QUESTIONING TECHNIQUES

FOR DISCUSSION
AND ASSESSMENT

Questioning is a central teaching skill and has been for millennia. Socrates honed it to such a fine art that an entire method of questioning is attributed to him. The college teaching literature offers several schema for classifying and organizing questions, the major ones of which will be summarized here.

Sound questioning techniques can enhance instruction in four ways:

1) Questions launch and carry discussion, one of the most commonly used student-active teaching techniques (see Chapter 15).

2) They stimulate the exploratory, critical thinking on which the discovery method, including Socratic questioning, is based (see Chapter 13).

3) When used for classroom assessment, our questions yield answers that help us gauge what students are learning and whether to review a topic or to proceed to the next (see Chapter 26).

4) Questions are the means by which we evaluate and grade our students' learning; the better our questions reflect what we've been teaching, the fairer and more useful our testing and evaluation procedures (see Chapters 27 and 28).

Questioning schema and techniques fall into two major categories: those that suggest leading students through a more or less orderly *process* of inquiry and those that classify questions into more or less useful *types.* This chapter couches the material in the contexts of discussion and discovery, but later chapters will return to these schema and techniques in assessment contexts.

Questioning as
a Process of Inquiry

The Socratic method. Described in Chapter 13, the Socratic is perhaps the most spontaneous questioning technique. You may begin with a planned question to open a dialogue on a given topic, but you shape your succeeding questions in response to the answers the students give. Of course, with experience, you may be able to anticipate the blind alleys and mis-directions your students will take on specific topics and develop a general discussion plan.

Most instructors don't feel comfortable with such a spontaneous, unstructured format for an entire discussion period. Students don't either; they have a hard enough time taking notes on the most structured discussion.

*"**Working backwards from objectives.**"* A second strategy, one that has gained the status of a "conventional wisdom" is to work backwards from objectives. It involves advance planning. First, jot down your objectives for the day: the one, two, or three points you want your students to understand by the end of class. Then, for each point, develop the key question that the point will answer. (This step resembles a game of "Jeopardy.") Finally, for each key question, develop another two or three questions that logically proceed and will prepare students for the key question. In other words, work backwards from the key points you want your students to understand through the questions that will lead them to that understanding. (The next section gives pointers on how to write *good* questions for stimulating a lively discussion.)

When class begins, launch the discussion with one of the last questions you framed. You can lend structure to the discussion by writing all the questions (key ones last) on the board or an overhead or by handing out copies of them (preferably with note-taking space below each question). Still, unless you frame too many questions, you can afford to be flexible. You can allow the discussion to wander a bit, then easily redirect it back to your list of questions.

Bloom's taxonomy of questions. A third approach is to follow Bloom's (1956) taxonomy of questions, guiding your students up through his hierarchy of cognitive levels, where *knowledge* (recitation) represents the lowest thinking level and *evaluation* the highest. This schema first appeared in Chapter 3, where it was applied to developing course objectives. The lists of verbs associated with each cognitive operation are just as useful here for framing questions.

To structure a discussion as a process of inquiry, you might start off with *knowledge* questions on the highlights of the last lecture or reading assignment. This factual recall exercise serves as a mental warm-up for the students and gives those who did not attend the lecture or did not do the reading a chance to pick up a few major points and at least to follow if not participate later. Avoid questions that call for one- or two-word answers, however; aim for multi-sentence responses.

Fair warning: Do not spend more than several minutes on this level. The boredom potential aside, students will not answer many recitation questions because they fear their classmates seeing them as apple polishers--"bailing you out," so to speak. More important, whatever our field, our educational mission is to develop more sophisticated critical thinking in our students.

Therefore, rapidly move the discussion up the hierarchy through *comprehension,* so you can find out whether your students understand the material and can put it in their own words. If they understand it, they should be able to answer *application* questions and use the material to solve problems, devise examples, or correctly classify your examples. If they can do this, they should be ready to progress to *analysis* of the material: pulling apart its elements to draw comparisons and contrasts; identifying assumptions, causes, effects, and implications; and reasoning through explanations and arguments.

Once students have found their

way *through* material, they are prepared to step *outside* of its confines and attempt *synthesis.* This type of question calls for integrating elements of the material in new and creative ways, composing or designing something new with them or combining elements from two different sources. When students can synthesize material, they have mastered it well enough to address *evaluation* questions. They now can make informed judgments about its strengths and shortcomings, its costs and benefits, its ethical, esthetic, or practical merit.

Bloom's taxonomy helps rein in students from leaping into issues they aren't yet prepared to tackle. Often students are all too eager to jump to judging material without thoroughly understanding it first. In addition, if you teach the taxonomy to your students, they acquire a whole new metacognition on thinking processes and levels. If you label the level of your questions, you maximize your chances of obtaining the level of answers you are seeking. Students also quickly learn to classify and better frame their own questions.

The taxonomy should be used flexibly, however. Some discussion tasks, such as debriefing a case (see Chapter 19), may call for an inextricable combination of application, analysis, and synthesis. Moreover, a comprehension question in one course may be an analysis issue in another. How any question is classified depends on what the students are given as "knowledge" in lectures and readings.

Types of Well Constructed Questions

There is more to constructing questions than turning around a couple of words in a sentence and adding a question mark. Well-crafted ones take thought and creativity and in turn require the same of students. They all have one feature in common: They have *multiple respectable answers.* Therefore, they encourage broad participation and in-depth treatment.

Often, too, multiple-answer questions spark debate. Welcome the conflict and let students argue it out. Before letting the issue rest, ask for possible resolutions and/or analyses of the conflict if they don't evolve on their own.

McKeachie's categories. McKeachie et al. (1994) suggests three types of fruitful, challenging questions. *Comparative* questions ask students to compare and contrast different theories, research studies, literary works, etc. Indirectly, they help students identify the important dimensions for comparison.

Connective questions challenge students to link facts, concepts, relationships, authors, theories, etc. that are not explicitly integrated in assigned materials and might not appear related. These questions are particularly useful in cross-disciplinary courses. They can also ask students to draw and reflect on their personal experiences, connecting these to theories and research findings. When students realize these links, the material becomes more meaningful to them.

Finally, *critical* questions invite students to examine the validity of a particular argument, research claim, or interpretation. If the class has trouble getting started, you can initiate the discussion by presenting an equally plausible alternative argument. This type of

question instills in students an appreciation for careful, active reading. When you ask the class to comment on what a student has just said, you are also posing a critical question. Used in this context, it fosters good listening skills.

These three types bear resemblances to Bloom's analysis, synthesis, and evaluation questions. But McKeachie does not order them as a process. Use the typology you find most straightforward.

Andrews' "high mileage" types. Andrews not only developed categories of questions but also conducted classroom research to identify their relative "mileage"--that is, the average number of student responses each type evokes (Gale and Andrews, 1989). Using his results, we can learn how to ensure our discussions are lively. Here are his top mileage types, all of which can be pitched at high cognitive levels:

Brainstorm questions, found to yield 4.3 student responses per question, invite students to generate many conceivable ideas on a topic or many possible solutions to a problem. For example: "What issues does Hamlet question in the play?" "What trends starting in the 1960s may have negatively impacted American public education?" "How might the public be made to care about ecological imbalances?"

Typically the instructor, acting as facilitator, records all responses on the board, an overhead, or a flip chart. Only after all brains stop storming do the students begin editing, combining, eliminating, grouping, etc. It is best to let them sort and evaluate options using criteria they generate themselves.

Focal questions elicit an even higher 4.9 responses per question. They ask students to choose a view-

point or position from several possible ones and to support their choice with reasoning and evidence. Students may develop and defend their own opinions, adopt those of a particular author, or assume a devil's advocate stance. For example: "Do you think that Marx's theory of capitalism is still relevant in today's post-industrial societies?" 'To what extent is Ivan Illich a victim of his own decisions or of society?" "Is the society in *Brave New World* a utopia, a nightmare of moral degeneration, or something between the two?"

A variation on a focal question is for you to play devil's advocate on an issue. Alternatively, you can make a contentious, controversial statement and invite your students to react against it. But as recommended in Chapter 15, be sure to let your class know exactly what you are doing.

Playground questions hold the mileage record with 5.1 responses per question. They challenge students to select or develop their own themes and concepts for exploring, interpreting, and analyzing a piece of material. For example, "What do you think the author is saying in this particular passage?" "What underlying assumptions about human nature must this theorist have?" "What might happen if (present a counterfactual)?" When posing such open-ended questions, however, be aware that this type of question tends to veer the discussion into other topics.

Types of Poorly Constructed Questions

It is difficult to fully appreciate highly effective discussion questions without examining the less effective types as well. Andrews'

categories and classroom research provide valuable insight and information on this latter kind, too. These questions tend not to encourage broad participation and/or higher-order thinking.

Analytic convergent questions may elicit complex, analytical thought, but they have only one correct answer. So they make students edgy and cut the discussion short as soon as someone gives the right answer. It is little wonder that they evoke only 2.0 answers per question. Typically 1.0 of the attempts isn't exactly that right answer. Analytic convergent questions are best used sparingly as knowledge and comprehension warm-ups. At least they get students talking.

Programmed-answer questions are only *implicitly* closed-ended. Although they may have more than one appropriate answer, the instructor (perhaps unconsciously) conveys having only one specific answer in mind. Students regard this type of question as an unwelcomed challenge to read the instructor's mind. Some even consider it manipulative and closed-minded.

Rhetorical questions are those with an obvious answer, usually too obvious for students to take seriously. At best, they inspire a few nods and agreeing facial expressions. While this type of question has its place in a motivating or persuasive speech, it is mainly a momentary time-filler in teaching.

Quiz show questions have a one- or two-word correct answer-- e.g., a name, a date, a title--but they only pay off on television. Usually they elicit only factual recall, and they serve poorly as warm-up questions for genuine discussion. Their average mileage is 1.5 responses per question, suggesting that the first "contestant" guesses wrong about half the time.

Dead-end questions are even less stimulating; they're quiz show questions with a yes-or- no answer. Students simply place their bets. These questions can easily be transformed into useful types in one of two ways. First, you can often change them into true-false items, having students rephrase false statements to make them true. Better yet, restructure them into relational questions by beginning them with a why or a how. With thought now required, students are more likely to participate.

Fuzzy questions are too vague and unfocused for students to know how to approach them. They may be phrased unclearly, such as "Who else knows what else falls into this category?" Or they may be too global, like "What should we do about the breakdown of the family?" Students loathe taking the risk required to begin to answer such a grand question. Other common fuzzy questions represent a well-meaning attempts to help: "Does everyone understand this?" and "Any questions?" You may occasionally get an honest response, but all too often you find out later that not everyone *did* understand and quite a few students *must* have had questions. It is usually better to use classroom assessment techniques (see Chapter 26) to answer our concerns.

Chameleon and *shotgun* questions are both a series of weakly

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related questions "fired off" one after the other in hopes that one will hit with the students. Chameleons change their topical focus through the series until the last one barely resembles the first one, leaving students not knowing which one to try answering. Shotgun questions, on the other hand, may all go off in the same general direction, but they make the instructor look like a "bad shot"--either desperate for a response or confused about the issues. Students in turn become confused and disoriented in the murk of the inquisition, not knowing which in the series to dodge and which to address. The average series yields only 2.3 responses.

Put-down and *ego-stroking* questions are two sides of the same bad attitude. The former type of question implies that students ought to know the answer and/or shouldn't have any more questions--e.g., "Now that I have explained this topic completely and thoroughly, are there any more questions?" The latter type assumes the superiority of the instructor to the discouragement of the students' individuality. A request to "rephrase the answer the way I would say it" douses students' creativity, self-expression, and often their motivation to answer at all.

Handling Problematic Types of Student Questions

Generally you welcome your students' questions as warmly as you welcome their informed responses to yours. You hope to clarify their misconceptions and encourage their curiosity and exploration. But just as students don't respond well to certain types of instructor questions, instructors find some

types of student questions annoying, frustrating, and even aggravating. Responding to them "appropriately" is always a challenge. Some of the strategies recommended below are drawn from Watkins (1982).

Questions you've already answered. A student asks you about the procedure for doing an assignment that you've already explained. No doubt you think that you have more than adequately described your expectations and requirements, and you feel justified in responding with a put-down ('Where were you when I gave the assignment?"). But to maintain a good rapport with all your students, you're best off holding back and just answering the question civilly. To minimize repeating yourself, refer that student to the written instructions you've provided and ask exactly which aspect of the assignment needs clarification.

Wheedling questions. Occasionally students try to wheedle answers out of you to avoid having to work out the answer for themselves. In class, you can invite other students to suggest leads and possibly get a discussion going. But one-on-one, the best way to avoid giving in is to answer each of the student's questions with another question that should help him think through the answer. In fact, this occasion provides the perfect opportunity to use the Socratic method (see Chapter 13). A student who is asking questions solely to pry answers out of you will soon tire of your questions and go away.

Argumentative questions. A student who tries to entrap you in an argument just for the sake of

arguing usually wants attention. This touchy situation will repeat itself regularly if you allow it, so the first or second occurrence calls for firm, quick, and decisive action. Just acknowledge the student's input and quickly move on. To lower oneself to the bait jeopardizes your credibility with the class. If another incident occurs, ask the student to "bring the issue up later" in your office. After class, make an appointment and inform the student that you do not appreciate such disruptive behavior in your classroom.

Loaded questions. The rare nefarious student may design a question just to embarrass you and put you on the defensive. Like the argumentative student, this type is also probably seeking attention and respect from their peers. You can often turn the loaded question back on the student asking it:

Student: You're not really saying...?

Instructor: What I'm saying is....Now, what is your perspective on this topic?

Hostile questions and complaints. When hostility arises, it is usually over a grade. Your objective is to neutralize the emotion and delay dealing with the issue until the student calms down and you can arrange a private meeting. It is a good idea to schedule an appointment in your office at least a day or two later. Then open with a positive, empathetic statement: "I understand your frustration. Let's take a look at your paper and talk about the grading." Try to agree with the student wherever possible. If necessary, disassociate the grade of the paper from the student's worth as a person. Even if you

can't turn the student's opinion around, you can reduce both your

anxiety levels by showing yourself to be an ally (at least partially).

It is extremely rare that an instructor feels physically threatened by a hostile student, and it invariably happens when others are not around. While verbal hostility calls for a private approach, the physical version requires quite the opposite: Try to move yourself and the student into as public a place as possible, even if just the hallway.

Rambling questions. A long-winded student seems to meander endlessly trying to frame a question, boring and frustrating not only you but the rest of the class as well. You can take control by seizing the chance to interrupt the student and paraphrase whatever meaning you can salvage. Then supply an answer and move along. Alternatively, you can defer answering it for the sake of "saving class time" by advising the student to raise it during your office hours.

Questions you can't answer. Even experienced instructors can forget--and new ones find it hard to believe--that students do not expect us to be walking encyclopedias. We know so much more than they do and rank so high in their eyes that we can afford to feel completely secure with all our cognitive limitations.

So if you happen not to have an answer to a student's question at your fingertips, just say so. It is not worth the risk of trying to pull the wool over your students' eyes by bluffing your way through an answer. It shows courage and professionalism to say that you don't know the answer but will make the effort to find it out. Then make

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Making the Most of Student Questions

The person posing the discussion questions need not always be the instructor. If you model good questioning techniques and spend a little time teaching your favorite questioning schema, you can have your students develop discussion (and even test) questions as a homework assignment. You can use the best ones in class (or in an exam) and even grade them if you choose. The quality of these questions also tells you how diligently your students are doing their reading.

The next chapter offers other teaching formats that put the spotlight and the responsibility for learning on students.