

MAKING LARGE LECTURES INTERACTIVE

This job aid describes the best use of lectures and provides five steps for planning your lectures so they are more interactive.

This job aid will help you to:

- use strategies that actively involve students in their learning
- increase your students' retention of learning



Using lectures

Most instructors use lectures as a major part of their instruction. The effectiveness of this can vary, depending on the design and delivery of the lecture. This job aid can be used as you plan your lectures to increase interaction with your students as you teach.

Research shows that individuals:

- **listen** for only 15–20 minutes without a break
- **learn** more when they have an opportunity to process what they are learning
- **retain** more if they review or use the information immediately after learning it

Best use of lectures:

- to establish a general outline or overview of the subject matter
- to prepare students with the theory needed for lab or shop work
- to convey large amounts of information in a short period
- to model how your discipline approaches a question or problem

Worst use of lectures:

- to communicate complex, abstract, or very detailed material
- to evoke a change in attitude of students

Once you have established that a lecture is the right way to go, there are five main steps in producing a lecture that allows a large group of students to learn interactively.

Step 1— Write learning outcomes

Clear learning outcomes help you plan your lecture. They also help the students understand the purpose of the lecture.

Communicate the learning outcomes to the students at the beginning of the lecture, preferably written on the board or an overhead transparency. Connect the learning outcomes to the students' backgrounds and their needs. This puts the topic into a broader framework at a higher level of learning than just assimilation of lecture material.

Step 2—Use visual aids

Using visual aids can increase retention of learning up to 50%. Visual aids also help to focus the students' attention. Vary your visuals; use overhead transparencies (OHTs), videos, presentation software, handouts, and models as well as the chalkboard or whiteboard.

When using OHTs and presentation software, make sure that each slide:

- can be read from all areas of the classroom
- contains simple, clear language and graphics
- is not too crowded with information
- uses colour to attract students' attention

For more tips, see the job aid *Designing and Using Visuals*.

Step 3—Outline your plan

Let your students know what your plan is.

- As you lecture, use phrases such as “The first step in this process is...” “There are three characteristics of...”
- Periodically, refer to the learning outcomes to remind the students where you are in the lecture, so that they don't lose track of the flow.
- Use examples and summaries to emphasize important points.
- Use a final summary.

Step 4—Use student handouts

A handout focuses the students' attention on what the instructor considers to be the most important points. The best uses of handouts are:

- to accurately supply complicated, detailed, or graphic material such as diagrams, flowcharts, formulas, and equations
- to reduce the amount of notes the students need to take during a lecture, leaving them free to listen carefully
- to guide the student in taking notes

Otherwise, it is easy for a student to make copying errors while noting these items and it is time-consuming for students to copy from the board or screen.

Judicious use of note-taking guides such as copies of OHTs, topic outlines, questions to be answered during the lecture, or fill-in-the-blank templates can enhance the learning experience.

See the job aid *Preparing and Using Student Handouts* for tips.

Step 5—Choose interactive techniques

Choose a variety of strategies that get students involved at the beginning, middle, and end of the lecture. (See also the job aid *Increasing Student Motivation*.) By giving students a chance to discuss or do something with the lecture material, you can help them to remember up to 70% of the lecture. Some of the strategies you can use to get them thinking about the material are described below.

All of the techniques can be used in a variety of ways. Use any combination of the following:

1. Individual–pairs–small groups
2. In class–assigned for homework
3. Collected anonymously–collected with names–retained by students
4. Used on specific content of the lecture–used as a reflective piece–used as a connective piece to other concepts or real world applications

Think/pair/share (time: 5–7 minutes)

1. Pose a question or problem. This should require the student to explain a concept in their own words or to apply, synthesize, or evaluate what they have just learned.
2. Give students one minute to THINK about their answers individually.
3. Have students PAIR with a partner to compare answers.
4. Ask a few students to SHARE their responses with the class.

See also the job aid *Effective Use of Group Work*.

Problem-solving exercise (time: 5–10 minutes depending on the complexity of the problem)

1. Give the students a problem to work on in pairs or threes. (This could be a problem in math, electronics, business, interpersonal communications, etc.)
2. Walk around the room to answer questions or help with their problems.
3. Ask for answers from each group, or provide the answer on an overhead.

Question and answer period

Allow a certain amount of time in your lecture for questions from the students. You can do this at the beginning, in the middle after you have explained a new concept, or at the end, before you summarize. Plan this time and tell the students about it. Questions may be asked orally by individuals or pairs, or in writing—to be answered immediately or as an introductory review for the next class.

Time: Since you need to continue with your lecture, make sure that you put a time limit on the period (such as 5 minutes) and stick to it.

Use the following technique when asking any questions:

1. Ask the question.
2. Wait at least 5 seconds.
3. Select someone to answer.
4. Acknowledge the response even if it is incorrect.

This forces every student to think about the question. If you select someone first and then ask the question, everyone else is off the hook.

See also the job aid *Using Questions Effectively*.

Asking open-ended questions

Ask questions to get the students to think, analyze, or evaluate. Prepare your questions before the lecture. These questions should not have a single, right answer, e.g., “How could this procedure be improved?” or “What problems might occur with this technique?”

Asking closed questions

Closed questions have a short, definite answer. They work best when asked fairly rapidly in a series to break the students out of a passive mode. They may be used at the beginning of the lecture to review previous lectures, assigned readings, or other assignments.

Short writing exercises

Three types of very useful short writing exercises are described here and each is based on the classroom assessment techniques developed by Patricia Cross and Tom Angelo. In each of them:

1. Give the students a card or sheet of paper.
2. Ask students to write their responses anonymously if they wish.
3. Collect the responses and review them. You will likely find that there are some commonalities in their responses.
4. Clarify all of the misunderstandings and answer all questions listed at the next class.

Variation: Instead of collecting the papers and reviewing them yourself, have students review them in groups of 2 to 4. Have the students clarify each other's misunderstandings.

See also the job aid *Classroom Assessment Techniques*.

Muddiest point

(Time: about 10 minutes—2 minutes for students to write, 8 minutes for answering/discussion)

Use this excellent exercise to immediately explain points that have not been clearly understood. Ask students to write the least clear (“muddiest”) point of the lesson.

Three-minute summary

This is excellent for clarifying key points and assessing the depth of students' understanding. Ask students to summarize the key points of the day's lesson.

Key-words list

You can use this method to assess students' abilities to recall or list items, but not their depth of understanding. Ask students to write down 5 to 7 words or short phrases that define or describe the subject matter you have covered.

Notes review (time: 4–5 minutes)

This strategy can be used in the middle of a lecture or at the end. You can use student-made notes or an instructor-created note-taking guide.

1. Give students 3 minutes to read their notes thoroughly and
 - underscore or circle important points
 - mark with colour anything that doesn't make sense
 - mark with colour the location of missing information
2. While they do this, circle the room answering individual questions.
3. Ask the students to draw a line across the bottom of their notes. Give them 1 minute to write below the line any further work that they need to do on the lecture topic to fully understand it.

Recall, Solicit, Question, Comment, Connect (RSQC²) (time: 3–20 minutes)

This technique can be used to finish a section or review a section before moving on to another section. Besides being a good way of pulling ideas together, it also tends to aid in the formation of good habits on the part of students.

- Recall** Students write a list of important terms, concepts and ideas from the material covered.
- Solicit**
- Instructor solicits terms and concepts from the entire class and records them on the board and inquires if there are more to add.
 - Students select 3–5 from the list and rank them in order of importance.
 - Students summarize their main points in one or two sentences.
- Question** Students write one or two questions that remain unanswered about the class.
- Comment** Students make an evaluative comment about the class. (Best thing? Worst thing?)
- Connect** Students make a one- or two-sentence connection to previous material, other stories, what they want to do after college, etc.

Note: *It is possible to do just one or two of the steps.*

On the next page is a sample plan for a 50-minute interactive lecture.

SAMPLE OF A 50-MINUTE INTERACTIVE LECTURE PLAN

Time in minutes	Instructor activity	Learner activity	Resources
10	<p><i>Introduction</i></p> <ul style="list-style-type: none"> - Explain learning outcomes for lecture - Ask 5 quick, closed questions from assigned reading - Describe structure of lecture 	<ul style="list-style-type: none"> - Listen and take notes - Answer questions 	Note-taking guide
10	Lecture Part 1	<ul style="list-style-type: none"> - Listen and look - Take notes 	Visuals #1 & 2
5	Think/pair/share question	<ul style="list-style-type: none"> - Answer questions with partner - Share answer with large group 	Visuals #3
15	Lecture Part 2	<ul style="list-style-type: none"> - Listen, look and think - Take notes 	Visuals #4 & 5
5	Problem-solving question	Answer question in threes	Handout of problem
5	Summarize and answer questions	Ask questions	
Total 50			