

## Teaching Large Classes Well: Solutions from Your Peers

*Originally published in the October 1992 issue of The Penn State ID newsletter*

### Large Classes versus Small: Does It Make a Difference?

It is commonly believed that small classes achieve more desirable results than do large ones. Students seem to prefer taking them and teachers typically prefer teaching them. But is this intuitive response borne out by empirical evidence? Conventional wisdom about the effects of class size was called into question some years ago when reviewers of the research denied any rational basis for it and even went so far as to refer to small classes as "sacred cows" and "false gods." These conclusions, however, have in turn been challenged by more systematic and reasoned analyses of the data which vindicate educators' perceptions that small classes are indeed more effective (e.g., Glass, et al. 1979; Hedges & Stock, 1983).

These more rigorous studies have also brought into clearer focus the reasons why smaller classes lead to improved student outcomes. Specifically, they show that simply reducing the number of students in a class will not alone improve the quality of instruction. A lecture presented to 20 will probably not be much different from a lecture presented to 100. Rather, current explorations of what makes undergraduate education work have foregrounded such factors as discussion, timely and frequent feedback to students, and active problem solving (e.g., Light, 1990). Therefore, smaller classes are more effective not simply because they are smaller, but because they offer an educational setting in which it is easier and more feasible for these activities to occur.

Ironically, these findings provide some encouragement for those who must teach large classes. Just as merely reducing the number of students in a class does not necessarily improve instructional quality, it also follows that increasing class size need not necessarily worsen it. Since large classes will undoubtedly continue to be part of the instructional landscape at Penn State, the question here is how we can incorporate into large classes the elements that make small classes effective.

In most cases, this demands a conscious awareness of instructional techniques. For example, engendering participation and discussion among 40, 50, or even 100 students typically does not occur as spontaneously as it does in a class of 12-20. Rather, it requires a great deal of planning, preparation, and coordination for which faculty have not necessarily been trained. How, then, does one encourage participation in groups larger than 20? What strategies will lead students to become actively engaged in the problems presented in class?

Numerous articles have been written on the subject of teaching large classes effectively, many of which were reviewed in earlier editions of the ID. In this issue, however, we thought that it would be especially useful to feature the solutions of your colleagues at Penn State who have faced--and successfully solved--the problems of instructing students well in large classroom settings.



The hope here is first to provide information and also to acknowledge and recognize the achievements of your peers who have consciously worked toward mastering the craft of teaching large classes. We further hope that these local models will encourage you to continue learning from one another. In a sense, this newsletter allows you to sit in on the classes of your peers vicariously, although we also encourage you to do so literally as seems prudent. In fact, large classes provide the opportunity to observe inconspicuously and learn from other teachers. Whatever the inherent disadvantages of large class settings may be, the challenge they present is real, and those who are featured in this issue have grappled with the problem and won, or at the very least--given they tend to be a modest lot--are in the home stretch.

### Creating a Small-Class Atmosphere in a Large-Class Setting

One of the challenges of large classes is overcoming the anonymity and distance that can exist between teacher and students. If students are to be actively involved in and feel personal accountability for the learning process, they must be more than anonymous spectators and passive recipients of information. In order to facilitate discussion, feedback, and active learning, the instructors of large classes can work to create the kind of group identity and individual rapport that make smaller classes so effective and enjoyable. The following techniques have helped some of your colleagues foster a more comfortable and productive learning environment in large classes.

**Learn students' names.** The teachers we consulted stress the importance of learning and using names. You may not be able to learn all of them, but even learning some will help. Daniel Brass and Dennis Gioia (Organizational Behavior) suggest learning just five names at a time. Bob Mitchell (Biology) walks into the auditorium from the back, looking at notebooks for names that he can call on later. John Lowe (Chemistry) calls on students by name whenever possible. Harry West (Civil Engineering) uses a seating chart, and Larry Spence (Political Science) has his students wear nametags. Although they use different methods, all of these professors agree that using names establishes an atmosphere of mutual interest and responsibility.

**Come to class early.** Daniel Brass, Dennis Gioia, and Bob Mitchell all recommend using this time to talk informally with students so you get to know each other as individuals. These conversations can also provide a smooth segue into the lesson itself.

**Use a microphone.** Not being able to hear clearly will exclude students from the lecture.

**Move around the classroom or lecture hall.** Standing behind a podium emphasizes the distance between you and the class. On the other hand, moving into the aisles and around the room makes the class seem smaller and encourages student involvement.

**Elicit student feedback about the course.** Claire Hirshfield (History/Ogontz) and Len Kogut (Chemistry/Beaver) have students meet in groups to provide feedback about the



course. Other options include using a mid-semester student feedback activity or informal discussions with students to learn their reactions to and suggestions for the class.

### Encouraging Class Participation

Class participation is an important part of active learning which gives students a chance to arrive at their own understanding of the material. However, while many students are comfortable participating in a class of 25, speaking in front of a large group can be intimidating, even for naturally outspoken undergraduates. The following measures may help you provide an environment that will encourage participation despite the obstacles.

**Divide the class into groups.** Arthur Goldschmidt (History) and Jackson Spielvogel (History) both train student interns to lead separate discussion sessions with smaller groups. Larry Spence sometimes assigns each group a research project that they will then present to the class. You can also have small groups discuss a question during part of the class period and then share their responses with the rest of the class. Working in groups gives students a chance to discuss the material, to become more comfortable with each other, and to participate in a less intimidating classroom situation.

**Plan participation.** A general call for questions at the end of class is often interpreted as a signal that it's time to close the topic, so students are sometimes reluctant to respond. Announcing that five or ten minutes of class time will be devoted to answering questions gives importance to the questions and makes clear that they will not be wasting class time.

**Give participation points.** John Lowe has worked out a system in which students hand in slips of paper with their names on them if they asked or answered a question during class. This technique is a simple, low-cost way to acknowledge and reward participation, and it also helps you learn students' names.

**Have students contribute material for class.** Bob Mitchell asks students to bring in relevant newspaper or magazine clippings, which he in turn uses in his lectures. This process gives students a chance to contribute to the course material and to relate it to a larger context.

### Promoting Active Learning

In a large class, it is easy for students to assume a passive role, merely recording the facts that you convey in your lecture. They are more likely to understand and retain knowledge, however, when they have been an active participant in the discovery process and can thus claim ownership of the material. The following techniques will help your students become actively engaged during class.

**Write an outline on the board or overhead.** Jackson Spielvogel and Bob Mitchell advise that showing the lecture's structure and the main points to be covered helps students see how ideas fit together and allows them to concentrate on understanding the material.



**Use demonstrations.** John Lowe and Charles Haas (Chemistry, Emeritus) recommend using interesting and even fun demonstrations which help students understand the basic principles involved in the lesson.

**Use audio-visual aids.** Jackson Spielvogel uses music and films to supplement his history classes, while Bob Mitchell uses slides, videos, and transparencies to clarify and demonstrate. These not only promote interest by varying the class format, but they also reinforce the lesson and provide alternative methods to help students understand the course material. Both professors stress being very selective with these materials and using short, focused excerpts from films.

**Show your own enthusiasm for the subject.** If students see why you love the material, they're more likely to develop an interest themselves. If appropriate, share with your students a problem in the field that currently occupies you, or, when going over difficult material, stress how you yourself struggled with it and were gratified by your efforts.

**Give a "think break."** Daniel Brass and Dennis Gioia suggest asking a rhetorical question, and then allowing 20 seconds for students to think about the problem before you go on to explain. This technique encourages students to take part in the problem-solving process even when discussion isn't feasible. Having students write something down (while you write an answer also) helps assure that they will in fact work on the problem.

**Give frequent assignments.** Robert Kabel (Chemical Engineering, Emeritus) assigns reading or homework problems for every class period. John Lowe also assigns a daily problem that will be discussed in class. Both teachers grade the homework on a 0-1-2 scale: 0 for no credit, 1 for partial completion, and 2 for the correct answer.

**Design your lecture around a problem-solving model.** Instead of seeing lectures as a way of transferring information, lead the class through the discovery process. Teach them how to arrive at conclusions themselves. For example, instead of giving a definition first, John Lowe recommends starting with a simple example that you can work through together to arrive at the definition. He stresses that the best way to teach process is to approach a problem in the same sequence as its original solution. Students should be (re)constructing knowledge in the field to assimilate it most fully.

**Free yourself from your lecture notes.** Our contributors all agreed that you shouldn't read a lecture. They stress that you need to be so well prepared that you can work without your notes. This allows you to be more aware of students' understanding, to alter the lecture if necessary, and to encourage student feedback. Your outline, overheads, slides, and demonstrations can be used to trigger your memory of what you wanted to discuss.