

## TWENTY WAYS TO MAKE LECTURES MORE PARTICIPATORY

Lectures play a vital role in teaching. There will always be a place for lectures in the curriculum -- to give technical material or factual information, to provide structure to material or an argument, to display a method or example of how one thinks in a given field, or even to inspire and motivate students to explore further. At the same time, it often enhances both your presentation of the material and students' learning when students are able to participate in some way. When students engage actively with material, they generally understand it better and remember it longer.

Asking for student participation highlights the distinction between faculty covering material and students learning it. Student participation often results in covering less material during a semester. Yet it also can mean that students learn more material than in a traditional lecture course, because they truly grasp the fundamentals and have more chances to clear up confusion. Large numbers of students in class does not preclude interaction. The following list of ways to open up lectures to student participation have been used in classes of up to 1200 students, as well as in smaller groups.

Note: If you decide to invite student participation in lectures, consider beginning with the very first lecture, when norms and expectations for class are being established. It is more difficult to engage students in a large lecture class later if they are accustomed to being silent. If you decide to ask students to participate in lectures later in the term, give a short introduction or explanation about your change in strategy.

### Beginning the lecture (or course)

1. Begin the course or the lecture with a question or questions which help you to understand what students are thinking. "What are some of the differences between clinical medicine and public health?" "How do we interpret medical research findings? For example, the response rate for one regimen is 23% and another treatment showed a 40% response rate. How can we interpret these numbers? What other information would we want to know?" "What would be a feminist perspective on contraceptive research?" "What are some examples of marginalized populations?" "What image do you have of people who have HIV or AIDS?"
2. Begin the course or the lecture by posing a problem and eliciting several answers or solutions from the students. The lecture can then go on to explore and build on the suggestions that emerge from the discussion. For example: "When you think about the definition of epidemiology, what possible applications of this methodology come to mind?" "What are some underlying biological factors for poor health status?" "What are some reasons people may not have health insurance?"
3. An interesting way to introduce topics you will cover in a course and to find out students' assumptions is to ask students to jot down answers to some questions on their own and then combine answers in a small group. Examples from a pre-course survey: "--List up to 10 major environmental disasters. --Name up to 10 health disorders in which environmental agents are causative; list the 10 etiologic agents. --Identify up to 10 national (U.S. or other) environmental laws and the problems they address. --Identify the kinds of data needed to characterize an environmental health hazard. --List the steps in quantitative risk assessment. Which steps require both epidemiology and biostatistics."

### **Inviting participation**

4. Create an atmosphere that encourages student participation by using a conversational tone and not criticizing student questions or comments in front of the class. Students take a risk when they talk; you need to deal tactfully with their contributions. Your body language -- whether you hold yourself in a stiff or relaxed manner -- also influences student participation. Consider moving closer to the students rather than speaking from behind the podium. Explain your reasons for varying the traditional lecture style. Students more willingly participate in class if they understand the rationale behind an approach that may be unfamiliar.

5. If you want students to talk, look at them. Some teachers call on students. (Some teachers never call on students -- this is a matter of strong personal preference.) Asking students to speak in class is easier to do if they use name cards or if you have learned their names. This will encourage them to use each others' names as well; people are more likely to talk when they know each other. Some students will be too shy to speak in a large group, at least at first. If speaking in class is the norm and everyone is expected to do it, you can call on everyone in good faith (perhaps calling on better prepared --and bolder--students first, and asking easier questions later of the quieter students).

6. Invite challenges to your ideas. This can lead to lively debates and shows that students are thinking and engaging with the material. Also, invite questions. You may have to help students new to a field know how to challenge or question. One way to do this is to present different points of view on any given topic, and then state why you believe a certain view best accounts for the evidence. (Decide whether you are comfortable with interruptions or whether you want to have a question time at the end.)

7. When a student asks a question, instead of answering yourself, ask for an answer from other members of the class. In a large group, always repeat a question or paraphrase a response before going on, so that all students can hear and understand (this is especially important when students in the class do not speak English as a native language).

### **Punctuating the lecture with questions**

8. Ask questions throughout the lecture, so that the lecture becomes more of a conversation. Asking students to raise their hands (for example, "What is the direction of the data: increasing? decreasing?") is easier than asking them to speak. Questions with surprising answers can engage students' interest (for example, "What is the probability that two people in this room have the same birthday?") Generally, questions are more evocative if you are not looking for one right answer. The most fruitful questions are thought-provoking and, often, counterintuitive. For example, when comparing health indicators of different countries, ask students to guess where the U.S. or their country of origin ranks. Discuss the link between socioeconomic status and health; ask students to predict changes over time. For example, "Do you think it has gotten better or worse in your country over the last twenty years?"

9. Pause in the lecture after making a major point. Show students a multiple-choice question based on the material you have been talking about. (Example: "If the incidence rate of tuberculosis (TB) increased due to an increase in immunocompromised AIDS patients, but the duration of tuberculosis infections remained the same, the prevalence of TB would a) increase, b) decrease, or c) not change.") Ask students to vote on the right answer, and then turn to their neighbors to persuade them of the answer within the space of two minutes (talking to a few people is easier than speaking up in a

large group). When time is up, ask them to vote a second time. Usually far more students arrive at the correct answer when voting the second time.

10. If readings have been assigned for a class, refer to them so their purpose is clear. You may ask questions about the readings from time to time; individuals or groups might be asked ahead of time to prepare short presentations of their interpretations of the readings.

11. When using slides, maps, or handouts, ask students what they see before you tell them what you see. Use these devices to help students think about a problem as you introduce it. For example, show a map of where cases occurred during an epidemic. Ask the students, "As an investigator of the outbreak, what questions might you want to ask?" Show a table of data about a country (birth rate, death rate, population, per cent of population with heart disease, number of nurses per capita, money spent on health per capita, G.N.P., etc.) Ask, "What do these data tell us? Where would you begin to explore? What kinds of questions could we answer and how?"

### **Varying the format**

12. To vary the traditional lecture format, ask students, by section, to make presentations, do role plays, illustrate a position dramatically, debate a point. Or, ask TAs to give short presentations on areas of their expertise. Then invite the whole class to discuss the points illustrated.

13. For debates in a large group, divide the room into two or four groups, assigning one role or position to each group. Have the groups caucus separately to develop their positions before the debate begins. For example, in discussing the positive and negative aspects of a policy approach or community health intervention, divide the room in half for split brainstorming sessions; one group focusing on the positive and the other focusing on the negative. If there is time, have the groups switch positions. Or use the format of public hearings, with one group representing those who have called the hearings, and other groups representing the different protagonists.

14. Use cases to exemplify the issues you want to convey, and conduct the class as a case discussion rather than as a lecture. Cases are particularly useful for practical, how-to teaching situations; for problem-solving or showing how experts solve problems; for situations in which there are a number of right answers; for integrating and applying complex information. In public health, cases can demonstrate policy and management problems, stimulate discussion of various ethical issues in health care, or provide realistic examples of the application of theory and particular methodologies of health care practice.

15. Stop the lecture and ask students to write for one or two minutes in response to a particular question. Then ask them to discuss the question. The writing will give everyone a chance to think about and articulate a response, and may enable broader participation.

16. Let students go to the board to write the results of work in a small group. For example, in the first part of class ask for the strengths and weaknesses of an intervention study. Then divide the room into groups, each with the task of designing a better study with the same exposure and outcome. Groups can go to the board (preferable to asking one student at a time to be at the front of the room) and a spokesperson can present the group's ideas.

### **Closing the lecture**

17. Allow time for questions at the end of lecture. Ask if there are any questions or if students would like to have a point clarified. If your schedule permits, come early to lecture or stay late to answer questions and engage in discussion with students. If you are available five or ten minutes before and after class, some students will talk with you more readily, and you will get to know them and their thoughts. If beginning early and ending late creates a conflict for other colleagues assigned to lecture in the same room, talk with students in the halls before and after class.

18. Use lectures to set up problems or propose study questions for discussion that students are expected to prepare for lab or section. End the lecture with a provocative question. Ask the TAs to begin lab with a discussion of that problem or issue.

19. At the end of your lecture, or at any other appropriate stopping point, give students a one-question "quiz," based on the material just covered in the class. Ask them to answer the question collectively. Leave the room so that they can discuss the question for ten or fifteen minutes. Then return and have them report their answer; discuss with them the reasons for their choice.

20. Do a one-minute paper at the end of class. In this exercise, students write down what they consider (a) the main point of the class and (b) the main question they still have as they leave. You can use some of these questions to begin the next lecture, or students can be asked to bring them to section or lab. One advantage of this technique is that students may listen more carefully and review their notes thoughtfully.

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