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Asking Questions

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Asking and answering questions are central to the learning process and to effective teaching. Yet studies show that faculty devote less than 4 percent of class time to asking questions and that the questions they do ask are rarely of the type that require students to think (Barnes, 1983). The types of questions posed and the sequencing of questions should capture students' attention, arouse their curiosity, reinforce important points, and promote active learning. When students respond to questions, you also gain insight into how well they are learning the material. Like other aspects of teaching, the ability to develop good questioning skills can be learned.

General Strategies

Identify your key questions in advance. As you prepare for class, formulate questions and anticipate the range of possible student responses. Put the list in some logical order (specific to general, simple to complex, or convergent—questions with a single correct answer—to divergent—questions with many valid answers). Hyman (1982, p. 3) argues for a carefully planned sequence of major questions. For example, in a class discussion on the Falkland Islands, he suggests not jumping in with “Why did Argentina invade the Falkland Islands?” Instead, build up to that important question with a series of questions: “According to Argentina, what is its historical claim to the Falklands? What previous attempts did Argentina and Britain make to settle their dispute? Who did Argentina believe would support its action? What did Argentina believe would be Britain’s reaction to the invasion? What function, then, did the invasion serve for Argentina?” When composing questions, include a few that you are not quite sure how to answer. You may be impressed by your students’ ideas. Don’t stick solely to your list—add questions that occur to you during class or modify your list as you go along.

Prepare strategies for asking questions. Think about different ways to use your questions: Will you pose questions to the class as a whole, to pairs of

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students, to small groups? Will the question be a prompt for brainstorming, consensus building, or debate? (Source: Kasulis, 1984)

Decide whether you want to call on students individually. Some faculty members believe that students need to be drawn into the discussion. Others strongly believe that calling on students who may not wish to speak intimidates students and may deter others from making contributions. Still other faculty compromise by distributing a few study questions for which all students will be responsible; this gives shy students a chance to think through their responses before class. If you decide to call on students, pause after asking a question, and then call on someone at random. If you go around the room calling on students in order, some students’ attention may wander until it is their turn.

Be aware of the manner in which you ask questions and treat responses. Your tone of voice and nonverbal cues (facial expressions, gestures) strongly affect whatever you say. Act as though you are seeking knowledge, not interrogating the troops.

Keep a journal on the class. Take a few minutes after each class session to jot down names of students who spoke up, who responded to whose points, and the kinds of questions that generated the most lively exchange. Use this information in preparing future sessions. (Source: Kasulis, 1984)

Levels and Types of Questions

Balance the kinds of questions you ask. Move from simple questions to those that require more thought. Experienced discussion leaders have found it helpful to develop a typology or inventory of questions such as these:

- *Exploratory questions* probe facts and basic knowledge: “What research evidence supports the theory of a cancer-prone personality?”
- *Challenge questions* examine assumptions, conclusions, and interpretations: “How else might we account for the findings of this experiment?”
- *Relational questions* ask for comparisons of themes, ideas, or issues: “What premises of *Plessy v. Ferguson* did the Supreme Court throw out in deciding *Brown v. Board of Education*?”
- *Diagnostic questions* probe motives or causes: “Why did Jo assume a new identity?”
- *Action questions* call for a conclusion or action: “In response to a sit-in at California Hall, what should the chancellor do?”

- *Cause-and-effect questions* ask for causal relationships between ideas, actions, or events: "If the government stopped farm subsidies for wheat, what would happen to the price of bread?"
- *Extension questions* expand the discussion: "How does this comment relate to what we have previously said?"
- *Hypothetical questions* pose a change in the facts or issues: "Suppose Gregg had been rich instead of poor; would the outcome have been the same?"
- *Priority questions* seek to identify the most important issue: "From all that we have talked about, what is the most important cause of the decline of American competitiveness?"
- *Summary questions* elicit syntheses: "What themes or lessons have emerged from today's class?"

(Sources: Christensen, 1991; Jacobson, 1981; Rosmarin, 1987)

Vary the cognitive skills your questions call for. Different questions require different levels of thinking. Lower-level questions are appropriate for assessing students' preparation and comprehension or for reviewing and summarizing content. Higher-level questions encourage students to think critically and to solve problems. Various researchers have developed cognitive schemes for classifying questions. Bloom's (1956) system of ordering thinking skills from lower to higher has become a classic:

- Knowledge skills (remembering previously learned material such as definitions, principles, formulas): "Define *shared governance*." "What are Piaget's stages of development?"
- Comprehension skills (understanding the meaning of remembered material, usually demonstrated by restating or citing examples): "Explain the process of mitosis." "Give some examples of alliteration."
- Application skills (using information in a new context to solve a problem, answer a question, perform a task): "How does the concept of price elasticity explain the cost of oat bran?" "Given the smallness of the sample, how would you analyze these data?"
- Analysis skills (breaking a concept into its parts and explaining their interrelationships; distinguishing relevant from extraneous material): "What factors affect the price of gasoline?" "Point out the major arguments Shelby Steele uses to develop his thesis about affirmative action."
- Synthesis skills (putting parts together to form a new whole; solving a problem requiring creativity or originality): "How would you design an

experiment to show the effect of receiving the Distinguished Teaching Award on a faculty member's subsequent career progress?" "How would you reorganize Bloom's taxonomy in light of new research in cognitive science?"

- Evaluation skills (using a set of criteria to arrive at a reasoned judgment of the value of something): "To what extent does the proposed package of tax increases resolve the budget deficit?" "If cocaine were legalized, what would be the implications for public health services?"

Also include questions that ask for hunches, intuitive leaps, and educated guesses. Stimulate students' thinking by varying the intellectual approach of your questions.

Tactics for Effective Questioning

Ask one question at a time. Sometimes, in an effort to generate a response, instructors attempt to clarify a question by rephrasing it. But often the rephrasing constitutes an entirely new question. Keep your questions brief and clear. Long complex questions may lose the class. For example, "How is the theory of Jacques Lacan similar to Freud's?" rather than "How are Lacan and Freud alike? Are they alike in their view of the unconscious? How about their approach to psychoanalysis?" (Sources: Hyman, 1982; "Successful Participation Strategies," 1987)

Avoid yes/no questions. Ask "why" or "how" questions that lead students to try to figure out things for themselves. Not "Is radon considered a pollutant?" but "Why is radon considered a pollutant?" You cannot get a discussion going if you ask questions that only require a one-syllable or short-phrase response.

Pose questions that lack a single right answer. A history professor includes questions for which a number of hypotheses are equally plausible—for example, "Why did the birthrate rise in mid-eighteenth-century England?" or "Why did Napoleon III agree to Cavour's plans?" She emphasizes to students that the answers to these questions are matters of controversy or puzzlement to scholars and asks the class to generate their own hypotheses. She embellishes what students suggest by adding historians' theories and by showing how different answers to the questions lead in very different directions. She concludes by stressing that the answer to the question remains unresolved.

Ask focused questions. An overly broad question such as "What about the fall of the Berlin Wall?" can lead your class far off the topic. Instead ask, "How did the reunification of Germany affect European economic conditions?"

Avoid leading questions. A question such as "Don't you all think that global warming is the most serious environmental hazard we face?" will not lead to a free-ranging discussion of threats to the environment. Similarly, avoid answering your own question: "Why can't we use the chi-square test here? Is it because the cells are too small?"

After you ask a question, wait silently for an answer. Do not be afraid of silence. Be patient. Waiting is a signal that you want thoughtful participation. Count to yourself while your students are thinking; the silence rarely lasts more than ten seconds. If you communicate an air of expectation, usually someone will break the silence, even if only to say, "I don't understand the question." If a prolonged silence continues, ask your students what the silence means: "Gee, everyone has been quiet for a while—why?" Or encourage students by saying, "It's not easy to be the first one to talk, is it?" Someone will jump in with a comment or response. Don't feel you have to call on the first person who volunteers. You might want to wait until several hands are raised to let students know that replies do not have to be formulated quickly to be considered. Consider choosing the student who has spoken least. After the first student is finished, call on the other students who had raised their hands, even if their hands are down. (Sources: Kasulis, 1984; Lowman, 1984; Swift, Gooding, and Swift, 1988)

Search for consensus on correct responses. If one student immediately gives a correct response, follow up by asking others what they think. "Do you agree, Hadley?" is a good way to get students involved in the discussion.

Ask questions that require students to demonstrate their understanding. Instead of "Do you understand?" or "Do you have any questions about evaluation utilization?" ask, "What are the considerations to keep in mind when you want your evaluation results to be used?" Instead of "Do you understand this computer software?" ask, "How would we change the instructions if we wanted to sort numbers in ascending rather than descending order?" Instead of "Does everybody see how I got this answer?" ask, "Why did I substitute the value of delta in this equation?" If you want to ask, "Do you have any questions?" rephrase it to "What questions do you have?" The latter implies that you expect questions and are encouraging students to ask them.

✕ **Structure your questions to encourage student-to-student interaction.** "Sam, could you relate that to what Molly said earlier?" Be prepared to help Sam recall what Molly said. Students become more attentive when you ask questions that require them to respond to each other. (Source: Kasulis, 1984)

Draw out reserved or reluctant students. Sometimes a question disguised as an instructor's musings will encourage students who are hesitant to speak. For example, instead of "What is the essence or thesis of John Dewey's work?" saying, "I wonder if it's accurate to describe John Dewey's work as learning by doing?" gives a student a chance to comment without feeling put on the spot.

Use questions to change the tempo and direction of the discussion. Kasulis (1984) identifies several ways to use questions.

- ✕ • To lay out perspectives: "If you had to pick just one factor . . ." or "In a few words, name the most important reason . . ." This form of questioning can also be used to cap talkative students.
- ✕ • To move from abstract to concrete, or general to specific: "If you were to generalize . . ." or "Can you give some specific examples?"
- To acknowledge good points made previously: "Sandra, would you tend to agree with Francisco on this point?"
- To elicit a summary or give closure: "Beth, if you had to pick two themes that recurred most often today, what would they be?"

Use probing strategies. Probes are follow-up questions that focus students' attention on ideas or assumptions implicit in their first answer. Probes can ask for specifics, clarifications, consequences, elaborations, parallel examples, relationship to other issues, or explanations. Probes are important because they help students explore and express what they know, even when they aren't sure they know it (Hyman, 1980). Here are some examples of probing from Goodwin, Sharp, Cloutier, and Diamond (1985, pp. 15–17):

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| <i>Instructor:</i> | What are some ways we might solve the energy crisis? |
| <i>Student:</i> | Peak-load pricing by utility companies. |
| <i>Instructor:</i> | What assumptions are you making about consumer behavior when you suggest that solution? |
| <i>Instructor:</i> | What does it mean to devalue the dollar? |
| <i>Student:</i> | I'm not really sure, but doesn't it mean, that, um, like say last year the dollar could buy a certain amount of goods and this year it could buy less—does that mean devalued? |

Instructor: Well, let's talk a little bit about another concept, and this is inflation. Does inflation affect the dollar in that way?

Instructor: What is neurosis?

Students: [no response]

Instructor: What are the characteristics of a neurotic person?

Instructor: How far has the ball fallen after three seconds, Christi?

Student: I have no idea.

Instructor: Well, Christi, how would we measure distance?

Move around the room to include students in the discussion. When a student asks a question, it is natural for an instructor to move toward that student without realizing that this tends to exclude other students. To draw others into the conversation, look at the student who is speaking but move away from that student.

Tools for Handling Students' Responses to Your Questions

Listen to the student. Do not interrupt a student's answer, even if you think the student is heading toward an incorrect conclusion. Interrupting signals your impatience and hinders participation. Instead, wait a second or two after a student responds to be sure that the student is finished speaking.

Use nonverbal gestures to indicate your attention. Maintain eye contact with the student who is speaking. Nod your head, use facial expressions or hand gestures to prompt the student to continue, or adopt a physical stance that signals you are ready to move on.

Vary your reactions to students' answers. When a student has spoken, you can respond in the following ways:

- Restate what the speaker has said to reinforce the point.
- Ask for clarification: "Could you be more specific about . . ."
- Invite the student to elaborate: "We'd like to hear more about . . ."
- Expand the student's contribution: "That's absolutely correct, and following up on what you said . . ."

- Acknowledge the student's contribution but ask for another view: "You're right about children's linguistic capabilities, but what about their social development?"
- Acknowledge the originality of a student's ideas: "Self-selection factors could be responsible for the outcome; I didn't think of that."
- Nod or look interested but remain silent.

You needn't give a verbal response to every student. By nodding or pointing, you can keep the focus on your students' responses rather than shift attention to yourself. Collect a number of student comments. Condense and combine them, and relate them to each other. You don't want students to feel that they need your comment after each response. (Sources: Hyman, 1982; "Successful Participation Strategies," 1987; Yelon and Cooper, 1984)

Praise correct answers. Students look to their instructors for guidance and support. Teachers who are indifferent to students' responses or who chastise students soon find that participation drops off. Be enthusiastic, replying with "Excellent answer" or "Absolutely correct" rather than a bland "OK," "yes," "all right." But be aware that most students will stop thinking about a question once the instructor has indicated that someone's response is correct. If you want to elicit more responses, say, "Combustion? That's good. What other outcomes are possible?" Moreover, Tiberius (1990) warns against praising every answer because that turns the instructor into the official dispenser of rewards and makes it awkward when a student gives a vague or irrelevant answer. (Source: Hyman, 1982)

Tactfully correct wrong answers. Correct the answer, not the student: "I don't believe that answer is correct" instead of "Michele, you are wrong." Look beyond the answer to the thought process: "This is a hard concept to grasp; let's take this a step at a time"; "You're right about one part, but let's figure out the rest together." Encourage the student to rephrase or revise the answer. If one student needs assistance in answering a question, look to another student to provide help rather than providing it yourself.

References

- Barnes, C. P. "Questioning in College Classrooms." In C. L. Ellner and C. P. Barnes (eds.), *Studies of College Teaching*. Lexington, Mass.: Lexington Books, 1983.
- Bloom, B. S. (ed.). *Taxonomy of Educational Objectives*. Vol. 1: *Cognitive Domain*. New York: McKay, 1956.