CHAPTER 2 COUNTDOWN FOR COURSE PREPARATION

Start a Portfolio

A teaching portfolio not only will be useful when you discuss your teaching with your department head or superior, it will also be useful in your thinking about teaching and your development.

TIME: ONE WEEK BEFORE THE FIRST CLASS

If you teach first-year students and have a class list and e-mail addresses, send an e-mail welcoming the students to your class. (It's also not a bad idea to do this with more advanced students.) At this point you're ready to prepare for the first class. For ideas about what to do and how to handle this meeting, read the next chapter.

Supplementary Reading


Teaching Within the Rhythms of the Semester by Donna K. Duffy and Janet W. Jones (San Francisco: Jossey-Bass, 1995) is also a perceptive and readable guide to thinking about the flow of the course over the term.


If you are teaching first-year students, the book Teaching College Freshmen by Bette Erickson and D. W. Strommer (San Francisco: Jossey-Bass, 1991) will be helpful to you.

Meeting a Class for the First Time

The first class meeting, like any other situation in which you are meeting a group of strangers who will affect your well-being, is at the same time exciting and anxiety-producing for both students and teacher. Some teachers handle their anxiety by postponing it, simply handing out the syllabus and leaving. This does not convey the idea that class time is valuable, nor does it capitalize on the fact that first-day excitement can be constructive. If you have prepared as suggested in the previous chapter, you're in good shape; the students will be pleased that the instruction is under control, and focusing on meeting the students' concerns can not only help you quell your own anxiety but also make the first class interesting and challenging.

Other things being equal, anxiety is less disruptive in situations where stimulus events are clear and unambiguous. When the students know what to expect, they can direct their energy more productively. An important function of the first day's meeting in any class is to provide this structure; that is, to present the classroom situation clearly, so that the students will know from the date of this meeting what you are like and what you expect. They come to the first class wanting to know what the course is
all about and what kind of person the teacher is. You need to know what the students expect. To these ends, the following concrete suggestions are offered.

**SETTING THE STAGE**

One point to keep in mind on the first day and throughout the term is that yours is not the students’ only class. They come to you from classes in chemistry, music, English, or physical education, or rushing from their dormitory beds or from parking lots. The first few minutes need to help this varied group shift their thoughts and feelings to you and your subject.

You can ease them into the course gradually, or you can grab their attention with something dramatically different, but in either case you need to think consciously about how you set the stage to facilitate achieving the course objectives. Even before the class period begins, you can communicate nonverbally with such actions as arranging the seats in a circle, posting an agenda, putting your name on the board, and chatting with early arrivals about what class they have come from or anything else that would indicate your interest in them. While students are coming in, suggest that they spend the time before class starts by getting acquainted with the students sitting near them.

**BREAKING THE ICE**

You will probably want to use the first period for getting acquainted and establishing goals. You might begin by informally asking first-year students to raise their hands, then sophomores, juniors, seniors, or out-of-staters. This gives you some idea of the composition of the class and gets students started participating. Make it clear that you value diversity. Varied student backgrounds enrich discussions.

In my relatively large lecture classes I have then asked the students to take a minute or two to write down words and phrases that describe their feelings on the first day of class. I then ask them, “What have you written?” and list their responses on the board.

Next I ask them, “How do you think your teacher feels on the first day of class?” This takes them aback, but they begin writing. We now list these responses in a second column, and they see some parallels. I comment briefly on my own feelings. (I remember with special affection the senior who came up to me after class and said, “I’ve been at this university almost four years, and this is the first time it ever occurred to me that professors have feelings.”)

I admit to them that I’m anxious—that I’m concerned about how the students will relate to me and the material, but I’m not sure that everyone should do this. Students need to feel that you’re secure enough to admit your own feelings. If they see you as being uncertain about your ability to fill the roles of authority and expert when needed, students may become more anxious.

In a small class you might then ask all class members (including yourself) to introduce themselves, tell where they’re from, mention their field of concentration, and answer any questions the group has. Or you can ask each student to get acquainted with the persons sitting on each side and then go around the class with each student introducing the next or each repeating the names of all those who have been introduced—a good device for developing rapport and for helping you learn the names, too. A more demanding but surprisingly effective device is to have each person introduce everyone who was introduced before, ending with the teacher repeating everyone’s names. (Try it! You’ll be surprised at how well you do.)

Learning names is a start, but students are probably even more interested in you than in their classmates; so give them a chance to ask questions of you. Sometimes I have asked for one or two students to act as interviewers for the class, asking questions they think the other students would like to ask.

Even if you remembered all of the students’ names in the “Name Game,” you may not recall them later; so it is helpful to supplement the memory in your head with an external memory. I ask a former student who has a camera to take a picture of each student. At the next class meeting I ask students to write their names, phone numbers, e-mail addresses, and other
information on the photos for me. The “other information” might include previous experience relevant to the course, interests, distinctive characteristics that will help me remember them, possible major field, and so on.

Having established some freedom of communication, you can then go on to assess students’ expectations and goals, and let them know what yours are. One technique for doing this is problem posting.

PROBLEM POSTING

Problem posting is a method of getting students involved and active that can be used in classes of all sizes. For this first class meeting you might say, “Let’s see what problems you’d like to tackle during the course. What sorts of concerns do you think we might deal with?” or “What are your expectations for this course?” or “What goals do you have for this course?” or “What have you heard about this course?”

You might ask students to write for a minute their response to the question and then ask them what they have written. Your task then becomes that of recorder, listing responses on the board, overhead, or electronic smartboard. To make sure you understand, you may restate the response in your own words. If you feel that some response is ambiguous or too general, you might ask for an example, but you must be ready to accept all contributions, whether or not you feel they are important. It is crucial that the atmosphere be accepting and nonevaluative. Students should feel that you are genuinely interested in what they have to contribute.

By the end of the problem posting the class normally has become better acquainted, has become used to active participation, has taken the first step toward developing an attitude of attempting to understand rather than competing with one another, has reduced the attitude that everything must come from the teacher, has learned that the teacher can listen as well as talk (and is not going to reject ideas different from his or her own), and, I hope, has begun to feel some responsibility for solving its own problems rather than waiting for them to be answered by the instructor.

INTRODUCING THE SYLLABUS

Your syllabus will provide some of the answers to the concerns raised in the problem posting. In presenting the syllabus you give the students some notion of the kind of person you are. The syllabus is a contract between you and your students. But a contract cannot be one-sided. Thus it is important to give students time to read and discuss it. Give them a chance to have input and to be sure that they understand what you expect. Help the students understand the reasons for the plan you have presented, but if they have good reasons for changes, accept them. The students are, of course, interested in course requirements, but they are at least as much interested in what kind of person you are. One important issue is fairness.

Testing, Grading, and Fairness

Promoting the notion that you are objective or fair can best be handled in connection with marks and the assignment of grades (see the chapters “Assessing, Testing, and Evaluating” and “The ABC’s of Assigning Grades”). A large part of the students’ motivation in the classroom situation is (perhaps unfortunately) directed toward the grades they hope to get for the course. The very least that students can expect of you is that their marks will be arrived at on some impartial basis. Thus give some time to discussing this section of your syllabus. Try to help the students understand how grading and testing are tied to course goals.

The simplest way to show students that you are objective and fair is to let them know that you are willing to meet and advise them. Let them know they can tell you if they are likely to have special difficulties because of health or personal issues. Indicate your office hours. In addition, students appreciate it if you are willing (and have the time) to spend a few minutes in the classroom after each class, answering specific questions. Such queries most often concern questions of fact that can be answered briefly and would hardly warrant a trip to your office at a later time. If time permits, adjournment to a convenient snack bar or
lounge may give students with special interests a chance to pursue them and get to know you better. If you teach an evening class, schedule some evening time to see students.

The first class is not the time to make sure students understand your inadequacies and limitations. Frankly admitting that you don’t know something is fine after the course is under way, but apologies in advance for lack of experience or expertise simply increase student insecurity. They need to feel that you are competent and in charge even if you are shaking in your boots.

**INTRODUCING THE TEXTBOOK**

To continue with the discussion of the first meeting of the class, we turn now to the presentation of the textbook. Explain the features that led you to choose it. Describe how students can learn from it most effectively. Since disagreement between the teacher and the text is inevitable, the students have a right to know what they are supposed to do about such discrepancies on examinations. By facing the situation squarely, you can not only escape from the horns of this dilemma but also turn it to your advantage. Explain that rival interpretations stand or fall on the basis of pertinent evidence and plan to give your reasons for disagreeing with the textbook. This procedure will accomplish two things: (1) it will give the student the notion that your opinions are based on evidence, and (2) it will frequently point out current problems in theory that often have great appeal for the serious student.

**ASSESSING PRIOR KNOWLEDGE**

The most important characteristic determining student learning is prior knowledge. Thus you need to get some sense of the diversity of your class’s background. You might simply ask questions like “How many have had more than X previous courses in this subject?” or you might give a short, noncredit test of relevant knowledge sometime during the first few class sessions. For students who lack sufficient background, you might advise that they transfer to the needed courses, or if this isn’t feasible, you can at least suggest materials for their own self-study that would help them keep up with the other students. For those with very high scores, you might suggest that they skip your course and go on to a more advanced course, or at least suggest supplementary materials that would be enriching and challenging.

In a diverse class, adult students or students from other cultures may feel at a disadvantage relative to students who have had previous courses that are relevant. Reassure them by pointing out that a diversity of experiences not directly related to the course can enrich class discussion and contribute to learning.

**QUESTIONS AND REACTIONS**

Even in a large lecture it seems wise to interrupt these first descriptions of the course for student questions. Some of the questions will be designed as much to test you as to get information. Often the underlying questions are

- “Are you rigid?”
- “Will you really try to help students?”
- “Are you easily rattled?”
- “Are you a person as well as a teacher?”
- “Can you handle criticism?”

Ask students to take two minutes at the end of class to write their reactions to the first day (anonymously). This accomplishes two things: (1) it indicates your interest in learning from them and starts building a learning climate in which they are responsible for thinking about their learning and influencing your teaching; and (2) it gives you feedback, often revealing doubts or questions students were afraid to verbalize orally.

**WHAT ABOUT SUBJECT MATTER?**

Many instructors dismiss class early on the first day. As the preceding sections indicate, I think the first day is important even though the students have had no prepared assignment. I like to
give at least some time to subject matter. Typically I give at least a brief overview of the course, indicate some of the questions we’ll try to answer, and perhaps introduce a few key concepts. Either on the first day or during the second class period, I ask students to fill in concepts on a concept map (a diagram of key concepts and their relationships).

But there is a limit to what you can do. The balance between content and other activities is one that different teachers will decide in different ways. My only admonition is to use the time. The first day is important, and by using it fully you communicate that you take class periods seriously. By the end of the class period, students should feel, “This is going to be an exciting course.”

IN CONCLUSION

By the end of the first day, students will have

1. A sense of where they’re going and how they’ll get there.
2. A feeling that the other members of the class are not strangers, that you and they are forming a group in which it’s safe to participate.
3. An awareness that you care about their learning and will be fair.
4. An expectation that the class will be both valuable and fun.

Supplementary Reading

4 Reading as Active Learning

While professors like to think that students learn from professors, it seems likely that students often learn more efficiently from reading than from listening. The chapter “Teaching Students How to Become More Strategic and Self-Regulated Learners” describes skills and strategies to improve learning and retention from reading. The journals and papers described in the chapter “How to Enhance Learning by Using High-Stakes and Low-Stakes Writing” illustrate one way to get students into the library and reading primary sources. Nonetheless textbooks are still a basic tool for teaching most courses, and you can teach students to be active readers of textbooks.

TEXTBOOKS

For decades the demise of the textbook has been eagerly predicted by advocates of each of the new panaceas for the problems of education. First television, then teaching machines, then the computer—each was expected to revolutionize education and free students and teachers from their longtime reliance on textbooks. But each of the new media has settled into its niche in the educational arsenal without dislodging the textbook. In fact, the greater availability of a wide variety of printed materials is probably as important as the technological revolution.

The introduction of open-stack libraries, paperback books, inexpensive reprint series, and the photocopier has given the college teacher the opportunity to choose from sources varying in style, level, and point of view. Many teachers are substituting paperback books, reprints, and collections of journal articles for the textbook as the sources of the basic information needed by students.

Yet learning is facilitated by organization. Without organization, facts and concepts become subject to interference and are quickly forgotten and inaccessible. With input from field experience, discussion, paperbacks, reprints, the World Wide Web, and other sources, the student needs, more than ever, some frame of reference within which to assimilate the bloomin’, buzzin’ confusion of points of view present in a modern course. Ideally, the textbook can provide such a structure.

If individual differences are to be attended to, students need an opportunity to learn in laboratory settings, field experiences, discussion, lectures, or reading from diverse sources. Textbooks are an important part of the teacher’s compendium of tools, and the newer teaching methods and aids supplement rather than supplant reading. In fact, a goodly part of higher education is education in how to read—how to read poems, how to read social science, how to read legal briefs, how to read the literature of our culture and our professions.

HOW DO YOU GET STUDENTS TO DO THE ASSIGNED READING?

The main reason students come to class unprepared is that they don’t see what difference it makes. In many courses, textbook assignments and lectures are independent parts of the course, sometimes overlapping, sometimes supplementary, but often not perceived as interdependent. Thus the first strategy for encouraging reading is frequent use of the phrase “As you read in your
textbook assignment for today..." or the question “What was your reaction to [the author of the textbook]'s discussion of...?”

A second strategy is to have students write a one-minute paper at the beginning of occasional class periods on “The most important idea (or two or three ideas) I got from the assignment for today.” Alternatively, you can have students write a question—either something they would like explained or something that was stimulated by the reading.

Probably the surest strategy is to announce that there will be a brief quiz on the assignment. Let’s hope that once we have formed in our students the habit of reading the assignments, they will develop enough intrinsic motivation that the quizzes become unnecessary.

The basic problem often may be found in the meaning of the word read. To many, “read” is simply to pass one’s eyes over the words as one does in reading a story. One has completed the assignment when one has reached the end of the assignment.

We need to teach students how to read—how to read with understanding, how to think about the purpose of the author, about relationships to earlier learning, about how they will use what they’ve read.

**Research on Learning from Reading**

A number of classic studies have compared printed materials with lectures, and the results—at least with difficult materials—favor print (Hartman, 1961).

Study questions intended to guide the students’ reading are often helpful. Marton and Säljö (1976b) found that questions designed to produce more thoughtful, integrative study were more effective than questions of fact.

Nevertheless, study questions do not automatically guarantee better learning. Students sometimes tended to look only for answers to the questions while disregarding the other content of the chapter (Marton & Säljö, 1976a). Andre (1987) reviewed studies of study questions and concluded that questions generally do aid learning and that higher-level questions, rather than low-level factual questions, increase the effectiveness of student processing of the reading. Similarly, Willhite (1983) found that prequestions focusing on material at the top of the organizational structure facilitated learning, especially for the less able students. You need questions that get students to think about the material. One way to encourage thoughtful reading is to ask students to write a half-page answer to a thought-provoking question and to bring multiple copies to class to share with peers in small groups. Discussion after the students have read one another’s papers is usually lively.

**Examples of Study Questions to Encourage Thought**

Your assignment for Monday is to study the next chapter, “Memory.” Here are some study questions:

1. How would you apply the idea of “depth of processing” to your learning from this chapter?
2. How does the limited capacity of working memory affect your learning in lecture classes?
3. How is the approach taken by researchers in memory like, and how is it different from, that taken by the researchers in learning you studied in the last chapter?

As you will see in the chapter “Assessing, Testing, and Evaluating,” students’ study methods and learning are influenced by the sort of test questions they expect. Thus many students can read thoughtfully if tests require deeper understanding and thinking. But other students faithfully read and reread regardless of the type of assignment, memorizing definitions and facts without thought of the goal of the author and the relationship of this reading assignment to their previous learning. You can help by discussing with the students why you chose the reading and how they should read it.

There is ample evidence that students benefit from specific instruction in selecting main ideas, asking themselves questions, looking for organizational cues, and attempting to summarize or explain what they have read. Particularly in introductory classes you will help learning if you make explicit reference to your goal in assigning a particular chapter and discuss ways in which students can best achieve that goal.
(McKeachie et al., 1985; Weinstein & Mayer, 1986). Suggest that your students
1. Look at topic headings before studying the chapter.
2. Write down questions they would like to answer.
3. Make marginal notes as they read.
4. Underline or highlight important concepts.
5. Carry on an active dialog with the author.
6. Comment on reading in their journals. (See the chapter “How to Enhance Learning by Using High-Stakes and Low-Stakes Writing.”)

For a fuller description of ways to help students become better learners, see the chapter “Teaching Students How to Become More Strategic and Self-Regulated Learners.”

**IN CONCLUSION**

1. Reading is an important tool for learning.
2. To facilitate learning, a teacher needs not only to choose appropriate reading materials but also to help students learn how to read them effectively.
3. Despite the availability of photocopies, coursepacks, paperbacks, and the World Wide Web, textbooks are still useful tools for teaching.
4. If material students need to learn is in print, in a form conveniently accessible for them, they may learn more efficiently from reading than from listening to you.

**Supplementary Reading**

4. Develop motivation for further learning.
5. Help students articulate what they've learned.
6. Get prompt feedback on student understanding or misunderstanding.

Why should discussion be the method of choice for achieving such objectives? The first justification is a very simple extrapolation of the old adage “Practice makes perfect.” If instructors expect students to learn how to integrate, apply, and think, it seems reasonable that students should have an opportunity to practice these skills. To help students learn and think, you need to find out what is in their heads. Discussion can help.

PROBLEMS IN TEACHING BY DISCUSSION

In discussion groups the instructor is faced with several problems:
1. Getting participation in the discussion.
2. Making progress (or making the student aware of the progress) toward course objectives.
3. Handling emotional reactions of students.
4. Listening to the students supportively.

This chapter should help you cope with each of these problems.

STARTING DISCUSSION

A LITTLE BIT OF THEORY

Research in cognitive psychology has found that memory is affected by how deeply we process new knowledge (see the chapter “Teaching Students How to Become More Strategic and Self-Regulated Learners”). Simply listening to or repeating something is likely to store it in such a way that we have difficulty finding it when we want to remember it. If we elaborate our learning by thinking about its relationship to other things we know or by talking about it—explaining, summarizing, or questioning—we are more likely to remember it when we need to use it later. This may help relieve your anxiety about covering the material. In lectures teachers cover more material, but research shows that most of the material covered does not get into the students’ notes or memory (Hartley & Davies, 1978). Classic studies over the last five decades have repeatedly shown that, in discussion, students pay attention and think more actively.

Because many students are accustomed to listening passively to lectures, in introducing discussion you need to explain why and how discussion will help them construct knowledge they can find and apply when needed.

Starting Discussion with a Common Experience

One of the best ways of starting a discussion is to refer to a concrete, common experience through presentation of a demonstration, film, role play, short skit, or brief reading. It could be a common experience of all students or an issue on campus or in the media, or you can provide the experience. Following such a presentation it’s easy to ask, “Why did ______?”

Such an opening has a number of advantages. Because everyone in the group has seen it, everyone knows something about the topic under discussion. In addition, by focusing the discussion on the presentation, the instructor takes some of the pressure off anxious or threatened students who are afraid to reveal their own opinions or feelings.
However, you will not always be able to find the presentation you need to introduce each discussion, and you may be forced to turn to other techniques of initiating discussion. One such technique is problem posting, which was discussed in the chapter “Meeting a Class for the First Time.”

**Starting Discussion with a Controversy**

A second technique of stimulating discussion is through disagreement. Experimental evidence is accumulating to indicate that a certain degree of surprise or uncertainty arouses curiosity, a basic motive for learning (Berlyne, 1960). Some teachers effectively play the role of devil’s advocate; others are effective in pointing out differences in points of view.

I have some concerns about the devil’s advocate role. I believe that it can be an effective device in getting students to think actively rather than accept passively the instructor’s every sentence as “Truth.” Yet it has its risks, the most important of which is that it may create lack of trust in the instructor. Of course, instructors want students to challenge their ideas, but few want their students to feel they are untrustworthy, lying about their own beliefs.

Two other dangers lurk in the devil’s advocate role. One is that it will be perceived as manipulative. Students may feel (with justification) that the instructor “is just playing games with us—trying to show how smart he is and how easily he can fool us.” It can also be seen as a screen to prevent students from ever successfully challenging the instructor.

Yet the devil’s advocate role can be effective. Its success depends a good deal on the spirit with which it is played. Linc Fisch (2001) handles this problem by donning a T-shirt with “Devil’s Advocate” on the front. My own compromise solution is to make it clear when I’m taking such a role by saying, “Suppose I take the position that _” or “Let me play the role of devil’s advocate for a bit.”

In any case the instructor should realize that disagreement is not a sign of failure but may be used constructively. When rigid dogmatism interferes with constructive problem solving following a disagreement, the instructor may ask the disagreeing students to switch sides and argue the opposing point of view. Such a technique seems to be effective in developing awareness of the strengths of other positions.

As Maier (1963) has shown in his studies of group leadership, one barrier to effective problem solving is presenting an issue in such a way that participants take sides arguing the apparent solution rather than attempting to solve the problem by considering data and devising alternative solutions. Maier suggests the following principles for group problem solving:

1. Success in problem solving requires that effort be directed toward overcoming surmountable obstacles.
2. Available facts should be used even when they are inadequate.
3. The starting point of the problem is richest in solution possibilities.
4. Problem-mindedness should be increased and solution-mindedness should be delayed.
5. The “idea-getting” process should be separated from the “idea evaluation” process because the latter inhibits the former.

**Starting Discussion with Questions**

The most common discussion opener is the question, and the most common error in questioning is not allowing students enough time to think. You should not expect an immediate response to every question. If your question is intended to stimulate thinking, give the students time to think. Five seconds of silence may seem an eternity, but a pause for 5 to 30 seconds will result in better discussion. In some cases you may plan for such a thoughtful silence by asking the students to think about the question for a few seconds and then write down one element that might help answer the question. Such a technique increases the chance that the shyer or slower students will participate, since they now know what they want to say when the discussion begins. In fact, you may even draw one in by saying, “You were writing vigorously, Ronnie. What’s your suggestion?”

**Factual Questions.** There are times when it is appropriate to check student background knowledge with a series of brief
factual questions, but more frequently you want to stimulate problem solving. One common error in phrasing questions for this purpose is to ask a question in a form conveying to students the message “I know something you don’t know and you’ll look stupid if you don’t guess right.”

**Application and Interpretation Questions.** Rather than dealing with factual questions, formulate discussions so as to get at relationships, applications, or analyses of facts and materials. Solomon, Rosenberg, and Bezdek (1964) found that teachers who used interpretation questions produced gains in student comprehension. A question of the type “How does the idea that _________ apply to _________?” is much more likely to stimulate discussion than the question “What is the definition of _________?” The secret is not to avoid questions or to lecture in statements, but rather to listen and to reflect on what is heard. Dillon (1982), a leading researcher on questioning, advises that once you have defined the issue for discussion, keep quiet unless you are perplexed or didn’t hear a comment. Questions are tools for teaching, but as Dillon demonstrated, they sometimes interfere with, as well as facilitate, achievement of teaching goals. What happens depends on the question and its use.

**Problem Questions.** A question may arise from a case, or it may be a hypothetical problem. It may be a problem whose solution the instructor knows; it may be a problem that the instructor has not solved. In any case it should be a problem that is meaningful to the students, and for the sake of morale, it should be a problem they can make some progress on. And even if the teacher knows an answer or has a preferred solution, the students should have a chance to come up with new solutions. The teacher’s job is not to sell students on a particular solution, but rather to listen and to teach them how to solve problems themselves. Don’t be afraid to express your own curiosity, question, or “what if . . .” wonder about a topic. Ask the students what they think. It is better to be an open-minded, curious questioner than the font of all knowledge.

Suppose you ask a question and no one answers, or the student simply says, “I don’t know.” Discouraging as this may be, it should not necessarily be the end of the interaction. Usually the student can respond if the question is rephrased. Perhaps you need to give an example of the problem first; perhaps you need to suggest some alternative answer and ask the student what evidence might or might not support it; perhaps you need to reframe a prior question. More often than not, you can help the students discover that they are more competent than they thought.

**Other Types of Questions.** Connective and causal effect questions involve attempts to link material or concepts that otherwise might not seem related. One might, for example, cut across disciplines to link literature, music, and historical events or one might ask, “What are the possible causes of this phenomenon?”

Comparative questions, as the name suggests, ask for comparisons between one theory and another, one author and another, one research study and another. Such questions help students determine important dimensions of comparison.

**Evaluative questions** ask not only for comparisons but for a judgment of the relative value of the points being compared; for example, “Which of two theories better accounts for the data? Which of two essays better contributes to an understanding of the issue?”

Critical questions examine the validity of an author’s arguments or discussion. Television, magazines, and other media provide opportunities for using critical or evaluative questioning. For example, “An eminent authority states thus and so. Under what conditions might that not be true?” Being so critical that students feel that their reading has been a waste of time is not helpful, but presenting an alternative argument or conclusion may start students analyzing their reading more carefully, and eventually you want students to become critical readers who themselves challenge assumptions and conclusions.

**Starting Discussion with a Problem or Case**

One of the biggest problems in teaching by discussion is focus. Getting the discussion headed in the right direction and keeping it there requires that both students and the instructor be focused on the same questions. One of the better methods for producing focus is to use a problem or a case study as the main topic of discussion. The chapter “Problem-Based Learning” discusses problem-based learning and the case method in more detail, but...
what follows here are some general ideas about working with problem-based discussions more efficiently.

**Breaking a Problem into Subproblems**

One of Maier's (1952) important contributions to effective group problem solving, as well as to teaching, is to point out that groups are likely to be more effective if they tackle one aspect of a problem at a time rather than skipping from formulation of the problem, to solutions, to evidence, to “what-have-you,” as different members of the group toss in their own ideas. In developmental discussion the group tackles one thing at a time.

One of the first tasks is likely to be a clarification of the problem. Often groups are ineffective because different participants have different ideas of what the problem is, and group members may feel frustrated at the end of the discussion because “the group never got to the real problem.”

A second task is likely to be: *What do we know?* or *What data are relevant?*

A third task may be: *What are the characteristics of an acceptable solution?*—for example: What is needed?

A fourth step could be: *What are possible solutions?* and a fifth step may be to *evaluate these solutions* against the criteria for a solution determined in the previous step.

The developmental discussion technique can be used even in large groups, since there are a limited number of points to be made at each step regardless of the number of participants. Maier and Maier (1957) have shown that developmental discussion techniques improve the quality of decisions compared with freer, more nondirective discussion methods.

**Socratic Discussion**

The “classic” (and I do mean classic) discussion technique is the Socratic method. In television, novels, and anecdotes about the first year of law school it is usually portrayed as a sadistic, anxiety-producing method of eliciting student stupidity, and even when I place myself in the role of slave boy taught by Socrates in the *Meno*, I feel more like a pawn than an active learner.

Perhaps this is why I’ve never been very good at Socratic teaching; nonetheless I believe that it can be used as an effective method of stimulating student thinking, and it can have the quality of an interesting game rather than an inquisition. The leading modern student of Socratic teaching is Allen Collins, who has observed a variety of Socratic dialogues and analyzed the strategies used (1977; Collins & Stevens, 1982).

Basically, most Socratic teachers attempt to teach students to reason to general principles from specific cases. Collins (1977) gives 23 rules, such as the following:

1. Ask about a known case. For example, if I were trying to teach a group of teaching assistants about student cheating, I might say, “Can you describe a situation in which cheating occurred?”

2. Ask for any factors. “Why did the cheating occur?”

3. Ask for intermediate factors. If the student suggests a factor that is not an immediate cause, ask for intermediate steps. For example, if a teaching assistant says, “Students feel a lot of pressure to get good grades,” I might say, “Why did the pressure for grades result in cheating in this situation?”

4. Ask for prior factors. If the student gives a factor that has prior factors, ask for the prior factors. For example, “Why do students feel pressure to get good grades?”

5. Form a general rule for an insufficient factor. For example, “Do all students who feel pressure cheat?”

6. Pick a counterexample for an insufficient factor. For example, “Do you think these students cheat on every test?”

7. Form a general rule for an unnecessary factor. For example, if a teaching fellow suggests that cheating occurs when tests are difficult, I might say, “Probably the pressure to cheat is greater when tests are difficult, but does cheating occur only on difficult tests?”

8. Pick a counterexample for an unnecessary factor. For example, “Is cheating likely to occur on college admissions tests, such as the SAT?”
9. Pick a case with an extreme value. For example, “Why is cheating minimized on SAT tests?”

10. Probe for necessary or sufficient factors.

11. Pose two cases and probe for differences. For example, “Why is there more cheating in large classes than in small ones?”

12. Ask for a prediction about an unknown case.

13. Trace the consequences of a general rule. For example, if the teaching assistants conclude that cheating will occur when tests are difficult and are not well proctored, I might say, “Engineering classes are considered difficult, and I understand that there is little cheating even though tests are unproctored.” (The school has an honor code.)

In general, the rules involve formulating general principles from known cases and then applying the principles to new cases. Even if one does not use the Socratic method to its fullest, the questioning strategies described in Collins’s rules may be generally useful in leading discussions.

**BARRIERS TO DISCUSSION**

One of the important skills of discussion leaders is the ability to appraise the group’s progress and to be aware of barriers or resistances that are blocking learning. This skill depends on attention to such clues as inattention, hostility, or diversionary questions.

**Barriers to Discussion: Why Students Don’t Participate**

- Student habits of passivity
- Failure to see the value of discussion
- Fear of criticism or of looking stupid
- Push toward agreement or solution before alternative points of view have been considered
- Feeling that the task is to find the answer the instructor wants rather than to explore and evaluate possibilities

A primary barrier to discussion is the students’ feeling that they are not learning. Occasional summaries during the hour not only help students chart their progress but also help smooth out communication problems. A summary need not be a statement of conclusions. In many cases the most effective summary is a restatement of the problem in terms of the issues resolved and those remaining. Keeping a visible record on the chalkboard of ideas, questions, data, or points to explore helps maintain focus and give a sense of progress. Asking students to summarize progress and what now needs to be done helps them develop as learners.

Another common barrier to good discussion is the instructor’s tendency to tell students the answer before the students have developed an answer or meaning for themselves. Of course, teachers can sometimes save time by tying things together or stating a generalization that is emerging. But all too often they do this before the class is ready for it.

When you oppose a student’s opinions, you should be careful not to overwhelm the student with the force of the criticism. Your objective is to start discussion, not smother it. Give students an opportunity to respond to criticisms, examining the point of view that was opposed. Above all, avoid personal criticism of students.

And perhaps the most common barrier is our own discomfort. We are not dispensing knowledge and not in control. It is all too easy to slip back into our old methods of teaching.

**WHAT CAN I DO ABOUT NONPARTICIPANTS?**

In most classes some students talk too much, and others never volunteer a sentence. What can the teacher do?

Unfortunately, most students are used to being passive recipients in class. Some of your students may come from cultures

*Some students who are reluctant to participate orally will participate in a computer conference or by e-mail. Mano Singham of Case Western Reserve University asked students to identify themselves as talkers or listeners and then to discuss in each group how they could develop the skills of the other group. See The National Teaching and Learning Forum, February 2004, 8(2).*
whose norms discourage speaking in class. To help students become participants I try to create an expectation of participation in the discussion section. You can start to do this in the first meeting of the course by defining the functions of various aspects of the course and explaining why discussion is valuable. In addition to this initial structuring, however, you must continually work to increase the students' awareness of the values of participation. Participation is not an end in itself. For many purposes widespread participation may be vital; for others it may be detrimental. But you want to create a climate in which an important contribution is not lost because the person with the necessary idea did not feel free to express it.

What keeps a student from talking? There are a variety of reasons—boredom, lack of knowledge, general habits of passivity, cultural norms—but most compelling is a fear of being embarrassed. When one is surrounded by strangers, when one does not know how critical these strangers may be, when one is afraid of the teacher’s response, when one is not sure how sound one’s idea may be, when one is afraid of stammering or forgetting one’s point under the stress of speaking—the safest thing to do is keep quiet.

What can reduce this fear? Getting acquainted is one aid. Once students know that they are among friends, they can risk expressing themselves. If they know that at least one classmate supports an idea, the risk is reduced. For both these reasons the technique of subgrouping helps; for example, you can ask students to discuss a question in pairs or small groups before asking for general discussion.

Asking students to take a couple of minutes to write out their initial answers to a question can help. If a student has already written an answer, the step to speaking is much less than answering when asked to respond immediately. Even the shy person will respond when asked, “What did you write?”

Rewarding infrequent contributors at least with a smile helps encourage participation even if the contribution has to be developed or corrected. Calling students by name seems to encourage freer communication. Seating is important too. Rooms with seats in a circle help tremendously.

Getting to know the nonparticipant is also helpful. For example, I have found that it is helpful to ask students to write a brief life history indicating their interests and experiences relevant to the course. These autobiographies help me to gain a better knowledge of each student as an individual, to know what problems or illustrations will be of particular interest to a number of students, and to know on whom I can call for special information. One of the best ways of getting nonparticipants into the discussion is to ask them to contribute in a problem area in which they have special knowledge.

The technique of asking for a student’s special knowledge deals directly with one of the major barriers to class discussion—fear of being wrong. No one likes to look foolish, especially in a situation where mistakes may be pounced upon by a teacher or other students. One of the major reasons for the deadliness of a question in which the teacher asks a student to fill in the one right word—such as, “This is an example of what?”—is that it puts the student on the spot. There is an infinity of wrong answers, and obviously the teacher knows the one right answer; so why should the student risk making a mistake when the odds are so much against the student? And even if the answer is obvious, why look like a pawn of the teacher?

One way of putting the student in a more favorable position is to ask general questions that have no wrong answers. For example, you can ask, “How do you feel about this?” or “How does this look to you?” as a first step in analysis of a problem. Students’ feelings or perceptions may not be the same as yours, but as reporters of their own feelings, they can’t be challenged as being inaccurate. While such an approach by no means eliminates anxiety about participation (for an answer involves revealing oneself as a person), it will more often open up discussion that involves the student than will questions of fact. Problem posting, the technique discussed in an earlier chapter as a method for establishing objectives during the first day of class, is an example of a discussion technique minimizing risk for students. It can be useful in introducing a new topic at the conclusion of a topic, or for analysis of an experiment or a literary work. An added advantage is that it can be used in large as well as small groups.

Another technique for reducing the risk of participation for students is to ask a question a class period before the discussion and ask students to write out answers involving an example from their
own experience. Similarly, one can ask students to bring one question to class for discussion. This helps participation, helps students learn to formulate questions, and also provides feedback for you.

Finally remember that out-of-class learning is often more important than that in class. E-mail, computer conferencing, and other interactive technologies can support active learning, discussion, and debate.

All of these techniques will still not make every student into an active, verbal participant. Two group techniques can help. One is buzz groups; the other is the inner circle technique.

**Buzz Groups—Peer Learning**

One of the popular techniques for achieving student participation in groups is the buzz session. In this procedure, classes are split into small subgroups for a brief discussion of a problem. Groups can be asked to come up with one hypothesis that they see as relevant, with one application of a principle, with an example of a concept, or with a solution to a problem. In large classes I march up the aisles saying, “Odd,” “Even,” “Odd,” “Even” for each row and ask the “odd” row to turn around to talk to the “even” row behind, forming themselves into groups of four to six. I tell them to first introduce themselves to one another and then to choose a person to report for the group. Next they are to get from each member of the group one idea about the problem or question posed. Finally they are to come up with one idea to report to the total class. I give the group a limited time to work, sometimes five minutes or less, occasionally ten minutes or more, depending on the tasks. Peer-led discussions need not be limited to five or ten minutes or even to the classroom (see the chapter “Active Learning”).

**The Inner Circle or Fishbowl**

In using the inner circle technique I announce that at the next class meeting we are going to have a class within a class, with several of the students (6 to 15) acting as the discussion group and the others as observers. If the classroom has movable chairs, I then arrange the seating in the form of concentric circles. I am impressed that students who are normally silent will talk when they feel the increased sense of responsibility as members of the inner circle.

**THE DISCUSSION MONOPOLIZER**

If you have worked on nonparticipation effectively, the discussion monopolizer is less likely to be a problem, but there will still be classes in which one or two students talk so much that you and the other students become annoyed. As with nonparticipation, one solution is to raise with the class the question of participation in discussion—“Would the class be more effective if participation were more evenly distributed?”

A second technique is to have one or more members of the class act as observers for one or more class periods, reporting back to the class their observations. Perhaps assigning the dominant member to the observer role would help sensitivity.

A third possibility is to audiotape a discussion, and after playing back a portion, ask the class to discuss what might be done to improve the discussion.

A fourth technique is to use buzz groups with one member chosen to be reporter.

Finally, a direct approach should not be ruled out. Talking to the student individually outside class may be the simplest and most effective solution.

**HOW CAN WE HAVE A DISCUSSION IF THE STUDENTS HAVEN'T READ THE ASSIGNMENT?**

It’s hard to have a discussion if students haven’t studied the material to be discussed. What to do?

One strategy is to give students questions at the end of one class, asking them to get information on the questions before the

*Be sensitive to the fact that the most common monopolizer is the teacher. In our research, our observers reported that in a typical discussion class the teacher talked 70 to 80 percent of the time. Have an observer check your percentage.
next class. You can ask students to evaluate the validity of different Internet sources providing relevant information. You might even give different assignments to teams of students. Another strategy is to ask students to bring one or more questions on the assignment to be turned in at the beginning of the next class.

If there are extenuating circumstances, you (or a student who is prepared) can summarize the needed points. Alternatively, you can give students a few minutes to scan the material before beginning the discussion. If used often, however, such strategies may discourage out-of-class preparation.

If the problem persists, present it to the students. What do they suggest? One likely proposal is a short quiz at the beginning of class—which usually works. However, you'd like to have students motivated to study without the threat of a quiz. Usually the quiz can be phased out once students find that discussion really requires preparation and that the assignments are more interesting as they develop competence.

**HANDLING ARGUMENTS AND EMOTIONAL REACTIONS**

In any good discussion conflicts will arise. If such conflicts are left ambiguous and uncertain, they, like repressed conflicts in the individual, may cause continuing trouble. You can focus these conflicts so that they may contribute to learning.

- Reference to the text or other authority may be one method of resolution, if the solution depends on certain facts.
- Using the conflict as the basis for a library assignment for the class or a delegated group is another solution.
- If there is an experimentally verified answer, this is a good opportunity to review the method by which the answer could be determined.
- If the question is one of values, your goal may be to help students become aware of the values involved.
- Sometimes students will dispute your statements or decisions. Such disagreements may often be resolved by a comparison of the evidence for both points of view, but since teachers are human, they are all too likely to become drawn into an argument in which they finally rest on their own authority. To give yourself time to think, as well as to indicate understanding and acceptance of the students' point, I suggest listing the objections on the board. (Incidentally, listing evidence or arguments is also a good technique when the conflict is between two members of the class.) Such listing tends to prevent repetition of the same arguments.

- In any case it should be clear that conflict may be an aid to learning, and the instructor need not frantically seek to smother it.
- If you're having problems with a particular student, check the chapter "Dealing with Student Problems and Problem Students."

**The Two-Column Method**

Another of Maier's (1952) techniques, the two-column method, is a particularly effective use of the board in a situation in which there is a conflict or where a strong bias prevents full consideration of alternative points of view. Experimental studies (Hovland, 1957) suggest that when people hear arguments against their point of view, they become involved in attempting to refute the arguments rather than listening and understanding. Disagreement thus often tends to push the debaters into opposite corners, in which every idea is right or wrong, good or bad, black or white. The truth is often more complex and not in either extreme.

The two-column method is designed to permit consideration of complications and alternatives. As in problem posting, before the issues are debated, all the arguments on each side are listed on the board. The leader heads two columns "Favorable to A" and "Favorable to B" or "For" and "Against" and then asks for the facts or arguments that group members wish to present. The instructor's task is to understand and record in brief the arguments presented. If someone wishes to debate an argument presented for the other side, the instructor simply tries to reframe the point so that it can be listed as a positive point in the
debater's own column. But even though an argument is countered or protested it should not be erased, for the rules of the game are that the two columns are to include all ideas that members consider relevant. Evaluation can come later.

When the arguments have been exhausted, discussion can turn to the next step in problem solving. At this point the group can usually identify areas of agreement and disagreement, and in many cases it is already clear that the situation is neither black nor white. Now the issue becomes one of relative values rather than good versus bad. When discussion is directed toward agreements, some of the personal animosity is avoided, and some underlying feelings may be brought to light. The next stages of the discussion are thus more likely to be directed toward constructive problem solving.

Challenges and disagreements may be an indication of an alert, involved class. But the instructor should also be aware of the possibility that they may be symptoms of frustration arising because the students are uncertain of what the problem is or how to go about solving it.

**Emotional Reactions**

Although conflicts may arouse emotions, emotions may also arise because a topic touches a particular student in a vulnerable spot. You may notice during a discussion that one student is near tears or that a student is visibly flushed and angry. This poses a dilemma for you. You want to be helpful, but you also must have respect for the student's feelings. What should you do?

A lot depends on your knowledge of the student. If you say, "Joe (Jo), you seem to have some feelings about this," will the student be embarrassed?

If you don't wish to call attention to the student at the moment, you might say before the end of the class period, "Joe (Jo), would you stop by for a moment after class?" You could then say, "You seemed to be upset when we discussed ______. Would you like to come to my office to talk about it?"

Sometimes the best thing to do is simply wait to see if the student brings the feelings out in the discussion. If the student seems angry, I wouldn't ordinarily say, "Why are you so angry?" but if you know the student well and the class is a small one in which there is a good deal of acceptance of one another, that might be appropriate. So what will work depends on the student, the class, and your relationship with the student. Whatever the case, try to be understanding and nonconfrontational. Keep cool. This, too, will pass.
forgotten. Often students see discussion as a competitive situation in which they win by tearing down other students' ideas. As Haines and McKeachie (1967) have shown, cooperative discussion methods encourage more effective work and better morale than competitive methods.

A fifth attribute is skill in evaluation. If classes are to learn how to discuss issues effectively, they need to review periodically what aspects of their discussion are proving to be worthwhile and what barriers, gaps, or difficulties have arisen. Some classes reserve the last five minutes of the period for a review of the discussion's effectiveness.

A sixth attribute is sensitivity to feelings of other group members. Students need to become aware of the possibility that feelings of rejection, frustration, dependence, and so on may influence group members' participation in discussion. Sometimes it is more productive to recognize the underlying feeling than to focus on the content of an individual's statement. One way of helping students develop these skills is to use student-led discussions preceded by a training meeting with the student leader.

**STUDENT-LED DISCUSSIONS**

In pioneering experiments in educational psychology and general psychology, Gruber and Weitman (1962) found that students taught in small, student-led discussion groups without a teacher not only did at least as well on a final examination as students who heard the teacher lecture, but also were superior in curiosity (as measured by question-asking behavior) and in interest in educational psychology.

**TAKING MINUTES OR NOTES, SUMMARIZING**

One of the problems with discussion is students' feeling that they have learned less than in lectures where they have taken voluminous notes. Thus I like to summarize our progress at the end of the period or ask students to contribute to a summary. Better yet, use the last five to ten minutes for getting feedback. For example, ask students to write a summary of the issues discussed, the pros and cons, and their conclusions.

**ONLINE DISCUSSIONS**

E-mail, listservers, computer conferences, and other online experiences extend the opportunities for discussion. They also provide practice in writing. They can facilitate cooperative learning. The impersonality of e-mail may reduce the inhibitions of those who are shy in the classroom, but research suggests that it may also reduce inhibitions against rudeness. Thus, in initiating an online discussion, remind your students that respect for others and rational support for arguments are just as important online as in the classroom.

You also need to be clear about your expectations for participation. I have used online discussions off and on since it first became possible to do so, but my success has been variable. If I simply recommend use of the opportunity, a few students who love computers participate, but their discussions often have little to do with the course. I tried posting questions, topics, or problems, and that helped some, but many students still did not participate. One of my teaching assistants, Richard Velayo, tackled this problem for his dissertation. He found that what worked best was to require discussion of a question each week.

**IN CONCLUSION**

Teaching by discussion differs from lecturing because you never know what is going to happen. At times this is anxiety-producing, at times frustrating, but more often exhilarating. It provides constant challenges and opportunities for both you and the students to learn. When you can listen for several minutes without intervening, you will have succeeded.
How to Make Lectures More Effective

The lecture is probably the oldest teaching method and still the method most widely used in universities throughout the world. Through the ages a great deal of practical wisdom about techniques of lecturing has accumulated. Effective lecturers combine the talents of scholar, writer, producer, comedian, entertainer, and teacher in ways that contribute to student learning. Nevertheless, it is also true that few college professors combine these talents in optimal ways and that even the best lecturers are not always in top form. Lectures have survived despite the invention of printing, television, and computers.

Is the lecture an effective method of teaching? If it is, under what conditions is it most effective? I will tackle these questions not only in light of research on the lecture as a teaching method but also in terms of analyses of the cognitive processes used by students in lecture classes.