



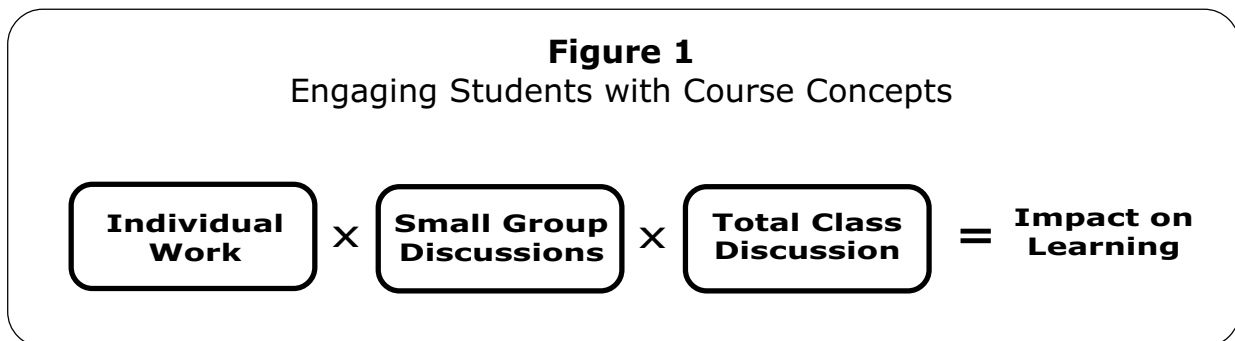
Teaching & Learning News

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Three Keys to Using Learning Groups Effectively

by Larry K. Michaelsen, University of Oklahoma

Small group-based instructional methods can produce a wide variety of positive educational outcomes. These outcomes, however, only occur when instructors create conditions which motivate students to prepare for and engage in give-and-take discussions. Fortunately, by applying three fundamental principles, instructors can create these conditions in the vast majority of learning groups. These principles, referred to as “KEYS” in this essay, are: 1) promoting individual and group accountability; 2) using assignments that link and mutually reinforce individual work, group work, and total class discussions; and 3) adopting practices that stimulate give-and-take interaction within and between groups. Further, to obtain the best results from using small groups, instructors must observe these keys in managing each of three opportunities (shown as “3 boxes” in Figure 1) to engage students with course concepts: individual work, small group work, and total class discussions.



“Three Keys to Using Learning Groups Effectively” continued on page 6

IN THIS ISSUE:

- **Director’s Corner** by Jim Greenberg2
- **Putting Theory into Practice: 44 Things to Try In Class** By request, we reprint this list of tips for things to improve class climate and teaching and learning outcomes.2
- **Jonas Chalk** on How to Ask Questions: A Continuing Dialogue on the Hows and Whys of Good Questions3

Oops... Please Make a Note of It .

- Corrections to Our Spring Workshop Schedule Flyer
- *International TAs In the US Classroom: Negotiating the Differences* will be held on **Wednesday**, February 19.
 - The *Teaching With Technology Conference* will be held in **McKeldin Library**, not the Stamp Student Union.

Director's Corner

In this second semester of our 2002-2003 academic year, *The Teaching and Learning News* continues to experiment with new formats and approaches to meet the needs of our readers. This issue follows closely the special "Who We Are" issue of the newsletter which introduced a number of CTE services, faces, and resources available to the campus. In the current issue, our editor, Nora Bellows, has attempted to provide a combination of very practical, universally relevant suggestions for improving teaching quality. The in-depth focus on effective group work (see p. 1 "Three Keys to Using Learning Groups Effectively") and on asking good ques-

tions (see p. 3 "Jonas Chalk...") responds to some of the most persistently stated needs of campus instructors and some of the greatest challenges faced by all of us who teach. The "44 Things to Try in Class" (p. 2) piece provides a lot of short but useful tips that can make a big difference in classroom climate and in assisting student learning.

I have attended several sessions offered by Larry Michaelson at national conferences. He is very effective in modeling what he writes about in this article, and his suggestions respond directly to some of the most commonly voiced frustrations about group work. Michaelson makes it clear that preparation and structure can make all the difference between very successful group work activities

and commonly experienced failures. One of the most compelling points, I believe, is his KEY #1 (see p. 6) on individual accountability. Students and teachers alike complain about the familiar problem of one person doing all the work for the rest of a group. Michaelson shows us how to avoid this problem... check it out!

Thanks, again, to Nora for putting together a very helpful issue of the *News* and for making clear the potential for achieving significant improvements in teaching and learning environments through small but directed efforts. Let us hear from you and any reactions, questions, or local examples you can contribute to this forum.

By Jim Greenberg, Director of CTE

PUTTING THEORY INTO PRACTICE: 44 THINGS TO TRY IN CLASS

By special request, we have reprinted below a list of things to try in class this semester, strategies culled from the tricks of professors and teaching assistants across campus and from teachers elsewhere. These "things to do in class" have as their goal the following:

- to help students adjust to and excel in the University environment and develop specific strategies for learning in different environments.
- to foster a positive learning environment, one that is intellectually challenging and provides students with a method and context for pursuing intellectual interests.
- to encourage students to integrate learning into every aspect of their lives, and, as such, to work hard, to take pride in their work, and to take responsibility for their impact in the classroom and in the world.
- to build a community in the classroom that sits on a foundation of compassion, respect, and tolerance--a community that can be seen as a model for the larger civic community and the

community of the world.

1. **Stress the importance that students and teacher alike learn each others' names** using a fun ice breaker that gives students a choice about what to share with a class: a student can tell the story of how he got his name, identify an interesting fact about herself that will help everyone remember her, tell a story and have classmates vote about whether it's true or not, tell one fact and one lie and have classmates guess which is which. This method takes at least an hour for a class of 35. By the end of class, everyone knows each other better, generally feels much more comfortable, and can leave class having learned at least a few names.
2. **Call attention (written and oral) to good classroom practice(s)**, whether it be lab, lecture, discussion, or group work. Students should do the following: complete work to be done, follow proper procedures, use equipment properly, clean up, interact in a respectful manner, participate in a helpful, consistent, and moderate way. Help students to understand what it means--and

what are positive and negative behaviors and their consequences--that we are all definitive members of the classroom and they are responsible for their own learning.

3. **Direct students to the Writing Center or the Learning Assistance Center** "Grammar Slammer" for help with basic skills and to send the message that writing well is important.
4. **Tell students how much time they will need to study** for a particular assignment, test, text, how much time the research you require will take to complete, how much time your course, in general, will require of them on a daily and weekly basis.
5. **Make supplemental study aids available to students**, in a hand-out, on-line, or in a WebCT space .
6. **Explain to students how to read the text(s) you've assigned for the course.** Model your own process of reading, taking notes, classifying material. Show students how to use post-it and other markers in their books as a

"44 Things" continued on page 4

"Chalk Talk" by Jonas Chalk

Jonas on how to ask questions: A continuing dialogue on the hows and whys of good questions

Dear Jonas,

I read with anticipation your recent column about asking students questions in class. I am willing to spend some class time to get students actively engaged in what I want them to learn and to get some feedback on whether or not they "get it". I have tried using questions or short exercises for students, but I have not found a really effective way to do this. Sometimes, I get no response and when I do get a response, it is usually from the same two or three students. I sense that their feedback is not representative of the rest of the class. Worse, I am concerned that the majority of the class is just waiting for others to respond, which defeats the main purpose of asking the question in the first place. Are there more effective ways to use in-class questioning?

Signed, Inquiet Inquisitor

Dear I. I.,

I am glad to see that you want to encourage your students to adopt a "minds-on" approach to what you want them to learn, and appreciate the frustration of getting blank stares. You're right - research shows that (1) the type of question asked, (2) the manner in which the question is posed, and (3) the amount of time an instructor waits for an answer all influence the effectiveness of in-class questions.

Some instructors have success with randomly selecting students to answer questions. To make this effective, let the students know up front that you will be "cold-calling", and try to alleviate any anxiety about not knowing the correct answer. Students don't want to appear stupid in front of their classmates. If you have developed good rapport and set class expectations that questioning is a way to sharpen thinking, then the possibility of being called on may motivate most students to consider your question carefully. If the same few students

are participating, it is a good idea to target before asking the next question: "Someone I haven't heard from yet today..." When you want to ascertain that specific concepts are coming across, try posing a multiple-choice question. This ensures that students will understand exactly what you're trying to get at. Rather than asking "What happens when you mix A and B?", you might ask "When solid A reacts with liquid B, the reaction vessel will (a) heat up, (b) cool down, (c) stay the same temperature, or (d) explode and obliterate the entire building." This approach avoids wasting class time on irrelevant answers (e.g., "it turns blue"), and can be applied in classes of almost any size. A class of 100 students can be polled in 15 seconds by a show of hands. Again, if you want a more detailed response and it feels comfortable, you could follow-up by asking one or two individual students to (briefly) explain the choices they made.

Try to word questions carefully. If you expect something other than a

multiple-choice answer, be specific about what you're looking for—a hand—sketched graph? a short verbal explanation? a number? It is important to make a distinction between an ambiguous question and one that requires higher-level thinking. An ambiguous question may not as disastrous in class as it would be on an exam, but if it happens very often students may become reluctant to respond because they are not sure exactly what the question is. The best questions are those that you prepare ahead of time, carefully wording questions to generate high-level reasoning and making sure that the questions you ask support your learning objectives for the class. Consider preparing questions ahead of time on transparencies, write them on the board, or make them

Effective questioning can actively engage students in their own learning, by continually challenging them to apply newly introduced concepts while they are fresh in their minds.

available as study questions on WebCT—preparing questions in advance forces you to consider your wording. Making questions available in written form helps those students who will need to read difficult questions several times.

Be sure to allow sufficient wait time! Students realize very quickly when an instructor becomes uncomfortable with silence and jumps in with the answer. Studies have shown that students need time to realize that a question has been

"Jonas Chalk on how ask questions . . ."
continued on page 5

"44 Things" continued from page 2

- way to increase learning, retention, and study.
7. **Put in writing a limited number of ground rules** regarding absence, late work, testing procedures, grading, and general decorum, and maintain these. Avoid establishing "rules" that do not adhere to the following criteria: 1. definable, 2. reasonable, 3. enforceable. Don't set a rule if you are not willing to enforce it, because an unenforced or unenforceable rule is worse than no rule at all.
 8. **Frequently remind students to come to your office hours** if they have questions, want advice on an assignment, need help, want ideas for further study. Make sure that you are always there and available to meet with students during those hours.
 9. **Offer to students concrete strategies for effective learning** in large lecture classes and other impersonal circumstances. Consider telling them what you and your colleagues do to learn in these situations. Also consider telling them what the consequences are for failing to find a method of learning in such situations, or get them to generate a list of consequences.
 10. **Offer to students specific ways of learning effectively and participating in intimate classroom situations** where they are no longer invisible. Again, offer your own strategies as possibilities.
 11. **Advise students about the protocols of talking to professors** in conference, over e-mail, and in other professional situations.
 12. **In an effort to help students master the material, give model test questions**, model a method for answering those questions by giving them sample test answers and explain what works about those answers.
 13. **Explain the difference between legitimate collaboration and academic dishonesty.** Help students understand the import of academic dishonesty by explaining it in terms outside the context of the classroom. Ask them to think about professional philosophy in general and for a particular lesson.
 14. **Start the lecture or class discussion with an interesting puzzle, provocative quote**, important passage in the reading, a burning question in the field, a paradox surrounding a particular issue, a salient picture or cartoon on slide or transparency in order to focus on the day's topic.
 15. **Elicit student questions and concerns** at the beginning of the class and list these on the chalkboard to be answered during the hour.
 16. **Have students write out their expectations for their work in your course/all their courses/for their life**, and their goals for learning. Studies show that students who identify goals, and concrete steps toward achieving those goals are more successful, and, not surprisingly, more likely to achieve their local and global goals.
 17. **Vary the way you present information in your class.** Consider moving from material that is more familiar (their own experiences) to material that is less so, and then back to the familiar by way of guided reflection (e.g. take a moment to think about what we have covered today. How has our discussion deepened your understanding of the text/principle/this phenomena?).
 18. **Help students identify how to extend their learning of a particular subject** by finding out about community resources, local and area plays, concerts, State Fair(s), government agencies and libraries, businesses, the outdoors, departments on campus.
 19. **Help your students understand the reason for each assignment** by explaining to them your rationale, by asking them to generate the rationale for themselves, or by sharing your teaching philosophy in general and for a particular lesson.
 20. **Demonstrate to students the complexity of an issue** by having them research and present--in group work or student panel format--different ways of looking at the same idea, same text, same concept, issue, or data.
 21. **Use role-playing or impromptu "games"** as a way to help students explore issues in an informal way.
 22. **Give students two passages of material containing alternative views** to compare and contrast. Distribute a list of the unsolved problems, dilemmas, or great questions in your discipline and invite students to claim one as their own to investigate.
 23. **Take advantage of technology:** set up a WebCT space students can go to for the course calendar, for student contact information, or to expand discussion.
 24. **Call or write a note /e-mail to students who are absent.**
 25. **Be redundant.** Students should hear, read, or see key material at least three times.
 26. **Allow students to demonstrate progress in learning:** summary quiz over the day's work, a written reaction to the day's material.
 27. **Use "topic assessments" and other non-graded feedback to let students know how they are doing.** Return their answers with an "answer sheet" that includes a model answer, percentage of correct and incorrect answers, and an outline of why students who did not do well made their mistakes in a "common mistakes" section. This format encourages students to dialogue with their own work. They have to figure out whether they did well or not and why.
 28. **Use an "agenda" or lesson outline to organize the day's material.** Give visible structure by posting the day's "menu" on chalkboard, overhead, or handout and then stick to it.
 29. **Require all students to meet with you in conference at least once dur-**

"44 Things" continued on the facing page

ing the semester.

30. **Hand out wallet-sized telephone cards with all important University of Maryland telephone numbers listed:** your office, your department head, your teaching assistant, lab assistant, Writing Center, Grammar Hotline, Learning Assistance Center, Student Support Services, Counseling Center, Library Information Number(s), Center for Teaching Excellence.
31. **Check to see if any students are having problems with an academic or campus matter and direct those who are to appropriate offices or resources.** Call the student's advisor, college, coach in order to work with others to help a student in trouble.

32. **Remind students about what they need to do to receive an "A" in your course.**
33. **Have students keep three-week three-times-a-week journals** in which they comment, ask questions, and answer questions about course topics.
34. **Invite students to critique each other's work** for readability or content.
35. **Invite students to ask questions and wait for another student in the class to provide the answer.** Probe students' responses to questions and their comments.
36. **Put students into pairs or "learning cells" to quiz each other over material for the day.**
37. **Grade quizzes and exercises in class** as a way to jump-start discussion and

to model excellent answers.

38. **Have students write questions on index cards to be collected and answered the next class meeting.**
39. **Construct opportunities for collaborative assignments** for several students to work on together and have students hand in, privately, but as part of the project, an assessment of their own and their classmates' level of participation in the group.
40. **Give students a take-home problem** relating to the day's lecture or discussion.
41. **Help students use their classmates as resources** by setting up smaller "study groups" of students who can work together in and out of the classroom: set up a buddy system so students can contact each other about assignments and course work; arrange helping trios of students to assist each other in learning and growing; form small groups for getting acquainted; mix and form new groups several times.
42. **Solicit suggestions from students of outside lectures and programs relevant to the course.** Publish, on a WebCT space or in a handout, their suggestions (even if they extend beyond the semester or year) in the form of a calendar of events that students can attend.
43. **Use mid-semester evaluations as a way to improve teaching and learning** by asking students to articulate what they think works and what additions or changes they would like to see. Publish your response to the evaluations, explaining why you agree with a suggested change and when it will be implemented or, why you disagree with a suggested change.
44. **Show students you take end-of-semester evaluations seriously by introducing them carefully,** explaining why the evals are useful to you, and how you (and your department) use such evals. If the department eval does not ask the questions you want answers to, append your own questionnaire to the departmental eval.

"Jonas Chalk" continued from page 3

asked, to process what the question is, to come up with an answer, and to get the courage to raise their hands. Allowing a pause as short as 5-10 seconds has been shown to increase student response if the question is posed clearly. Suggesting that students write down their responses may also help the shy quiet types answer questions because they have already formulated a response.

If you run a class where students are expected to participate, consider establishing that from the first class meeting. Rather than spending the session reading the syllabus for them, or lecturing about some topic, you might break them into groups and give them a short problem or project to work on. This sends the message right away that this is the kind of course where they will be expected to think, talk, and answer questions.

Effective questioning can actively engage students in their own learning, by continually challenging them to apply newly introduced concepts while they are fresh in their minds. The resulting feedback allows the instructor to adjust the pace and content of the class in real time. Better questioning by

teachers equals sharper thinking by students!

Good luck!

J o n a s

Quick tip 1: To increase student engagement, you might consider counting student responses as part of the course grade or as bonus points. As long as the weight in the overall course grade is small, this can increase student involvement without undue anxiety.

Quick tip 2: Another option is the "peer instruction" method promoted by Eric Mazur, a physics professor at Harvard. In Mazur's classes, students are first asked to consider a question and polled. Then they are invited to discuss the answer with other students for a stated period (usually 1-2 min) and polled again. Mazur's data show that the fraction of correct responses increases significantly after discussion with classmates, suggesting that effective peer instruction takes place during the discussion period.

This edition of "Jonas Chalk" was edited by Nora Bellows and reprinted with permission from Donna M. Qualters. For more information about Jonas Chalk or to see other "Jonas Chalk" columns, visit the following website: <http://gemasterteachers.neu.edu/documents/documents.html>

"Three Keys. . ." continued from page 1

KEY #1 – Promoting Ongoing Accountability

If students fail to prepare for group work, group assignments are likely to force better students to "carry" their less willing and/or less able peers. Further, improperly managed small-group discussions are likely to degenerate into social events in which little if any learning occurs. Both problems can be avoided by holding individuals and groups accountable for their behavior.

Individual accountability. Instructors can use three quite different mechanisms to promote responsible individual behavior. The most basic mechanism is requiring individual assignments (especially graded ones) prior to group discussion (e.g. requiring students to turn in written concept summaries at the beginning of class on group assignment days). A second mechanism is using procedures or assignments that cause members to express their point of view during group discussions. For example, some instructors assign one member to make sure that everyone is asked to provide input. The third mechanism is to include peer evaluation in the grading system.

One effective way to promote individual accountability is the Readiness Assurance Process in team learning (Michaelsen & Black, 1994). This process requires individuals to complete a multiple-choice test over a set of pre-assigned readings and turn in their answers. Next, groups re-take the same test and turn in their consensus answers for immediate scoring. This process incorporates all three mechanisms for promoting individual accountability. First, students are directly accountable because the individual

scores count as part of the course grade. Second, during the group test, members are invariably asked to voice and defend their choices on *every* question and the immediate feedback provides clear evidence of the importance of obtaining input from everyone on all important decisions. Third, members who fail to contribute are likely to receive a low peer evaluation.

Group Accountability. Without group accountability neither instructor nor students know 1) if their learning goals have been achieved or 2) if students are taking the group

Improperly managed small-group discussions are likely to degenerate into social events in which little if any learning occurs. This problem can be avoided by holding individuals and groups accountable for their behavior

work seriously. Groups can be held accountable by carefully managing small group and total discussions. First, assignments for groups (or each phase of a long-term project) must require groups to produce a tangible output. Second, to the extent possible, the output should enable both prompt quality assessment and inter-group comparisons.

KEY #2 – Using Linked and Mutually Reinforcing Assignments – "3S's"

The second key to using groups effectively is making sure that the assignments at each stage of the learning process (i.e., the "3 Boxes"

in Figure 1) are linked and mutually reinforcing. When this is done, assignments in the first two stages have a powerful positive effect on the learning that occurs in the next stage. To obtain the maximum overall payoff, assignments at each stage should be characterized by "3 S's."

1) Same problem: Individuals/groups should work on the same problem, case, or question.

2) Specific choice: Individuals/groups should be required to use course concepts to make a specific choice.

3) Simultaneously report: Whenever possible, groups should report their choices simultaneously.

The importance of assignments that are linked and mutually reinforcing is illustrated by the experience of a colleague who uses a series of case files to develop medical students' critical thinking (i.e., diagnostic) skills. For many years, she assigned groups to write a series of one-page memos identifying a preliminary diagnosis for each patient but was disappointed in the learning outcomes for two reasons. First, students only worked with part of the cases because groups delegated the work to individual members. Second, correcting the assignment took so long that the value of the feedback was minimal. She now uses the Readiness Assurance Process (described above) to ensure that students have mastered basic concepts and that groups have developed a norm of seeking input from each member before reaching a decision. Then, on the day of the activity, she adds a vital piece of new information to a set of pre-assigned cases and gives groups a specified length of time to either 1) select a most likely diagnosis from a limited set of alterna-

"Three Keys. . ." continued on the facing page

tives or 2) commit themselves to a position that they do not have enough information to make a definite diagnosis. When the time has elapsed, she gives a signal and the groups simultaneously hold up a legal-sized sheet of paper on which they have recorded their choices. The outcome is a lively discussion *within* the groups followed by a vigorous interchange *between* groups.

KEY #3 – Adopting Practices that Stimulate Idea Exchange

The degree to which group discussions expose students to new perspectives from their peers depends on two factors. The first factor is the extent to which the instructor uses assignments and creates conditions that foster give-and-take group interaction. The other factor is the diversity of opinions, ideas, and perspectives that exist within each group.

Using assignments that require group interaction. The most common reason for a low level of group interaction is the use of assignments that can be completed by independent individual work. For example, if assignments are too easy, one member will simply act on behalf of the group. Assignments that require a great deal of writing can also limit both interaction and learning. If asked to produce a lengthy document, group discussions tend to focus on working out who will write each piece of the total product. By contrast, assignments that require students to use course concepts to make difficult choices (e.g., the medical school example above) always produce high levels of both interaction and learning (Michaelsen, Fink & Knight, 1997).

Removing barriers to participation. Often, members of new groups

are reluctant to speak out. One response to this problem is assigning roles within the group, e.g., recorder, summarizer, devil's advocate, etc. However, a more powerful approach is using permanent groups and assignments, practices, and a grading system that fosters the development of group cohesion (Michaelsen, Black & Fink, 1996). As groups become more cohesive, trust and support typically build to the point that even naturally quiet members are willing to engage in intense give-and-take interactions with little worry about being offensive or mis-



understood (Watson, Michaelsen & Sharp, 1991). As group members come to see their own success as tied to the success of their group, they are motivated to invest considerable personal energy into doing group work.

In-class group work. Interaction is also likely to be limited unless groups are allowed to do their work in class. In many cases, the cost of meeting outside of class is so great that students will meet just long enough to divide up the work. They will then complete the assignment individually and learn little from each other. Their output is a group product in name only, and any cohesiveness developed during the initial

meeting is likely to be offset by a concern that other members might fail to do their part.

Creating diverse groups. Another way to expose students to new ideas is making sure that groups are relatively large (5-7 members) and as diverse as possible. Creating diverse groups involves two steps. The first is identifying the dimensions that make a difference in student performance in each specific course, e.g., majors, previous course work, relevant job experience, etc. The other is sorting members into groups so that member assets and liabilities are spread evenly as possible across groups (Michaelsen & Black, 1994).

Summary and Conclusions:

By using assignments in each of the “3-Boxes” (see Figure 1) that are completed during class time, and are characterized by the “3S’s” (Same problems, Specific choice, and Simultaneous reporting),

instructors create the conditions needed for effective learning groups. These conditions include the following: individual and group accountability, the need and opportunity for group interaction, and the motivation to engage in give-and-take discussion. In the vast majority of groups, the net result will be increased learning and high satisfaction for both students and instructors.

If you are interested in discussing this article further, we would like to extend an invitation to you to attend a round-table discussion on Wednesday, March 12 from Noon - 1

"Three Keys. . ." continued from page 9
 p.m. in the Maryland Room (0100) in Marie Mount Hall (light refreshments provided). Our discussion will focus both on the logistics and feasibility of this model, as well as practical applications for any-sized classroom. You may also wish to attend the workshop on *Assessing Group & Team Work: Several Theories and Practices* on March 14 from 2:30 - 4:00 (also in the Maryland Room in Marie Mount Hall--Rm. 0100). We would like to extend a special invitation to professors of large classes and their TAs--teaching teams may benefit a great deal from utilizing Michealsen's approach to student learning teams.

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