# Speaking of *Teaching*

# Using Class Discussion to Meet Your Teaching Goals

If you ask most instructors what their primary goal during a classroom discussion is, the answer seems obvious: Get students talking and keep them talking. For any instructor who has struggled to break through the stubborn silence of tired, timid, or unprepared students, success may be measured by the minutes of sustained student speaking. However, while student participation is necessary for successful classroom discussions, it is hardly sufficient. Students can talk for hours without learning anything of substance. Truly successful classroom discussions are guided by specific teaching goals such as increasing students' comfort with the specialized language and methods of a field or developing critical thinking. Each teaching goal will suggest different strategies for guiding a classroom discussion.

This newsletter reviews several teaching goals that are well-served by discussion:

1. Increase students' comfort with the specialized language and methods of a field.
2. Develop critical thinking.
3. Develop problem-solving skills.

## Increase Students' Comfort with the Specialized Language and Methods of a Field

All fields have a terminology shared by scholars and professionals in that field, as well as commonly understood approaches to solving problems and discovering knowledge. One of the main goals of both introductory and advanced college courses is to help students learn to think like an economist, a sociologist, a biologist, or an historian by learning the language and methods of a field. Discussion is an excellent forum for learning to think like a specialist by giving students a chance to practice analyzing the world through the lens of a particular field.

*Exercises and Prompts*

*Analyzing texts or examples from the field.* In class, provide students with a basic framework for analyzing a text, problem, or example in your field. What should students pay attention to? How would a specialist talk about this? A good example for any kind of physical or social science is how to analyze a study. What are the components of a study that students should pay attention to? For the humanities, it can be the process

## Have you seen this?



Professor Ozalp Ozer, in the Department of Management Science and Engineering, is using his whiteboard more than ever—and so are his students. Ozer has enhanced his regular office whiteboard with a small wireless device called the Mimio Xi, that allows him to transfer what he writes on the whiteboard directly to his laptop. He can then print, email to students, or upload these diagrams to a course website.

Professor Ozer uses the Mimio primarily for discussions in office hours and meetings, to improve productivity as well as enhance learning. He explains that the tool has dramatically increased the quality of these discussions: "My office hours used to be just one-way,

because the students were so concentrated on writing down what I was writing. Now they can focus on thinking about what we're doing, and they're more likely to interact, taking the pen and adding to the board." Ozer prints the pictures out during discussion, so that students focus on understanding the material while Ozer is there with them.

The Mimio is portable enough to easily take to the classroom, and Ozer is planning to try it out soon in his classes. He hopes that the Mimio will have a similar effect in the classroom: students will concentrate more on understanding, and ask more questions to clarify difficult points. Ozer is also planning to take the Mimio on the road to use in off-campus presentations. The Mimio allows him to "virtually" mark up his PowerPoint slides with a special pen that leaves no marks on the physical screen, but adds digital annotations directly to his slides as he talks.

To find out more about the Mimio, contact Jeremy Sabol, the Academic Technology Specialist at CTL (723-4164, jsabol@stanford.-edu). He'll be happy to answer your questions and let you try out the Mimio for yourself!

of analyzing a particular kind of text. For engineers, it might be how to begin thinking about a design goal and the specifications given for a project. Allow students to practice talking through a basic analysis by identifying the things that matter and practicing use of the terminology. You can apply this same process to discussing real-world events: How would an economist think about this? What issues would the economist be most concerned about?

# ... provide both a model for thinking like a specialist and a structure for student discussion.

*Comparing texts or examples from the field.* One step up from analysis is comparison. Ask students to compare and contrast two texts or examples. This helps them focus on what matters in your field. What distinctions are most important? Which details are critical? How do you know "good" from "bad"—what are the value judgments made in your field? Should students attend to the elegance of a theory or solution, the logic of an argument, the comprehensiveness of a report, or the lines and color of a painting? After years in your field, this may seem obvious, but it is a perspective acquired only through practice.

### Guiding Discussion

It is especially important for the discussion leader to provide both a model for thinking like a specialist and a structure for student discussion. Before starting an open discussion, you might ask students to recall some new terminology introduced in lecture or the reading and walk them through the process of applying that terminology to an example. However, students need more than a review session. They also need a

chance to think for themselves and internalize this new way of viewing the world. So you'll want to walk students through a specific process at least once and then give them many opportunities to practice.

### Encouraging Participation

All students need a chance to practice using a new language or method. A large-group discussion can limit participation, giving only a few students full opportunity to practice. The typical solution to this problem is to have students pair up to discuss a question or problem for five minutes and then bring them back for a full-group discussion. Variations on this theme can maximize each student's participation and exposure to other students' ideas:

*Partner swap.* Have students pair up for a series of practice or discussion rounds and rotate partners for every new example or question. This format works well when you want students to practice a simple skill such as analyzing the meter of a line of poetry, but not when you want students to develop a complex skill such as analyzing the historical context of a poem.

*Two, four, six, eight—have students discuss a question in pairs.* After a few minutes, have pairs partner up (four students discussing the same question); after a few more minutes, have those small groups pair up. You can do this all the way up to a full-group discussion. This format works best when you can create a topic that has many levels of discussion. For example, have the pairs analyze a basic aspect of the text or problem (What is the hypothesis of this study, and how did the researchers test it?).

In small groups, have students discuss a more complex issue (Do you think the methods are a good test of this hypothesis? What aspects of the study design would you change? What are the ethical concerns in this study?). In larger groups, students can discuss their reactions, share ideas, and build on each other's suggestions.

### Trouble-Shooting

When students are not already heavily invested in a field, even important exercises can lack intrinsic interest. If students' participation is lackluster, it can help to have a basic discussion about what makes your field and its approaches unique. An instructor's enthusiasm for his or her field is probably the single biggest influence on whether students find it equally compelling. By focusing on the big picture, you may be able to interest students in the smaller details. You can also connect what students are doing to the activities of scholars or professionals in your field. Students often don't understand how skills learned in introductory, or even advanced, classes relate to the kinds of original scholarship or careers that they are interested in.

### Develop Critical Thinking

Critical thinking is an important goal in most fields, whether it is used to analyze the logic of a philosopher or to find the potential problems with a proposed healthcare initiative. Discussion is an excellent tool for developing students' reasoning skills because it gives you access to their thought processes and an opportunity to guide students to a higher level of thinking.

### Prompts and Exercises

Critical thinking can be applied to any text, claim, or open-ended question. Choose topics that are likely to provoke

student interest but not necessarily topics that students already have strong and passionate opinions about. To teach critical thinking, you need a window of open-mindedness and curiosity.

*Stir up controversy.* Provide students with a provocative or controversial quote from some expert in your field (possibly a guest lecturer or the author of a class text). Use the expert's claim as a challenge to students: Is this expert right? How would you decide? What information do you need? What information do you have? Payne and Gainey (2003) have developed a list of controversial claims in many fields, from marketing to medicine, that may be useful for your course.

*Provide alternatives.* Give your students two competing claims, conflicting theories, or any set of alternative options. Instead of taking a vote, or asking students to immediately choose a side, start with a question that encourages open thinking. What is the issue here? or What is this really a choice between? can launch a deeper conversation than Which do you agree with? Ask students to describe the perspectives that inform each alternative and critically discuss those perspectives as much as the actual claims.

### Guiding the Discussion

Make sure students understand that discussion is not simply an invitation to restate their opinions. Remind them: The goal of critical thinking is to examine your own assumptions and evidence, not just to criticize the thinking of others

who disagree with you!

Focus your attention on the quality of students' reasoning, not just the content of their reasoning. Instructors need to be able to recognize both common errors in reasoning (such as making unsupported assertions and using anecdotal evidence) and the signs of high-level reasoning (such as focusing on empirical evidence for a theory and the ability to integrate personal values with evidence). Greenlaw and DeLoach (2003) suggest that instructors spend time reflecting on what different levels of reasoning look like in their respective fields. What are the most common forms of uncritical thinking in your field? What is the gold standard for critical thinking applied to your field?

A discussion leader can then focus on guiding students from common reasoning errors or simplistic reasoning to more complex or high-level reasoning. When students make a claim, ask them for their evidence or logic. Then ask the class to evaluate the evidence or logic. Encourage students who disagree on a point to identify the source of the disagreement (i.e., trusting different kinds of evidence or

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weighing certain values more strongly) rather than simply the point of disagreement.

Encourage students to talk to each other, not just to you. Keep your own contributions content-neutral. Don't take a stance; simply probe students' thinking. If necessary, ask a student to play the devil's advocate role, rather than playing it yourself.

*Encouraging Participation*

Encourage listening as much as talking. Students often concentrate so hard on what they are going to say, and how to score points, that they fail to really listen to others (Hollander, 2002). To help students develop their listening skills, encourage them to repeat the last important point and then respond directly to it (rather than stating a new opinion). Encourage students to keep building on a particular argument or interpretation. Make sure that you reinforce all forms of helpful contributions such as asking good questions or connecting points that other students have made.

Students rise to the occasion when their peers demonstrate a high level of reasoning (DeLoach and Greenlaw, 2005). When critical thinking is the goal of discussion, it can be helpful to focus first on the "high contributors" in the class, rather than trying to equalize participation among all students. Encourage students who make high-quality contributions and acknowledge what made the contribution useful. Once a norm is established, other students will be more likely to maintain the high standard of discussion. If a few students monopolize the discussion, you can invite others to comment or break the class into smaller discussion groups.

If you have a hard time starting discussions with your class, ask students to rate their agreement with a claim on a scale of 1-5. Then ask them to write down five reasons that they agree or disagree with the claim. A student with a 2 rating writes two reasons that the claim is compelling and three reasons that the claim is not compelling; a student with a 5 rating needs to come up with five reasons that support the claim. This guarantees that students will have something to say and acknowledges thoughtful ambivalence as an appropriate position.

*Trouble-Shooting*

The most common anxiety instructors have about critical discussions is that they will turn into emotionally charged debates. If you manage to find a topic that truly engages students, you do run the risk of having personally invested students feel attacked by students who disagree with them.

If a discussion turns into unproductive debate, take the power away from the students who are most involved. Ask other students, not involved in the current debate, to identify the issue that seems to be causing the conflict: What do you think they are really arguing about? Does anyone see any common ground between the two? Let these students analyze the discussion, with less emotional charge.

If the debate turns into a personal attack, the best response is to clearly state that personal attacks are inappropriate in the classroom and quickly refocus the class. You can speak with students involved after class or even have the entire class reflect on the incident in a writing assignment, but it is not usually productive to pursue the issue during class discussion.

## Develop Problem-Solving Skills

Problem solving requires both divergent and convergent thinking. You can encourage students to find creative solutions to complex problems, and you can also teach individuals how to come to a collective decision.

*Exercises and Prompts*

Choose a problem relevant to your field, preferably one with more than one correct answer. Describe the problem in enough detail to interest students— explain why it matters, what is at stake, and what the benefits of solving it might be. The following exercises and prompts for discussion can be used together to develop both divergent and convergent thinking.

*Brainstorming.* Most brainstorming sessions focus on generating as many solutions as possible. You can expand this approach by asking students to brainstorm for each important step in the problem-solving process. Have students brainstorm for relevant information (What do you already know about this problem and its causes?), important considerations (What are some things that a solution needs to accomplish and take into account?), possible solutions, and possible obstacles.

*The deliberation.* Create a problem that requires making a decision or choosing a specific course of action (Parker, 2001). When you introduce the problem, explain that the goal of discussion is to come to a consensus. This is an important problem-solving skill for all fields that require group decision making, such as business, politics and policy, engineering, or healthcare.

*Two solutions.* Once a problem is introduced and students have engaged in some brainstorming, you can split the class into two or more groups. Each group develops its own solution or decision and presents back to the full group at the end of class. This is a great strategy

# Encourage listening as much as talking.

to use if you can create a scenario based on actual data about a historical event or experiment (such as a design failure that led to an improved design or different methods for improving medical compliance in underserved communities). When groups present their decisions, you can give them feedback about the real-world consequences of their choices.

### Guiding Discussion

Ask questions that orient students to important parameters, considerations, and issues. To begin the discussion, ask students for what Davis (2001, p. 67) calls "first approximations"—not their solutions to a problem, but an idea of what might be relevant, additional information they might need, or any initial reaction to the problem posed. Before they discuss the solution, ask students to propose methods for approaching the problem.

Help students keep track of the progress toward a solution by document-

### Encouraging Participation

Routinely invite comments from quiet students. If a few students have dominated the discussion, simply state, "I want to know what others think about this plan before we move on." In a small class, you can ask every student to provide one idea in each brainstorming session. In a larger class, give students time to write their ideas first, so that all students will have had the opportunity to think.

The classic fishbowl approach to discussion can create diversity in the discussion and encourage students to reflect on the process of problem solving. Select a few students to discuss the problem, while the rest of the class observes. Then invite the observers to discuss the process of problem solving that went on.

### Trouble-Shooting

Creative and effective problem solving requires motivation. If students are uninterested in the problem or the process of solving it, the discussion can

the discussion, and they can see how their comments have influenced the group's solution to the problem (Brookfield and Preskill, 1999). Simply writing each student's main point or suggestion on the board can make students feel "heard." You can also ask the group to follow up on a comment that seemed to be ignored or dropped.

### Reality Check: Assessing Student Learning

Brief end-of-class writing assignments (turned in during class) and homework can be used to reinforce students' learning and check how well a class discussion met your teaching goals. One simple option is to take the basic format of class discussion and turn it into a written assignment. If you uncovered any major gaps in student understanding, revisit the topic at the end of the discussion and base any follow-up assignments on this area. Email or online discussion boards are also an excellent way to extend classroom discussion. As homework, you can require every student to submit an online response to a question posed in class.

To help students reflect on the discussion process, ask students to write about how the discussion changed their thinking or understanding (Davis, 2001, p. 72). You can also ask students to assess the quality of the class discussion. Ask them to evaluate their own contributions and how they might improve their participation. If the discussion involved any major conflict or disagreement, ask students to summarize the conflict, evaluate how the group handled it, and add their own perspective. To find out what students understand about problem-solving strategies, ask them to make notes individually about how the class solved a problem, along with general suggestions for solving similar problems.

## Ask questions that orient students to important parameters, considerations, and issues.

ing the discussion on the board or overhead. If discussion stalls, use the map you have created to redirect students' attention to an important consideration or missing piece.

If discussion turns into debate without any signs of moving toward consensus, you can intervene and ask for a vote. This gives you an opportunity to discuss how a minority's objections might be taken into account, even as a majority's decision is accepted.

stall (and the class can seem like mild torture to the discussion leader). To motivate students, increase the stakes of the problem by making it personally relevant or of a bigger scale. Surprise students by suggesting an outlandish solution and ask students to make it workable. Or better yet, ask students to come up with the worst solution they can think of and then flip the solution to find something useful. Students can do this in pairs or small groups.

Students are also much more motivated when they think that their contributions have influenced the course of

*Getting Feedback and Support for Your Teaching*

The Center for Teaching and Learning can help you improve the quality of discussion in your classroom through consultation, class observation/videotaping, and meeting with your students to conduct an evaluation interview. Teaching Assistants and section leaders can submit their requests online, at http://ctl.stanford.edu/TA/. Faculty can submit requests online, at http://ctl.stanford.edu/Faculty/, or directly contact a CTL Associate Director.  ◆

*—Kelly McGonigal, Ph.D.*

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