

Using Effective Questions

Questions can do more than measure what students know. Appropriately challenging, engaging, and effective questions stimulate peer discussion and encourage students to explore and refine their understanding of key concepts.

Why ask questions?

- Questions can help diagnose student understanding of material.
- Questions are a way of engaging with students to keep their attention and to reinforce their participation.
- Questions are a way to review, restate, emphasize, and/or summarize what is important.
- Questions can be used to stimulate discussion and creative and critical thinking, and to determine how students are thinking.
- Questions can help students retain material by putting into words otherwise unarticulated thoughts.

What types of questions are there?

- Interrogative questions or "solicitations" that require a direct response.
- Rhetorical questions that stimulate thinking without requiring a direct response.
- Low risk questions that have no right or wrong answer. Examples include asking for students' opinions about something, or simply asking what comes into their heads when you introduce an idea or concept. These types of questions are most effective in initiating discussion.

What are effective questions?

- Effective questions are meaningful and understandable to students.
- Depending on the level of comprehension of a topic, students may be able to handle questions of various levels of difficulty. Effective questions challenge students but are not too difficult.
- Students benefit from answering easier questions before difficult ones.
- Cashin (1995) lists question structures and how they determine the way the students can respond:
- Closed-ended questions such as those requiring a Yes/No response, or one answer from a few possible options (multiple choice) may be useful for quickly checking comprehension.
- Open-ended questions that probe and elicit expanded thinking and processing of information are useful for involving students in deeper learning.
- Convergent questions have one acceptable right answer; students are required to regurgitate a certain response based on conventional wisdom.
- Divergent questions have multiple possible answers and encourage students to be creative or express insight. If working in groups, students have the opportunity to learn from a variety of perspectives.

Some examples of ineffective questions:

- Too vague. Students are unsure of what is being asked and may refrain from attempting to answer.
- Too loaded. Students may guess at what you want them to say rather than tell you what they think.

- "Does everyone understand?" "Any other questions?" Most students will not reply and even if they do, their answer is only a report of their own assessment of their comprehension. Measuring student learning systematically is the best way to gauge student progress through the use of Classroom Assessment Techniques.
- Yes/No questions or other closed-ended questions can be useful for drawing on previous knowledge to get started on a new topic, but are dead ends for discussions and deeper engagement.

How can you design effective questions?

- Determine the key concept you want students to learn. Refer to Bloom's Taxonomy to review levels of learning.
- Put the question through the following filters:
- Does this question draw out and work with pre-existing understandings that students bring with them?
- Does this question raise the visibility of the key concepts the students are learning?
- Will this question stimulate peer discussion?
- Is it clear what the question is about?
- When planning for a class, develop question strategies. Examples include: an explanation strategy that ask students to explain the cause of an event or why a given situation or condition has arisen. These usually begin with "Why" (open-ended question). Another strategy is an analytical question that asks students to compare and contrast situations, cases, ideas, people, or objects. A third strategy focuses on explaining how to do something. In this case, make sure it is something that has been covered in class, the readings, or lies within the students' range of experiences. A final questioning strategy that reinforces critical thinking asks students to focus on the future and use their reasoning to predict something.

Nilson (2010, pg. 137-140) describes a systematic process for designing a series of questions for the process of inquiry:

- Determine the objectives or learning outcomes of the class. What do you want students to know or be able to do as a result of participating in the class?
- For each learning outcome, create one or two key questions designed to provide students with the opportunity to demonstrate attainment of the learning outcome.
- Working backwards, think of one or two questions that, when answered, lead up to the first key question you designed, and so on.
- Prepare to start your class/discussion with the last questions you created and work your way toward the key questions that address the class learning outcomes.
- Use Bloom's Taxonomy to guide your question design. Doing so will ensure that you appropriately scaffold questions starting with basic knowledge (remembering facts) to more advanced skills such as analyzing or evaluating.
- Ask short recitation questions to quickly gauge whether or not there are misconceptions and address them appropriately. Once all students are on the same level, pose more advanced questions.
- Follow the taxonomy with flexibility. Some questions may involve multiple cognitive skill levels.

How can you incorporate the use of effective questions in a course?

- Although the most common way to ask a question is to pose it to the entire class, this may result in nobody volunteering to answer the question, or only a few students attempting to

answer it. Questions can be incorporated in a course in a variety of other ways:

- Have students answer questions in a variety of contexts, including:
 - Debates
 - Think-pair-share/ Write-pair-share.
 - Small group discussions
 - One minute papers or short, low-risk writing activities
 - Class discussion
- Provide enough time for students to respond to questions. Let students handle awkward silences; rephrase your question only after waiting a minimum of three to five seconds.
- Make time in your class for peer discussion by determining what parts of your lecture can be communicated through pre-reading or in-class reading.
- Consider using classroom response systems with which students can answer questions using remote controls. Answers are tallied instantly and results can be displayed as they come in.
- Allow students to create their own questions. Ask students to:
 - Suggest and submit exam questions.
 - Quiz their neighbor on the lecture content.
 - Write down one or two remaining questions a few minutes before class ends.
 - Design questions to guide a small group discussion. Consider sharing your own techniques for doing so.
- Plan questions ahead of time as part of class preparation. This is a good way to budget time for their discussion, strategically frame them, and place them within the class activities.
- Be wary of continually rephrasing the question or answering yourself the questions that spontaneously come up during the interaction with students. Doing so inhibits interaction.
- Reinforce student responses even if they are wrong. If a student is wrong, inaccurate, or unclear, respond with probing questions such as, "That's interesting. What makes you say that?" or "Could you rephrase that?"
- State the relevance of a student's response to the topic, or use a student's answer to your question as a link to some part of the topic framework in order to increase interaction and participation.

References

Cashin, W.E. (1995). Answering and Asking Questions. IDEA Center. Idea Paper No. 31.

Nilson, L.B. (2010). Teaching at its best: A research-based resource for college instructors. San Francisco: Jossey-Bass.

<http://www.cte.cornell.edu/teaching-ideas/engaging-students/using-effective-questions.html>