

Discussion Sections: The Art of Questioning

Facilitating student discussions can be one of the most challenging aspects of teaching, yet asking effective questions can often mean the difference between a lively discussion and a silent classroom. This quick-sheet lists different types of questions one might use to check understanding and encourage student participation in class. (The information below corresponds to the categories outlined on slide 16 of the TA Orientation deck.)

OPEN-ENDED QUESTIONS

- Open-ended questions are useful when you want to probe student understanding. These questions allow you to cast a wide net to see what comes in, so you can adjust your discussion accordingly. They also give you the chance to listen and see where students feel comfortable jumping in, or what concepts/information they think is important. Be careful, as asking too many open-ended questions in succession can actually stifle interaction. It is also a good idea to plan open-ended questions carefully in advance, and tailor them to the specific situation at hand. For example, asking “What’s going on here?” is much less likely to garner a response than asking “What are your thoughts on the available therapeutic regimens for this patient?”
- **Examples:** What do you make of this situation? What problems do you see with this approach?

ASKING FOR SPECIFIC INFORMATION

- These are questions that require students to recall facts, or that require a yes/no answer with regard to the correctness of information you supply, or to a proposed course of action. These can also be useful to begin a discussion, or to coax a reticent group or individual student(s) to chime in. Be wary of overusing these questions. While often the easiest way to elicit student participation, overuse will lend a rather staccato, “call and response” tone to your classroom that students might find uncomfortable or boring. This tends to be the go-to question type for teachers who are uncomfortable venturing beyond the planned agenda for the day, but your students’ critical thinking abilities are far more important. Teaching can push you beyond the limits of your own knowledge, and this is a fantastic opportunity for growth!
- **Examples:** Where...? When...? What...? Would it be correct to say that...?

DIAGNOSTIC QUESTIONS

- These questions allow the student to weave different pieces of information together and gain or display an understanding of what may be going on behind the scenes, or arrive at a conclusion regarding an underlying condition or cause. These are called “diagnostic” because they allow you to diagnose the student’s understanding and ability to make connections (or lack thereof), which will drive the direction of your discussion.
- **Examples:** How would you explain the impact of this substitution on the stability and efficacy of the drug? How do you interpret these lab results given the underlying disease state? What’s really happening to give the patient these symptoms?

CHALLENGING QUESTIONS

- Challenging questions provide students with the opportunity to justify their responses to previous questions. These are useful when you fear that students may simply be parroting facts they have memorized without understanding the fundamental underpinnings of those facts (which tend to be far more important on examinations).
- **Examples:** Why do you say that? How would you explain fluorine’s high electronegativity? Where is the evidence for that? Is that the only consideration? That seems to be the opposite of what our intuition might lead us to think – can you elaborate?

EXTENSION QUESTIONS

- Extension questions allow students to explore an issue in greater depth. They are similar to challenging questions, but require that students not only understand fundamentals, but also carry those fundamentals to a natural, or even hyperbolic, conclusion. These can be used brilliantly to bring a discussion full-circle.
- **Examples:** What else must therefore be true? Can you take us a little further along that line of reasoning? What might we conclude about the relationship between X and Y based upon what you have just shared with us?

COMBINATION QUESTIONS

- Combination questions take responses given by other students to previously asked questions, or different topics mentioned elsewhere in your course or others, and bring them together to highlight relationships that students might or might not have foreseen or grasped. These are useful when you want or need to bring students to an understanding of connections within your course or between your course and others students are taking.

- **Examples:** How would you relate that point to the issue Mitra raised earlier? What relevance does this have to drug absorption? How might we now better understand the action of loperamide in light of what we've discussed today about opioids?

PRIORITIZING QUESTIONS

- Much like diagnostic and open-ended questions, prioritizing questions are an opportunity for you to probe students' understanding of concepts. Prioritizing questions, however, focus not on the concepts themselves, but on the importance or relevance of those concepts. These questions ask students to decide what information is necessary and what is extraneous or less critical – an essential skill for any future clinician or scientist to develop!
- **Examples:** Which of these adverse drug reactions should we consider to be the most significant in this patient population? If you had 5 minutes to relate all this information to patients, what would you tell them? Where should we begin when attempting to solve a problem like this? How would you rank the contribution of these functional groups and structural characteristics to the action of the drug?

PREDICTING QUESTIONS

- Predicting questions provide you with the opportunity to gauge your students' understanding of concepts in a unique way. These questions show students that, armed with a toolbox of skills or a certain foundation of knowledge, they can apply those skills or that knowledge to solve new problems. In essence, these are pure critical thinking questions. It is important, however, to consider carefully whether students can actually make the leap from point A to point B, and fill in any gaps for them when necessary, otherwise these questions can fall flat and appear unfair or "too hard" for them.
- **Examples:** Given our discussion of these Phase I metabolic reactions, what would you predict is the predominant metabolite of this druglike molecule? What would happen if we followed the same dosage regimen in this new patient? What do you expect would be the effect on this drug's suitability as a topical agent if we were to replace the fluorine with a hydroxyl group?

GENERALIZING AND SUMMARIZING QUESTIONS

- These questions are most useful at the conclusion of a discussion, or at least before transitioning to a new topic. They allow you to make sure that even the stragglers, or those students who have been taking notes assiduously and thus might have missed some of the points raised, can catch up and reconnect with the group. They also allow you to emphasize the points you feel are most important if they might have gotten lost in minutiae during the foregoing discussion.

- **Examples:** What big-picture inferences can we draw from our discussion of this case? What generalizations can we make about the action of these agents? How would you summarize the three most important take-home points raised in our discussion today? What was the overarching point/continuous thread/unifying concept of today's discussion?

Adapted from materials provided by Derek Bok Center for Teaching and Learning (bokcenter.harvard.edu)