the group listen carefully and   
then, when called upon by the speaker, add a sentence beginning with   
either "and" or "but.

Sam clarified that "and" signaled an agreement or addition to the   
previous sentence, while "but" signaled a contrasting idea from what   
was just stated.

Sam circulated among the groups, listening to their discussions. He   
also set up a tape recorder for each group so they could record their   
discussions. When everyone in the group had taken a turn, they played   
back the tape and made notes in their journals on the following:

\* What did I learn from the discussion?

\* What were the themes common to our research?

\* Who in my group has information I might use for my own search?

Bringing the class together, Sam gave each group a chance to share   
their ideas. He said, "As you spoke, I couldn't help but notice how   
many of your themes bring us back to our overarching concepts."

LINKING BACK TO THE I-SEARCH PROCESS   
Sam used this thought-provoking activity again the following week. He   
grouped the students around a variety of topics such as periods in   
history, racial and ethnic groups, and regions of the world.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: walsersl@tenet.edu (Sandie Lee Walser)   
Subject: Hands on High School Math

There is always a little contronversy among high school math teachers about different teaching approaches and reaching all of the students. In general students do well through their first years of math and then start dropping off. By Algebra in High School true math phobia sets in. The normal response from adults when I reply that I teach Algebra is "Oh, I hated that", or "I couldn't do it." Several years ago, I totally redid my teaching from all lecture to using manipulatives and labs. (I do still lecture, just not near as much as I used to and I don't use a lot of homework.) I want to brag on my kids this year. To be in my high school Algebra I class (5 sections) the student was 1 to 5 years behind level. Some were Juniors that had been out of 8th grade for 5 years. All had been out of 8th grade for 1 to 6 years. Anyway, these kids took the Texas Exit Math test (TAAS) and beat the school average. 4 got outstandings. Math teachers, consider doing more hands on work.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
Pete Jones <pierre@idirect.com>

Thanks for your message. I have attached "Phrases Magiques".

I also use Veritech which is a board consisting of 12 tiles. It is a highly cooperative activity and I have helped English, phys.ed., keyboarding and modern language teachers set it up in their classes.

Thank you for inquiring about the small group cooperative learning activity call ed Phrases Magiques. I find that the students really enjoy this one. You will be amazed at how much writing they do!

I have represented the 5 by 4 grid box beneath by a series of e's. Please imagine that the e's are straight lines. The first thing you will see in a few secs is an explanation on how to use Phras es Magiques. I usually tell the groups that any group which writes sentences equalling 25 points or more will receive a reward (you decide on the reward). Please note that it is 25 points NOT 25 sentences. I find telling the teams that the team which gets the most points will receive a reward is not such a good idea because this creates a civil war of teams.

Please note that the vocabulary in the grid is from our particular text book and meets our needs. You will have to adapt the vocab and grammar structures from your texts  to meet your needs.

Over the past little while I have developed Phrases Magiques for many of the chapters in our text books. If you look at the grid which I have sent as an example, ( it is based on chapter 1 of a grade 9 text called Passages) you will notice that I am having my students play with the passe compose of voir (a new verb) and faire and the position of the adverb in a passe compose sentence (a new grammatical structure). Also the words la Ronde and l'escalade are new vocabulary items in that unit.

Here is the EXPLANATION of how Phrases Magiques works:

Phrases Magiques is another way to involve your students in cooperative learning and have fun manipulating the vocabulary and grammar of new units. The idea is simple and the results amazing as you discover how inventive your students can be! You will also note with interest how much writing they do!

Here is how it works. Please refer to the grid I have attached beneath.

Divide the students into groups of two. One student will compose two sentences

and the other will write them. The one composing will also check to ensure that the spelling is correct. After two sentences have been written the roles of creator and writer are reversed and so on and so on.

Students start in the STAR box - here it is MOI. They then compose a sentence ie. "Moi, j'ai passe la fin de semaine au parc." They have come out through a star box and earn two(2) points. They may, however, compose the following sentence. "Moi, j'ai passe la fin de semaine a Montreal." For this they earn one (1) point because they did not exit through a star box. Students do not necessarily have to start in a star box. For example: "J'ai pas se mes vacances d'ete a Montreal." For this they earn one (1) point.

Remember, in order to earn two points, students must start in a star box and come out through a star box. Students are not allowed to jump boxes. They must always use boxes which touch each other. Students write sentences on the lines provided beneath the grid. There are 15 lines but they are, of course, allowed to compose more than fifteen sentences simply by turning over the page. In some instances it is possible to compose more than 30 different sentences!

Here is the grid - excuse all the e's but I had no other choice!

PHRASES MAGIQUES

eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee

e e e \*\*\*\*\*\*\*\*\*\* e e e

e de l'escalade e deja e Moi, e vu e sensationnel e

e e e \*\*\*\*\*\*\*\*\*\* e e e

eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee

e e e e e e

e de la e fait e j'ai e enfin e un film e

e natation e e e e e

eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee

e e e e e e

e un peu de e avec e passe e la fin de e francais e

e bicyclette e mes amis e e semaine e e

eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee

e \*\*\*\*\*\*\*\*\*\*\*\*\* e mes e e une e \*\*\*\*\*\*\*\*\*\*\*\*\*\* e

e a la Ronde e vacances e a Montreal e journee e au parc e

e \*\*\*\*\*\*\*\*\*\*\*\*\* e d'ete e e superbe e \*\*\*\*\*\*\*\*\*\*\*\*\* e

eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee

1. .........................................................

2. ...........................................................

Keep typing lines until you reach the number fifteen

This is where the students will record their answers.

15. ............................................................

I hope that you will have fun using Phrases Magiques in your classroom. Let me   
know how it goes.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
Robert Willey <RJWILLEY@VM.OCC.CC.MI.US>   
Subject: Study Groups

Model, model, model. If we want students working in groups outside of   
class, the surest way of seeing that gets done is making groups   
absolutely integral and essential in class.

I teach basic writing in a program where workshop is the structure of   
the course: students must "do group," work with a small group and peer   
facilitator, throughout the semester. What we've found is that students   
now get together much more regularly outside of class and "do group."   
Rather than sitting one-on-one as much with a tutor in the writing   
center, more and more students make up groups.

As I've carried some of this over into my literature courses, again   
making small groups an essential part of the in-class experience, more   
and more, students form groups outside of class, carry on from groups   
begun in class, etc. In all classes, set aside some time to help groups   
form, to help facilitate the finding of times and spaces groups can   
meet, etc.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
Albaugh <palbaugh@freenet.columbus.oh.us   
Subject: Re: Cooperative/Distance Learning

I have been following the thread on cooperative groups/grades with   
interest since I teach a media & technology class in which I use groups   
and group grades. EVERY quarter, no matter how I structure the groups, I   
get one group that has a slacker. Each member of a group fills out a peer   
evaluation, and the slacker is consequently identified and given less of a   
grade than the group.

The biggest problem I face is the complications groups face when trying to   
get together to plan their projects. I find that I am giving more class   
time to work on projects. I don't like giving up precious instruction   
time, but I do find that a great deal of instruction is going on during   
that inclass project work through student interaction and my guidance and   
observation.

This quarter I divided up the class into groups that represented a range   
of accum gradepoints. Each group had a top and bottom gradepoint person and   
two middle grade point people. Projects were of better quality and   
borderline students were forced (or led) to better work. Slackers were   
more obvious, however, because they couldn't hide among other slackers.   
Still imperfect...this is the only class where I use groups so   
heavily...the intensive nature of projects calls for sharing tasks.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: MARTHA MAXWELL <76265.2466@COMPUSERVE.COM>   
Subject: Learning Groups - cont'd

In the 70s,pre-calculus students at UC Berkeley were given the option   
of taking a self-paced, group-oriented class in the learning center and   
we found that disadvantaged students, particularly older students,   
usually preferred it to a traditional lecture class.

Later, Urie Triesman puzzled over why Chinese American students at   
Berkeley excelled in calculus while Afro-American and Latino students   
did not. In studying the Chinese, he found they studied more (12 hours   
per wekk) and in informal groups. In fact, they traveled in packs, ate   
together, studied together and went to classes together; while students   
from other ethnic groups tended to study alone.

His highly successful Emerging Scholars Program was based on these   
observations - students intensive calculus workshops for six hours a   
week in addition to regular class periods. Although in Triesman's   
program, students did not have to spend all their their time in the   
sessions working oncollaborative activities. they were required to   
spend part of each session critiquing their peer's work and having their   
work critiqued by other students.. An interesting Triesman quote is   
"Call it intensive call it honors. but don't call it remedial." Those   
underprepared Afro-American students who took his program   
overcame their disabilities and out performed students who entered   
college with better math backgrounds.

Triesman worked with regularly admitted students and was a bit   
hesitant about recommending collab. lrng. for developmental students.   
But some of you have taught successful C. L. courses in   
developmental math and other subjects and know it can be done.   
However, there are some problems to watch out for as Sue Hashway   
recently observed. C. L. groups fall apart when students don't attend regularly   
and when passive students aren't willing to put in any effort and expect to pass   
if they just sit there.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 "R. Alison Belyea-Geddes" <BELYEA@ACADEMIC.STU.STTHOMASU.CA>   
Subject: Learning Contracts???

Well, I just finished the last batch of letters to my students.   
Part of my collaborative method requires the students to assess their   
own learning and detailed accounts of what they learned from their   
colleagues in the form of written "Colleague Acknowledgements". I use   
these in three ways; to see what they feel they learned; who they   
learned from and how specific they can be; and to get a good sense   
for changes I might want to make to the course. In the past, I have   
felt this method worked very well, even if it is very time-consuming.

Now, I'm not so sure there isn't a better method I could utilize.   
This for a number of reasons, but I'll spare you all.   
I'm convinced that students need to become engaged in their own   
learning and of how grading needs to be part of this experience. I   
have heard about something called a "Learning Contract", and wonder if   
any of you could speak about this further?   
sorry. I forgot to mention that each student receives a letter from   
me, explaining how they earned their grade. These letters also   
include some of the acknowledgements they received - to give them an   
idea of how others learn from them. It is this part which takes   
time. Especially in a situation where students have no computer   
access to e-mail. This means I must type in all the acknowledgements   
I want to use for each student. Part, but not all of what I'm   
dissatisfied with.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 "R. Alison Belyea-Geddes" <BELYEA@ACADEMIC.STU.STTHOMASU.CA>   
Subject: Collaborative rut ... or maybe not.

I teach 2 full year courses in intro to world religions -- the classaes are entirely collaborative. At the end of each term, studeents write colleague acknowledgments rather than tests or exams. They acknowledge their own learning, what they learned from each other (in particular), and how this learning came about. I use these in several ways; how well they cite their own learning, how clearly I am able to read what they learned from each other, how useful they are in helping me to see who is working, etc. (the percentages are voted on in class)acknowledgements and create letters for each student. In the letter I let them know what they earned for a base grade (from attendance and participation requirements not mentioned here), then, I include a few acknowledgements they received, I remark on the usefulness of their written acknowledgements, and I try to point out strengths and weaknesses, things they could try to inprove on both with course content and the method. I know these letters are well received. Each student has a chance to see how others are learning from them in some depth, many have added them to their resumes.

BUT

Writing these is one hell of a job. Especially this year when   
I'm faced with writing 100 in December and April. The December set   
is more for practice as this is a full year course and the christmas   
mark is just a temporary grade. So, though I'm not sure I want to   
abandon this process, I'm wondering if anyyone out there might   
suggest a time saver in the creation of these. (At least this year   
they can e-mail their ack's and I'm not stuck typing ack's into every   
letter) I thought some folks out there might have some great ideas   
on creating a form, or using these in some other way.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
Tom Virgin Perry Heights Middle School trv@evansville.net   
 group grading/cooperating learning

In regard to Rand Briggs's post concerning acceptance of PBL, I agree and I think we need to change that misconception. Any PBL lesson can be done individually. I think teachers need to see PBL being used as a teaching method other than in a strictly cooperative learning situation. Giving students a copy of the assignment with a description of how they will be evaluated can be important in changing peoples view of PBL. Publishing a rubric for evaluation accomplishes three things:

1. makes students happier because it clarifies their responsibilities 2. demonstrates to others PBL is more than just a group assignment 3. helps the teacher evaluate the purpose of the PBL assignment. Personally, I have tried to separate the two teaching methods (PBL & cooperative learning) in each assignment. To me cooperative learning is great for students to share and help each other in learning about the assignment--What is the assignment? What needs to be done to complete the assignment? How to get started? and Etc.

My classroom procedure for a PBL assignment

1. I passout written assignment information and instructions with how students will be evaluated.

2. I divide the class into groups--3-4 students per group.

3. The groups discuss and list all the information they know or don't know about the assignment. They write a plan of action for completing the assignment. Cooperatively the students analyze the assignment.

4. I randomly pick one person from each group to present to the class a summary of their group's discussion. I question the information the student gives. The student making the presentation may get help from his group in answering my questions. I know how involved that student was by the amount of times he/she has to get help from group members. Their group grade is determined by the presenting student's knowledge of the groups' discussion. With this system I have found students become very tough task masters for paying attention and being involved in the group discussion. I don't have to tell them to be involved and pay attention. They monitor themselves.

5. Each student is responsible for completing the assignment and each will be given an individual grade. Each assignment requires 10-20 multiple choice test questions. I spend time explaining how to write good test questions.

6. I use the students' test questions to review the subject matter content in class discussion.

7. I give them a 30 question multiple choice test.

8. After the completion of the assignment and test I divide the class into groups---3-4 students per group and not necessarily in the same groups as before.

9. The groups discuss what they learned in this assignment. I have them discuss and list the subject matter content they learned. I also insist they discuss and list the learning procedures they learned. I get them to discuss the learning procedures by   
asking questions like: How did you learn...? and what were you thinking when you learned..?

10. I repeat step 4 procedure with students telling the class what their group discussed. During this class discussion many times the presenting student will make a comment that causes a light to go on in other groups. Most of the time these groups want to discuss this new idea among themselves--I try to give them the opportunity to discuss the new idea.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 IN%"TAYLOR@WTAMU-COB.WTAMU.EDU" "SUE TAYLOR"   
Sue Ellen Taylor CIS Department West Texas A&M University Canyon, TX 79016

Subj: RE: Getting students to cooperate

I also utilize collaborative learning in my CIS classes here at West   
Texas. One must remember that the majority of students at this time   
have been taught in the traditional manner of "instructor delivers,   
student receives" mode of learning. A great many of our students have   
been programmed to sit, take notes, ask questions only when necessary   
and pray the professor does not call on you. Consequently, we have to   
help the students change their mindset to become active in a   
variety of ways in the learning process. I have found that you can   
merge the students into collaborative learning by implementing team   
building strategies in small exercises migrating to more inclusive   
exercises.

In classes outside my discipline (CIS) I think the problem resides in   
the fact, that students still perceive courses as separate entities   
and find it difficult to accept that "everything" we learn, "can" and   
"should be" integrated across the disciplines.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 "Monte R. Swain" <ACAD.PO1.MRSWAIN@BYUGATE.byu.edu>

I have also been quite frustrated in my previous efforts to use CL   
papers. However, this semester I'm trying a new model. I'm just finishing   
grading the first round of papers. I've taught this class several times (a   
graduate accounting course). This is clearly the best quality "first   
papers" I've received. I have high hopes for the rest of the semester,   
and (assuming this works well) will start migrating this process to some   
of my undergraduate classes.

The CL paper assignment structure is described below (as lifted from   
this semester's class syllabus). I look forward to your comments.

DESCRIPTION OF MY CLASS CL (A.K.A. GROUP) PAPER PROCESS:

Group Papers. There will be four group papers during the semester. Each group should have four members. Each member of the group will take primary responsibility to manage and write one paper. These papers will be rigorously graded for content and for grammar (refer to the separate handout "Professional Writing in Acc 691R"). Plan on the average score on these papers to be about 75%. Each paper will be graded on a 40 point scale and each member (other than the paper manager) of the group will receive that score. The score for the paper manager will be doubled (i.e., 80 points possible). The purpose of this "odd" evaluation system is to create incentive for the group to work together to develop ideas and content, do the necessary research, and provide editing input to the final draft. However, four people can not crowd around the word processor to actually write the paper. Therefore, one person from the group needs to take primary responsibility to manage a project and personally write the paper. This is a typical writing model in the "real world of business."   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
Linda Thompson <lthompson@HARDING.EDU>   
Subject: Collaborative Learning in a Math Class

I asked my husband who teaches mathematics and uses collaborative methods   
of teaching/learning if he wanted to share anything with us. He sent the   
following as an example of how he organizes the groups for class. He   
also has the students take the Myers-Briggs Type Indicator and, based on   
the results, assigns them to groups. He tries to make sure, for example,   
that they are as balanced as he can get them in terms of   
extraversion/introversion, sensing/intuition, and judging/perceiving,   
as well as gender. He begins the course each semester with an   
interpretation of the MBTI (which I conduct), stressing that each type   
brings its own strengths to a group. He's been doing this for several   
years, and it works well in classes of 30 or so. (This class, by the   
way, is entitled "Mathematics Thought" and is for math majors.)   
---------------------------------------------------------   
From: THOMPSON@Harding.edu   
Linda: Here is a copy of my syllabus for MATH 275. You can   
forward it to the listserve if you wish......Travis

MATH 275 - Mathematics Thought

I. Groups of four or five.

II. Each group must have a secretary.

III. ALL solved problems will be recorded by the secretary in a   
loose-leaf notebook. This notebook will be the group diary   
to be graded. The diary is 20% of each student's final   
grade: grading factors are 1) completeness; 2) correctness;

3) organization/neatness.

IV. ALL individuals of each group will keep their own diaries in a   
loose-leaf notebook.

V. The secretary will keep 1) the team diary; 2) attendance of   
team members with absences marked either E (excused) or   
U (unexcused). E or U is exclusively a team decision.

VI. Each U (unexcused absence) reduces the individual's final   
average by 1%. For example, a semester average of 83% and   
3 U's results in a final semester average of 80%.

VII. Exams will be individual.

VIII. Board work is mandatory.

IX. Each team member will rank other team members on PARTICIPATION.   
First ranked = 10, second ranked = 9, etc. 10% of the final   
grade is based on participation.

X. Each team member will rank other team members on CONTRIBUTION.   
First ranked = 10, second ranked = 9, etc. 10% of the final   
grade is based on contribution.

XI. Exams are individual efforts separate from the team. Three   
exams + final (noncomprehensive) will determine the remaining   
60% of your semester average.

XII. Semester grades will be assigned using a customary 10-point scale.   
Diary - 20%   
Participation - 10%   
Contribution - 10%   
Exams - 60%

XIII. Office hours - MWF 10:45-11:35am & 2:00-3:00pm

TTh 11:00-11:50am

XIV. Academic misconduct (cheating, plagiarism, dishonesty, etc.) will   
result in an automatic assignment of a semester grade of "F."   
With this said, the teacher expresses utmost confidence in the   
integrity of this class and will conduct all matters on the   
honor system.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 Leslie Demmert <leslied@ACCESSUS.NET>   
Subject: cooperative team games

I'm looking to build team work and spirit in several teams of middle   
schoolers. Teams are 6-8 boys and girls. Some ideas I have are: (Terry   
Orlick's 2 books on Cooperative Sports and Games books are helpful,   
especially for littler folk

Bed sack race-- (sm group) Sew a sheet into a large bag big enough for 6-8   
kids. Get from pt A to B cooperatively in as little time as possible.   
Beach ball balance--(sm. group) Walk from pt A to pt B balancing beach ball   
between team memberseveryone has to touch at some time during race, no hands.   
Shoe twister-- (lg group) Everyone take someone else's shoe. Form large   
circle, holding hands. Without breaking the circle, pass the shoes back to   
owner.   
Prediction race-- (sm group) Team predicts how long it will take to get   
from pt A to pt B. Team with closest prediction wins. Sing OM song while   
racing. Doesn't have to be fast, just close to prediction.   
Collective volley ball--see how many times teams can volley. At a miss, the   
server switches sides, to front row, diagonal from server. Make a complete   
change of teams in as few drops as possible.   
Run a race while keeping a jump rope in a square.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
"Diane Kampen" <KAMPEN@academic.stu.StThomasU.ca>   
Subject: Making groups in 60 person classes

This summer I asked for suggestions on how to best form "permanent"   
groups in an upper-level seminar-type course with 60 people.   
Recently a few people have asked what info I received -- here it is.   
Note: My email was not working for awhile, so I turned off my   
subscription. Therefore I might not have received all of the replies   
to my post. I did get 3 replies:

1) Cooperative learning research by D. Dansereau and collegues shows   
that moderate differences in abilities among the students leads to   
the best groups. The groups don't work as well with either no or   
with huge differences in ability.

2) R & D Johnson and R Slavin have shown that a larger range of   
student abilities is better.   
Both of the above are research with groups of 4 member or fewer.

3) Counting off was said to work well to divide up friends (who   
usually sit near one another).

4) Self-selected groups were endorsed by 2 people, who in many years   
each had only had one or 2 groups work out badly.

5) What I did (which seems to have worked). I asked each student to   
list their year, the number of gender studies courses taken (this was   
a Psych of Women course), the psych courses taken, and I had a   
measure of where they were sitting (the papers were numbered, with 1s   
sitting next to 2s, etc). Then I divided them up by year (there were   
mostly seniors, so I distributed the juniors among the 10 groups   
first). Then I took the people who had gender studies and   
distributed them. Oh yes, there were only 3 males out of 60   
students, so they each went to a different group. After that I knew   
some of the students from previous courses, their abilities, and   
their friends -- they got distributed accordingly. Finally it became   
random, when down to the last 10 people. I had no way to know each   
person's "ability" (I assume that is measured by grades), so that   
wasn't used.

The outcome -- we are at mid-term. 8 of the 10 groups are doing well   
on their own from the start. 1 group was not so great at the   
beginning, but is doing better after minimal attention on my part.   
The 10th group is slowly getting better, with much more attention on   
my part. I think by the end of the term, they might be doing OK.   
Thanks to everyone who answered me, and also to anyone whose message   
I never received. If this helps anyone else, that's great. I know   
it helped me.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: Jane McDonald <JMCDONAL@cs7.conestogac.on.ca>   
Subject: Closure information

Thanks, Ted, for sending the information on closing of classes and courses. I met last Friday with 50 3rd year nursing students who were spending their last class day together. As part of their day, I had them do 2 activities, one of which I pulled directly from the information you sent.

Just in case you're interested, here's what we did:I had each of the students write a letter to a student who is about to enter the final semester of the program. I asked them to think about what experiences they've had, what they've learned and what

they wished someone had told them as they were starting the semester and to write something for an incoming student. I do not intend to censor any of the letters although they did not seal them in envelopes. I simply suggested to the students that they put themselves in the place of the students who will be receiving the letters to determine what kind of an effect their letter might have. The few letters I've looked at were incredibly positive and supportive.

The second activity was a reworking of an activity I often do as a get-to-know-you exercise at the beginning of a semester. At that time, I have students do life pictorials - graphic representations of whatever they'd like the rest of us to know about them. If the students all know each other but are new to me I put a bit of a different spin on it by asking them to draw me a picture to let me know something about them that would be a surprise to the others in the class or to tell me where their heads are at. For the closure exercise, I asked students to form their own groups and to draw  something that captures something of their three years together. The noise level was high and the results were creative and sometimes quite touching. The students shared their pictures with the others in the class, doing a 1 minute interpretation of their works of art for the others. We then decorated the room (in which their awards  ceremony was later held) with the art work. The students all seemed to really enjoy the 2 activities and we all felt that we'd been able to visit their pasts a bit and given something to the future before they all went off in their own directions.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 "Terri Akey" <akeythe@mail.auburn.edu>   
Subject: Sociocultural approaches to teaching

We are trying a new teaching approach in our undergraduate classroom   
assessment class and in our graduate intermediate statistics class. The   
classes have been re-structured from a social-constructivist perspective-   
specifically, they are explicitly designed to be a learning partnership   
between the teacher and the students, lots of collaborative learning and   
teaming, heavy student responsibility for learning, ownership of course   
content, and input into assessment practices, situated learning activities,   
etc. I'm wondering if any tipsters out there have experience in creating   
classroom learning communities such as these and what   
benefits/pitfalls/suggestions, etc. you might be able to share. We are   
interested in the practical implications of social-constructivist models of   
teaching, as well as thinking about the theoretical base on which they   
rest.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 Richard Damashek <RichardD8@AOL.COM>   
Subject: Re: Dev. Ed.

Martha,   
First let me say that I'm delighted to have a discussion with you. I was part   
of the audience in Denver who applauded you for the NADE award. You're very   
special to me and to the profession.

As for letting the students decide the content of the course, let me set the   
record straight. That is not my position.

My position is in my classes, students become part of the planning process.   
I'd be the last one in the profession to give over complete authority to plan   
a course to students who don't know what they need and who are paying hard to   
come by cash to find out. To me that would be an abnegation of the   
responsibility of the school and of the instructor.

My approach is not so extreme. I offer students a partnership. In the first   
week of classes, I teach them how to read the textbook, which I've selected.   
Skim, scan, spam, whatever. I ask them to make a list of the material or   
subjects they would like to learn. Then when we meet again I hold a workshop.

Small groups discuss and argue what's important to learn. Then we give group   
reports. I ask a student to be scribe and write all the subjects on the   
board. Then we discuss them and come to some concensus of what they want   
included in the course.

At that point I take the student input and construct a syllabus based on   
their perceived needs and my own assessment of what they need.   
That's it. Simple isn't it.

The next time I teach a class I'm going to send the students to their other   
professors to ask them what skills they think will be necessary to pass the   
course. Then we'll process that information and build a syllabus based on how   
to learn those skills.

I should tell you that in the process, students come up with the same stuff I   
would select for them to learn anyway. So what's the harm? The benefits are   
tremendous. Students get involved in metacognitive activity from day one. I   
get the pay off of student-centered learning and active learning. The course   
becomes a partnership. So, so many benefits for me and for them.

Perhaps this will make you laught. One day I brought in cookies for my small   
class. They were delighted. Now I can't come to class without them asking me:   
"Where's the cookies?" I've promised cookies every Thursday. Tuesday is lab   
day; food isn't allowed there.

ESL: I'm not teaching ESL right now, but if I were, I see no reason not to do   
the same kind of involvement of the students in the learning process. I'm   
still the final arbiter of the learning, so who's the worse off for the   
experience?   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 RE: Large classes

This is in response to the question about using CL in large classes.   
The following are some ideas which I have shared with teachers in my   
inservice courses in Singapore. In Singapore, we also have classes   
averaging 40 - 44 pupils although most teachers would prefer smaller   
classes to begin with.   
a. With a class of 40, we end up with 10 teams of 4. It is sometimes   
difficult for a teacher alone to monitor what is going on. I think we   
can shift the responsibility of what is happening in the groups to the   
pupils and give them some of that responsibility. For example,   
appointing pupils for the role of task-master in each group. The   
task-master responsibility is to see that everybody in the group stays   
on task.   
b. In using "Send-A-Problem" structure with a large class of 10   
groups, I have tried out with teachers and pupils an adaptation. It   
is difficult to think of 10 different problems to be posted round the   
10 groups. Managing the traffic flow of questions circulating around   
the 10 groups is not easy too. Hence, we have asked teachers to have   
two traffic flows. 5 groups will post 5 problems on one side of the   
classroom and the remaining 5 groups will post the same set of 5   
problems among themselves on the other side of the room. To ensure   
that there is no criss-crossing from one side of the room to another,   
we use two different coloured envelopes for the 2 traffic flows. This   
way, managing the flow is easier and teachers need to think of only 5   
different problems of similar difficulty level and not 10.   
Hope this works in your large classes too.   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
IN%"kirk@novell.uidaho.edu" "Kirk Steinhorst"   
To: IN%"FMCBH@CUNYVM.CUNY.EDU" "Annette Gourgey"   
Subj: RE: Small Groups in Introductory Statistics

Hi Ted,

I just got this message about large group CL from one of the authors   
of the article on CL in statistics and thought it might interest you.   
It's nice to know that there are a few math and science people who   
are using CL even where lecturing would be most tempting. Other news   
is that the college (Baruch, CUNY's business school) that offered me the   
80-student lecture just offered me a 40-student class, which I took, so   
I will continue to work with the methods there without the worry   
of so large a class. Regards, Annette

----------------------------Original message----------------------------   
Annette:

> I am in the process of introducing small-group activities in my   
> statistics courses and feel they are both enjoyable and beneficial.   
> So far, I have done this in classes up to 40 students. Your article   
> states that the procedures work in classes up to 100 students; could   
> you advise me on any special management issues that come up in the   
> larger classes and how I might handle them?

Our large classes have a TA so the issues are simpler to resolve.   
However, I have used groups in these classes without a TA and here   
are my thoughts--

1. I gave group assignments whose benefits were gained from the   
students talking to each other about ideas and concepts rather than   
problem-solving. Thus it was NOT essential for the instructor to be   
available as a consultant.

2. I gave these group exercises after a mini-lecture so the emphasis   
was on integration and extension rather than discovery. In my   
experience, it is the discovery activity that requires the instructor   
to be available for consultation.

3. In a large lecture style classroom, I have found the most   
effective group activity was to have PAIRS work on an exercise for   
which they must find and then write up a PAIR answer which I   
would grade and return. They got the benefit of active learning and   
I got feedback on what the class was understanding.

> I have the option of   
> teaching a class of 80 students this spring and would love to do   
> some small-group work with them, but fear that it will be hard to   
> organize and monitor so many students--to keep them on track, watch   
> how they are doing, and provide help when necessary. I will not have   
> a teaching assistant, as the class was conceived as a lecture course.   
> Is cooperative learning doable in this format? Any suggestions you   
> can provide would be greatly appreciated.

In my experience the mini-lecture followed by (or interspersed with) short   
group (probably pair) activities works well in these situations.   
Groups (pairs) can be dynamic. You cannot depend on cohesive groups   
(pairs) showing up consistently. A student should not be penalized   
if a partner does not show. While it is true that many groups   
(pairs) will show up and work together consistently, I find that I   
have to do some "matchmaking" at the start of a day's group activity.   
Each student in a group should sign their name to the sheet the group   
turns in for the day so that they get credit for their participation   
and work.

I went to a seminar that a chemical engineer from North Carolina   
State (Richard Felder) gave and he uses group activities in classes   
of 150 or more. He would stop the class and pose a question for   
groups to work on for a few minutes. Then he would come back to the   
lecture and use the ideas generated by various groups as a   
brain-storming tool.

He also uses an active-learning (but not group) activity at the end   
of many classes--he calls it the "one-minute theme." He asks them to   
think about and then write down the most important idea for the day's   
class. Answers were 100 words or less. He picked these up, graded   
them, and summarized them at the beginning of the next class. I have   
not tried this but he certainly bragged about it.

Kirk Steinhorst   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
From: Denise McDonald <DENMCD@AOL.COM>   
Subject: Re: 44 Benefits to CL

This was my first semester to supervise student teachers. Once a week, I   
presented a seminar on main issues of interest for beginning teachers (i.e.   
questioning strategies, classroom management, discipline, monitoring student   
progress, etc.) I designed each seminar to model different instructional   
approaches/models/styles. There was a smatthering of CL mini-activites   
incorporated within some of those lessons, but never used for major   
assignments. CL was helpful in promoting cohesiveness for this group and   
stimulating positive interaction. I would like to share with you the   
"Closure Activity" for the student teaching seminar that involved CL. I have   
eight student teachers and divided them into two groups. Their assignment   
was to collectively collaborate on an expression of their student teaching   
experience in a song. I selected the tune, "On Top of Old Smokey". (This is   
a tune that most people know and I thought might symbolically represent their   
"peak" experience of student teaching). I gave them no other instructions.   
They seemed to enjoy this activity (cracking up with one another). This was   
done all in fun and was probably a stress reliever for them at this point in   
student teaching, but I was disheartened at some of the underlying messages   
in their song. Please comment if you feel inspired to do so.

Student Teaching Closure Song   
(Sung to the tune, "On Top of Old Smokey")

(First Verse)   
I love student teaching,   
it gives me a rash.   
The kids are all crazy,   
I go home and crash.   
The objectives are stated.   
The lessons are fun!   
The children are heathens.   
Where is the sun?   
Good-bye to student teaching,   
It's been such a blast.   
I can't wait till next year,   
Then I'll get paid at last!

(Second Verse)   
I've learned in my Teaching,   
it's not what it seems.   
Discipline isn't,   
like I thought it would be.   
The kids are all loco,   
unfocused and cruel   
Whether they're kinder,   
or up to middle school.   
Through all of the hardships,   
I'm still glad I chose,   
To be a low paying teacher,   
not a money making fool!

Denise McDonald University of Houston Doctoral Student   
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
 "North, Joan" <jnorth@uwsp.edu>

We have designed a model classroom which is used primarily for   
teacher education. The room is called Collaborative Learning Classroom   
2000 and is designed to encourage group work at computers. Our belief   
is that K-12 classrooms do not need one computer for each person, but   
one computer for about every 3-4 students. So our room has a teacher   
station in the front with master controls and computer; a large screen   
on the left front corner with computer projection devices in front of   
it. The tables for students are what really sets this room apart. I   
will do my best to describe them. There are two daisy configurations   
each with four "petals" holding a computer, so that there are 8   
computers in the room, each at the end of a petal-shaped table so that   
3-5 students could sit around each computer. If my description skills   
leave you puzzled, let me know and I will send a diagram.   
Actually, we have been upgrading classroom in my College's   
buildings for several years--at the request of faculty members--and all   
are going from individual desks to tables and chairs of various sorts.   
We have an interior architecture major in the college, so we have done   
quite a lot of literature search and experimentation.

Some conclusions:

1. We tried chairs with casters, thinking it would promote   
movement among students and it did. But the casters make it hard to   
cluster around tables and they get dirty.

2. We tried trapezoid tables and found them ok, but in large   
rooms, faculty and students kept putting them in traditional straight   
line arrangements. But they are very useful because you can get a lot   
of chairs around them and you can move them into many shapes.

3. A cheap way to make a room pleasant is painting it a neutral   
color and then using another neutral color as an accent. We created   
painted "wainscoating," "columns" one whole wall in the other color.   
Each room has a personality.

4. Maintenance folks here welcome carpeting in the classrooms, a   
surprise to us. We think, though, that their joy stemmed from the fact   
that they don't think they have to vacuum very often (which they don't!)   
whereas it was obvious when they did not sweep the tile floors.   
+++++++++++++++++++++++++++++++++++++++++++++++++++   
 Yvonne Merrill <ymerrill@U.ARIZONA.EDU>   
WAC  University of Arizona Composition Program

I use CL in all my classes, all the time--FYC, business and technical   
writing, graduate business communications, electrical engineering design.

My class is entirely organized around permanent working groups based on   
socio-metric surveys I take at the beginning of the semester.  Then each   
group selects a preceptor to facilitate all their learning in the class.   
Most sign up for a two-unit workshop with our Teaching Teams Program to   
enhance their group skills, but it's not a criterion for being a preceptor   
in my class, and they serve by self-selection and group consensus (some   
have been "fired" and replaced!).

All my classes are conducted as workshops since the major emphasis is   
revision based on real-world projects (either individual or group, at the   
group's discretion), rhetorical analysis, and feedback.

The preceptors work as liaisons, facilitators, and translators.  They   
report attendance, conduct group work, organize special help sessions, and   
delegate a bi-weekly progress memo to be written to me by a different   
member of their group each time.

The preceptored groups confer with me as a group, and the preceptor conveys   
to me their responses to and difficulties with the assignments.  They   
negotiate adjustments to class curricula and timetables, and the preceptors   
meet among themselves for strategy sessions--mostly in class, but often   
outside of class as well.

I've used CL in classes from 25 to 150, with two TAs.   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
        Michael Douglas <mdouglas@MAIL.WAY.PEACHNET.EDU>

 I use CL in combination with the "muddiest point" review before   
quizzes for my sections of freshman English. Also, my students use CL when   
they engage in peer editing of their essays, working in small groups (3-4   
people.   
+++++++++++++++++++++++++++++++++++++++++++++++++   
Karen Murphy <kmurphy@TAMU.EDU>   
Associate Professor, Educational Psychology  Texas A&M University

Here's a recent article about cooperative learning:   
Murphy, K. L., Mahoney, S. E., & Harvell, T. J. (2000). Role of contracts in enhancing   
community building in Web courses. Special Issue "On-line Collaborative Learning Environments" of Educational Technology& Society, 3(3), 409-421, Journal of International Forum of Educational Technology & Society and IEEE Learning Technology Task Force. [Online]   
http://ifets.ieee.org/periodical/vol\_3\_2000/e03.html   
http://ifets.ieee.org/periodical/vol\_3\_2000/e03.pdf   
++++++++++++++++++++++++++++++++++++++++++++++++++++++   
Gordon Timothy <TimothyG@RICKS.EDU>

Cooperative Learning is a valuable part of process education, as I use it.   
I have students cooperate in groups to do several essential processes:   
1.  They assume assigned roles, and try to improve themselves and help each other improve in performing each role.   
2.  They teach each other the chapter materials   
3.  They share personal examples, applications, implications.   
4.  They assess each other's capturing of lectures and chapters   
5.  They assess one another's expansions on the materials   
6.  They assess the processes used by each member of the group and try to identify ways to improve themselves and the processes.   
7. They work together for presentations for the class   
++++++++++++++++++++++++++++++++++++++++++++++++++++++++   
Ed Nuhfer <enuhfer@carbon.cudenver.edu>

I suspect POD will be a self-selecting bunch in using   
cooperative/collaborative methods. It's hard to imagine anyone in faculty   
development who doesn't use some principles of cooperative learning.

A better source of more representative information is the National Survey   
of Student Engagement, which reveals about 45% of students are   
experiencing active/collaborative methods. That percentage is higher in small   
liberal arts colleges and lower in large research institutions.

Every POD member should read the NSSE report. A lot of stereotyping of   
faculty--such as their being a bunch of folks who can only lecture-- is   
taken to task. It also shows big differences between kinds of institutions and   
how students are generally treated at each.   
++++++++++++++++++++++++++++++++++++++++++++++++++++   
Denise Camin camin@calumet.purdue.edu     Purdue Univ. Calumet

Yes, I use cooperative learning in most of my courses: some more than others.  I   
have a group paper project in two courses and the students evaluate the   
performance of their peers.  I also use writing groups and ask the groups to   
help each other with various projects.

As for the experience, although it has thorns, it is worth it from both a   
faculty and student standpoint.  Students need to learn to work together for   
future careers and this is the safest place to learn how to do this.   
+++++++++++++++++++++++++++++++++++++++++++++   
Frends4usi@AOL.COM     Carrie Bruner

I use CL everyday in my fifth grade inner city classroom.  I have 36 students   
and the students NEED small group work.  I can't lecture and expect 36 kids   
to absorb what I'm saying.

I use CL in every class--even handwriting.  Everything!  I don't use it for   
every class all of the time, but I'll mix and match my teaching methods to   
fit the needs of the students.

My favorite CL activity is "Novel Teaming/Literature Circles" for reading   
class.  Each student has a novel--the same novel.  The students do   
pre-reading activities, read the assigned chapter, and do post-reading   
activities in their teams.  Each day students switch the different assigned   
jobs, such as "Discussion Director, Illustrator, Word Wizard, and   
Summarizer."  I have seen some of my lowest students really excel using Novel   
Teaming.  Why?  They are forced to participate in small groups.  If we're   
sitting and reading as a whole--my lowest students are playing with their   
pencils and lost.  In their multilevel teams, they feel comfortable knowing   
someone is there to help them if they get lost.

Math and Science are two of my favorites for using CL.  To see them   
experiment, discover, and DISCUSS is so exciting.  In non-Novel Teaming CL, I   
assign jobs such as, "Quiet Keeper, Recorder, Team Manager/Task Master, Team   
Representative."

For assessment, I have many rubrics and checklists.  I also have the students   
give self-assessments.  They might tell about their favorite discussions they   
had or they might talk about the teamwork they used.

I started out the year with a classroom full of kids who HATED each other and   
HATED school.  Through CL, this has changed.  I interviewed and videotaped   
students on their thoughts of CL and this is what some of them had to say:

Student 1: I like learning together because if I don't know the answer,   
someone else will.  Each person in the group might have their own talent or   
something and we can all use what we know to help each other.

Student 2: Yeah, I like teaming up.  Well, I didn't at first because I was   
placed with 3 girls that I didn't like.  Now that I have been working with   
them I have learned to make friends with people I wouldn't have normally made   
friends with.  (A boy said this, obviously.)

Student 3: I like novel teaming because at first I couldn't understand this   
book but now I can read it.

Well, there you have it.  All 36 kids agree and I could type everything they   
said.  Many of the students had responses like Student 1 and Student 2.  It's   
exciting to see students in the inner city working together in a positive   
atmosphere.  I started the year out as a referee--not a teacher.  With CL,   
the sky is the limit.  I can teach anything.

I feel that I must say this, too.  Many teachers at my school have tried CL   
and failed.  I think I know why.  It's very important, especially with young   
kids, to teach the process and procedures you want the kids to follow.  You   
can't expect the students to automatically know what to do in teams.  I had   
to teach it step by step and had to re-teach certain procedures.  With a   
little patience, it's together now.   
++++++++++++++++++++++++++++++++++++++++++++++   
 Jerome Epstein <jerepst@WORLDNET.ATT.NET>

I use cooperative learning regularly, as we do in all the freshman   
courses at Polytechnic University, at least in the problem solving   
workshop sessions.  I use it also in the "lecture" sessions as well.   
++++++++++++++++++++++++++++++++++++++++++++   
 Stephanie Marcucci <stephmarcucci@yahoo.com>

I teach a remedial English course at CSUH.  Part of   
the curriculum the department requires is vocabulary   
skills.  I, being a lover of words, have always had a   
keen interest in learning new words, but I've found   
that my students don't share that love (sigh!).   
Anyway, I wanted to be able to give them words that   
they can know how to incorporate in their daily   
conversation, so I came up with the following ideas (I   
haven't seen them on anyone's websites, so I hope I'm   
not stealing anyone's ideas...I've just played around   
with what the students respond best to):

1.  I have a Tues/Thurs 2 hour course.  On Tues, I'll   
give the list of vocab words (they are almost always   
from the text book and there are never more than 6 or   
7 words at a time). For homework, I require the   
students to look up the definition, type it and a   
sentence out.

Then at the beginning of class on Thursday, I review   
any of the words the students still have trouble   
defining.  For the quiz, the students have to say or   
verbalize at least 2 words on the vocab list during   
the 2 hour class.  They write down the words they have   
said on the definition paper they typed up for   
homework, and at the end of class they turn it in.   
THey get points for completing the homework assignment   
and for using the words in class.

The benifit here is they get to check the definition   
before they use it in a sentence, and although they   
fumble around with correct pronounciation and correct   
usage, at least they have the chance to use the word   
in conversation.  There is NEVER a wrong usage.  If I   
find the student has used the word incorrectly, I   
simply restate what they've said in order to use the   
word appropriately; that way, they hear the word   
again.  Then, I ask them to use it again, and usually   
the 2nd time they use it correctly.

2.  The other option is on Thursday, the vocab quiz   
includes writing a paragraph on something, anything,   
and incorporating at least 3 vocab words of thier   
choosing.

For instance, I've asked the students to write a   
paragraph about what they ate for dinner the night   
before, and they had to use at least 3 vocab words in   
the paragraph.  I've also have them write about   
something from the homework reading from the night   
before and include the 3 vocab words.  After the   
students have written their paragraphs, I ask for a   
few volunteers to read aloud what they've written.   
Because they're experimenting with the new vocab, they   
usually get excited about their creativity in using   
the words. As a result, I almost always have   
volunteers.   
+++++++++++++++++++++++++++++++++++++++++++++++++   
Kathy LSPE <kathylspe@HOTMAIL.COM>

First, thanks for your post. As one who uses CL in all of my courses, I am   
struggling with two issues, so I thought I would piggyback on your questions   
and ask:

1. What is the specific difference between cooperative learning and   
collaborative learning -- or is there one?

2. Have any of you found any really effective ways to use collaborative or   
cooperative (if there is a difference) in distance learning events?

I'll be happy to share, but I do not want to bore everyone. My all time   
favorite was when I assigned groups to collaborate through teleconferencing   
processes in order to construct web pages that contained links to grant   
funding agencies by type of agency -- which they had to use Internet search   
strategies to find on their own. They loved the experience, and we got some   
really great resources!

I teach grad credit courses in Ed Tech to in-service teachers - who,   
incidentally, tend to find it extremely interesting to be participants in   
collaborative experiences. Most of them require their students to work   
collaboratively, but few had actually experienced being a student in a   
collaborative event until they were in my classes ... Many found it to be   
much more of a challenge than they thought it would be. And, most expressed   
that it was one of the "deepest" learning experiences they had ever had   
specifically because they had to "work through" their own understanding of   
their new found knowledge and skills in relation to others at their level.   
Of course, peer tutoring happened spontaneously, but I did not intentionally   
set it up.   
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 "Kathy LSPE" <kathylspe@hotmail.com>

Thanks for sending me your article defining the difference. If I understand   
your premise correctly, I would have to say that I almost never use   
cooperative learning because I combine collaboration with a constructivist   
approach to teaching, and I pretty much stick with learner - centered   
events. In other words, I do not see myself as the "teacher". I see myself   
in two roles:

1. I am an authoritative resource for my students. and

2. I am a facilitator of learning because it is my job to motivate the   
learning environment so that my students will collaborate both with their   
peers and with me to construct their understanding of targeted knowledge and   
skills.

Of course, I have a third very important role which is to limit the learning   
environment in such a way that my students can explore freely but do not   
have to deal with an overwhelming amount of information in order to   
construct understanding.

I am telling you this all of this because your original question was "Who is   
using cooperative learning?", and I responded as if I am, but for the most   
part, apparently, I am not.   
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  "MacGregor, Jean" <MacGJean@evergreen.edu>   
Washington Center for Improving the Quality of Undergraduate Education

I regularly use CL in my classes.  At Evergreen there is a longstanding pedagogical tradition of "book seminars," a dialogue among students about readings and texts of all sorts (poetry, art work, etc.).  In addition many Evergreen faculty use what we fondly call "Finkel workshops," named after our  late colleague, Don Finkel, who was a master at them here, and influenced many of us.  Don describes his approach in his wonderful, recently published book, "Teaching with your Mouth Shut" -- Boynton Cook, 2000.   I use a mix of these methods depending on my goals for students' construction of meaning or applications of concepts...   
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