Using questions and leading discussions
1 Why questions and class discussions?

Discussions and groups can be more effective than passively listening to lectures. Listening to a full-length lecture for 60-90 minutes can be rather passive from the students’ point of view - somewhat like watching TV. This can be very taxing on their following cognitive abilities:

- Attention span - adults in a classroom setting have an attention span of about ten minutes. After ten minutes, their minds can wander, and they will have less mental energy for concentrating on the same type of information input from the instructor.

- Depth of processing - pure lectures make it hard to engage in deep learning, which involves making conceptual connections among ideas, as well as practical applications.

- Long-term memory - with no chances to actively engage in conceptual learning through activities besides a teacher-centered lecture, students will find it more difficult to transfer all the knowledge to long-term memory; learning is thus less efficient and shorter-term.

Thus, an interactive lecture-discussion format with engaging questions can help students to...

- Develop problem-solving and analytical skills
- Retain their knowledge for a longer period of time (rather than memorizing for an exam and later forgetting it).
- Learn more deeply and meaningfully - more conceptual knowledge rather than rote (mechanical) learning
- Be able to apply their knowledge to new and different situations; seeing the applicability of classroom knowledge to real-life situations, or to other things that they will do in their degree program.
- Learn and practicing useful skills based on what they have learned.
- Change or modify their attitudes and beliefs, e.g., regarding your topic, or different viewpoints
- Develop greater motivation and interest.
2 Question types

It is important to ask meaningful, well-constructed questions that will provoke discussion, preferably with multiple valid answers (open-ended), to help students explore key concepts in class. Some question types are cognitively simpler, and others are more challenging and complex\(^1\).

A traditional kind of question is the so-called knowledge display question: the instructor asks students to repeat or restate information that has already been explained or learned; the student simply displays what s/he has memorized, such as a factual question (who discovered background cosmic radiation?), or repeating basic concepts (how did Einstein explain the relationship between energy and mass at near-light speeds?). This kind of question requires little original thinking (unless perhaps you are probing a complex or difficult concept), so in modern teaching, we prefer to avoid display questions. For lecture-discussion formats, the following kinds of questions (from Brookfield & Preskill, 2005) may be more useful for promoting discussion and getting students to think - to meaningfully engage and interact with the material, and thus, learn meaningfully.

2.1 Question types according to cognitive complexity

**Application questions** help students apply concepts, principles or generalizations in different contexts, e.g., “How could we apply this model to the Korean educational system?”

**Analytical questions** that encourage students to pull apart different elements of the material they have been learning about to draw comparisons and contrasts, identify causes and effects; reason through explanations or arguments; etc., e.g., “What are the key differences between Model A and Model B?”; “Explain the different parts of this theory and how they fit together”.

**Synthesis questions** that require students to integrate the elements of the material in new and different ways, e.g., “How could you combine elements of these two models and implement them in company X”; “Explain the differences and similarities between Model 1 and Model 2”; “Compare the use of metaphor between these two authors.”

**Evaluation questions** that require students to make informed judgments, using some combination of knowledge, comprehension, application, analysis and/or synthesis, e.g., “Which method of teaching is more effective in your opinion and why?”; “Which of the interactive methods for engaging students during lecture sessions do you think might work best together in a lecture on art appreciation?”

**Problem-solving questions** that challenge students to use their creativity, as well as the knowledge they have gained, e.g., “How would you go about designing a new course in your subject area that involves all of the levels of cognitive functioning in Bloom’s taxonomy?”; “What is the best way to design a skyscraper in Taipei to withstand a possible 8+ magnitude earthquake?”

\(^1\)This classification is based on the famous Bloom taxonomy of questions or educational tasks in educational psychology.
2.2 Question types according to goal or genre

2.2.1 Evidential questions - questions seeking more evidence

These are designed to help students understand the reasons for X, or why X might not be correct or well supported - not as a challenge to the student him/herself.

- How can we be certain of this claim?
- What data is that claim based on?
- What information in the article supports this claim?
- What evidence could you provide to one who is skeptical of this claim?

2.2.2 Clarification questions

These help to expand on conceptual understanding.

- Can you give an example of that?
- Could you give an example of how that works / how that might apply to...?
- How could you explain that term you just used?
- What does the word ‘theory’ mean in scientific usage? How is it different from hypothesis, conjecture, or belief?

2.2.3 Open-ended (or open) questions

These questions do not necessarily have one single correct answer, and require some thought. Such questions, especially with ‘how’ or ‘why’, can stretch students’ conceptual, critical thinking, and problem-solving skills.

- Is it ethically appropriate for photojournalists to artificially stage a news photo scene?
- Can people really act out of purely altruistic motives? Or are all intentions for good behavior tainted by ulterior or selfish motives?
- Why might rote memorization be a poor strategy for learning a foreign language?
- Which of these two theories can better account for X, and why?
- What are the relative advantages and disadvantages of X and Y?
- Why would people devote their lives to education despite the low pay and less than ideal working conditions?
- Which view of moral reasoning can better address a moral dilemma such as X?
- Does Kuhn’s view of scientific paradigms really endorse or entail a form of relativistic philosophy?
- How could hypothesis X be empirically tested?
- Why do you think Captain Ahab obsess so much over the white whale in Moby Dick?
- Why does Melville play with gnostic elements in this novel?
- Were these people motivated by political idealism or economic self-interest?

2.2.4 Linking or extension questions

These questions link different comments, or different concepts, ideas, or topics that have come up in the discussion. These can be good for promoting student-to-student discussion.

- How does your observation relate to X’s comment from a few moments ago?
• Does your idea challenge or support X’s theory?
• How does your idea go beyond what X has said?
• How does your comment relate to X’s ideas?

2.2.5 Hypothetical questions

These challenge students to apply concepts to new situations, thereby deepening their analytical thinking skills.

• How might have World War 2 turned out differently if Hitler not attacked the Soviet Union in 1941?
• If Shakespeare had intended Iago to be a tragic or more sympathetic character, how might he have changed Othello’s narrative?
• How would the universe be different if the gravitational constant [or other constants] tweaked to be slightly different by X amount? Would the development of some form of life on some planets still be possible?

2.2.6 Cause and effect questions

These also cause students to consider implications and applications of concepts.

• What effect would [a change in the exchange rate of type X / a change of type X in the prime interest rate] have on the Korean economy?
• How would a larger / smaller class size affect the effectiveness of discussion or group activities in a high school math / English / chemistry class?
• What effect would higher parking fees have on traffic patterns in region X of the city?

2.2.7 Summary and synthesis questions

These lead students to identify important ideas in ways that will help them remember contents or concepts.

• What are the most important ideas that have emerged from today’s discussion?
• What remains unresolved or contentious about this topic?
• Based on today’s discussion, what do we need to discuss next time in order to better understand this topic?
• What is the main “take home message“ from today’s class discussion?
3 Leading effective class discussions

Prepare students to participate in discussions by:

- Explaining why you think class discussions are important, how you plan to use them during your course, and (if you plan to do so) how you will grade students on participation in class discussions.

- Discussing the various methods and ground rules you will use to encourage participation (e.g., voluntary hand-raising, random calling on students by the lecturer, by seating order, permitting students to say, "I pass; please call on me later," etc.)

- Creating an environment that encourages students to feel comfortable about speaking during class discussions (e.g., if possible, arranging chairs so that students can see each other; reassuring students that all questions and different viewpoints are valued; getting to know your students and helping them get to know each other; breaking large classes down into manageable smaller groups for discussions)

- Alerting students if a class discussion will be based on a reading assignment; Asking students to take notes on the reading and/or write down some thoughts on questions that you intend to pose during the discussion; Asking students to write down questions to pose during the discussion.

- Listing out and posting the key questions that you want to cover during the discussion.

Facilitate and manage student discussion by:

- Asking stimulating questions.

- Giving students time to reflect on your question rather than rushing to "fill the silence."

- Monitoring participation so that you don’t call on the same few eager students too often.

- Encouraging non-participating students to join the discussion by having them read something aloud, or directly posing a question that you know s/he can answer.

- Show that you value everyone’s contributions, e.g., praising correct answers; letting a student know that s/he has brought up an interesting (or different, new, etc.) perspective; asking students to expand on incomplete answers, helping students understand the implications of an apparently incorrect answer; asking students to explain unclear answers; asking other students to comment on a student’s answer that is incomplete, unclear or incorrect rather than correcting the student directly; asking students to help another with his/her answers.

- Asking the students if the room falls silent, e.g., do you need to clarify or rephrase the question; are they unfamiliar with your terminology; is the question too complicated?

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2Adapted from: http://www2.unitar.org/hiroshima/afghancorner/materials/af08/Fellowship_Update_Assignments/9-viii_Leading_Effective_Discussions.pdf.
• Leaving time to summarize key points before moving on to another topic.
• Asking students to summarize the main points rather than always doing this yourself
• Having students write down the 3 most important things they learned from the discussion, as well as any questions they still have and pass these in anonymously. Review this feedback and address misconceptions and questions during the next class.

References


