



Designing Interactive Lectures on Geriatrics with Alternative Learning Techniques



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**Credits:**

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Introduction

Welcome



All of us who have taught are familiar with lectures as a common way to teach. Today, the lecture format is alive and well despite evidence that it really isn't the best method for actively engaging learners and helping them succeed in their own learning.

Please watch the introductory video for information about active learning and interactive learning in lectures.

Before you do, though, take a minute to select your responses to the questions below. (This is called a 'Pre-lecture Knowledge Survey. You'll learn more about each topic and some of the answers in the video.)

1. Reflecting about yourself as a learner, how much do you enjoy lectures?
How much do you feel you learn from them?

Not much

A little

Some

A lot

2. Is multitasking with mobile devices a good thing for learners to be doing during a lecture?

Yes

No

3. Interjecting learner interactions during lectures is a relatively new approach to education that has really just caught on in the last 20 years or so.

True

False

4. Should lectures include a social component for the learners?

Yes

No

5. Who should be doing the most work for a lecture, the instructor or the learners?

Instructor

Learners



1. As a quick reflection, put yourself in your learners' shoes as you walk into a lecture. Which of the following statements might reflect what you are thinking (particularly in an early-morning lecture)? These questions are for your reflection. There is no one 'correct' answer.

- a. My favorite store has a sale starting today. I need to get a few things I've been waiting to get.
- b. Oh good! I'm really ready to focus on all of the new ideas I'm going to learn in the next hour!
- c. Oh good! I need a few minutes to get some coffee in me and wake up.
- d. This might be a good time to get all the emails and texts I need to respond to.
- e. Other thoughts:

6. And from your perspective as an instructor, enter your responses to the following statements.

What I like best about lecturing:

What concerns me about lecturing:

7. From what you've seen on the video so far, what is one thing you would like to change about your own lectures?



Please respond to the questions below after watching the video above.

1. Interrupting a lecture for learners to complete an activity can increase their ability to remember key points.
True False
2. Interactive lecturing can actually enhance learners' critical thinking abilities.
True False
3. Observing, speaking, and listening about a topic is a more effective learning strategy than just listening.
True False
4. The focus of the lecture should be on:
 - a. The content to be covered
 - b. The instructor who prepares and presents it
 - c. The learners

This toolkit on *Designing Interactive Lectures With Active Learning Techniques* provides you with ideas, examples, and guidelines to transform your lectures into interactive and engaging learning experiences that will facilitate your learners' achievement of intended learning outcomes.

Purpose

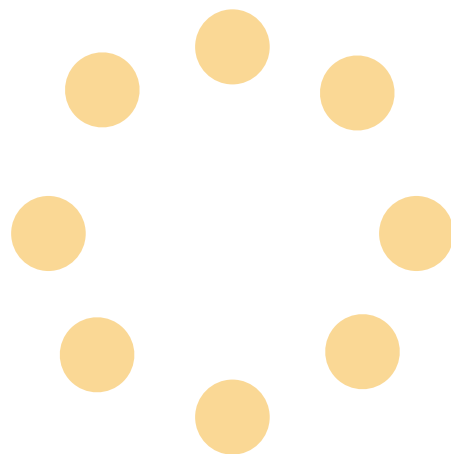
What is the Urgency for Developing More Engaging Lectures?

Across today's health sciences educational programs, few students are demonstrating the knowledge or positive attitudes to motivate them to pursue careers in the care of older adults. Recent research identified key factors that prevent students in the health professions from choosing geriatrics as their career focus, including:

- A lack of positive experiences with older adults
- Inadequate clinical placements that unfortunately reinforce students' prejudices and stereotypical attitudes toward the care of older adults
- Curricula that focus primarily on acute and critical care.



To meet the challenge of preparing a diverse health professions workforce that is skilled and interested in providing quality care for a growing older population experiencing multiple comorbidities, educators are needed who have gerontological/geriatric expertise, positive attitudes toward aging and working with a diverse population of older adults, and experience using innovative instructional methods that attract learners and spark an interest in the care of older adults.



What is the Purpose of this Toolkit?

One response to the urgent need to attract and engage health sciences students to the care of older adults is to focus on developing active and interactive learning experiences. This toolkit focuses on a subset of educational encounters that transform the traditional lecture into the **interactive lecture**, a method that engages learners in lecture presentations by **using active learning techniques (ALTs) that reinforce learning and retention of new content and that promote critical thinking**.

Specifically, the purpose of this toolkit is to provide guidance on how to **develop active learning techniques** that you can use to create and deliver **interactive lectures**. In addition, you'll find a number of Quick Interactions that you can use as learning assessments or other engaging activities throughout your lecture.

By using the materials in this toolkit, instructors in academic health professions programs in geriatric practice settings will be able to:

- Explain the method of interactive lecturing using active learning techniques (ALTs)
- Describe various ALTs that can be incorporated into interactive lectures
- Select various ALTs that fit into lectures in order to facilitate the achievement of the specific learning objectives for each lesson
- Design an interactive lecture using ALTs to improve knowledge and critical thinking about caring for older adults
- Assess learning in an interactive lecture using one or more active learning techniques.





Active Learning in Lectures

What do we mean by interactive lectures?

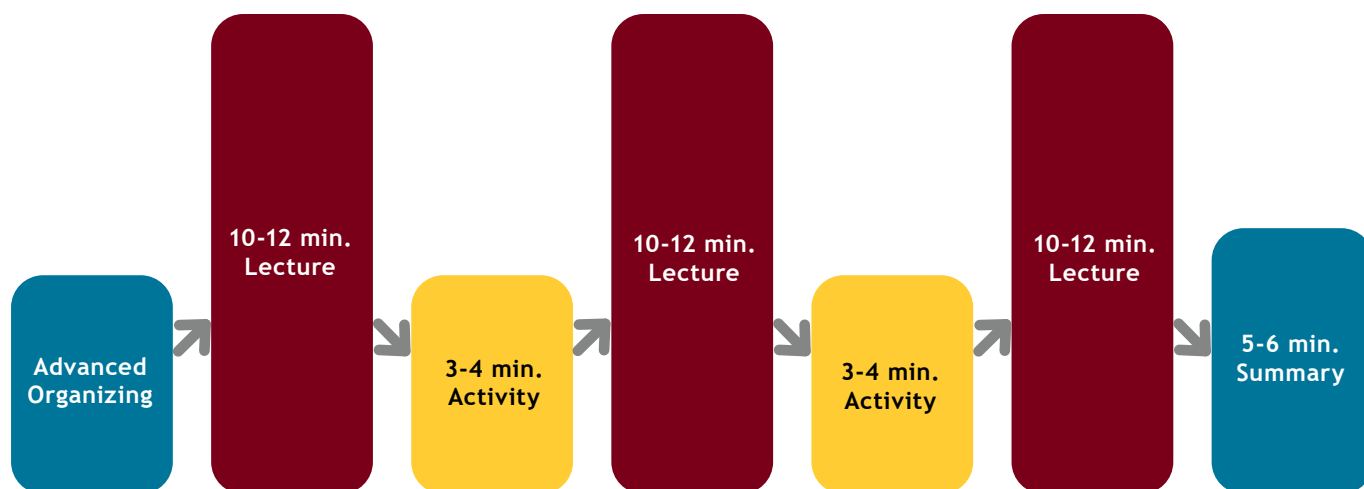
As you know, a lecture is an educational talk, a method of teaching in which an instructor presents facts and information to learners who sit and listen. An *interactive* lecture, on the other hand, is a method that combines the delivery of an engaging lecture with carefully selected active learning techniques (ALTs) to achieve the learning outcomes that the instructor has identified for that lesson.

To review, *active learning techniques (ALTs)* are instructor-defined activities that compel learners to become “dynamic participants in their own learning in ways that require them to integrate new information into their personal knowledge and experience” (Barkley & Major, 2018, p. 21).

The purpose of active learning is to engage learners in a way that promotes retention of knowledge and critical thinking (analysis, synthesis, and evaluation) related to lesson content, asking them to demonstrate what they are learning at any given time. In addition to lectures, these techniques can be used in any learning environment including the classroom, the clinical setting, and in the virtual online environment.

During lectures, learners can be invited to actively participate by breaking the lecture into parts and interspersing learner activities that emphasize key points or specific learning objectives. Engaging the learner in this way also benefits the instructor by providing feedback for assessing learning.

Here's an illustration of an interactive lecture:



Adapted from Thinking Together: Collaborative Learning in the Sciences-Harvard University-Derek Bok Center

As you can see, even during a lecture of an hour or less, the instructor can engage learners in their own learning by offering opportunities to become involved in various activities that facilitate thinking, reflecting, and discussing with other learners what they have just heard, instead of passively listening to the lecture.

Factors to Consider as You Plan to Use ALTs in Your Interactive Lecture

As is true with any type of learning experience, the instructor for the lecture needs to plan all aspects of the lesson in advance. The effectiveness of any lesson—a lecture, class, or course—is ultimately the result of how well all of the components listed below relate to one another or support the intended learning. Each part must align logically with all of the other parts. This means that the learning objectives must be clear and must describe what learners are actually expected to learn as a result of the lesson. The teaching and learning strategies including ALTs must facilitate learning of the content as stated in the objectives. And, the learning assessment tools (quizzes, reflections, checklists, etc.) must measure progress or outcomes per what is stated in the learning objectives.

While you may already be adept at using a model such as this to plan a good lecture, identifying, planning, and integrating active learning techniques into the lecture will likely require some additional thought and planning.

Hundreds of active learning techniques have been developed by instructors, have been tested for their effectiveness, and are used every day in actual or virtual environments to facilitate deeper learning. You've probably heard of—or used!—techniques



such as small group brainstorming, in-class demonstrations, case scenarios, ‘think-pair-share,’ or others. A typical lesson-planning model for an interactive lecture includes the following components which the instructor needs to consider when planning the lecture. [Download a printable copy of the template.](#)



Instructor's Goal for Using This ALT

Why is this a good activity for helping the learners learn more about and/or practice key concepts to be covered today? For example, “This discussion will encourage learners to question and critically think about today’s topic.”



Setting

In what type of environment will the learning experience take place? Is it

- An **actual setting** (such as a classroom or lecture hall) in which the instructor and learners are present in real time
- A **virtual setting** (such as a webinar or online meeting format) in which the instructor and learners interact via an internet connection or program allowing them to participate from remote locations.

Determine whether the ALT can be successfully used in your actual classroom lectures or in your virtual (online) lecture. Most of the ALTs described here can be integrated into both (and will be annotated in that regard).



Topic and Content

- How broad is the topic?
- How significant is it for learners to master?
- How much time do you have allotted?



The Learners/Target Audience

- Consider their backgrounds, previous experience and education as you select activities to engage them.
- The number of learners in your lecture is an important factor to consider also. Some alternative learning techniques can be flexibly used in large or small groups.
- How much time do you have allotted?



Learning Objectives

Clear statements about the purpose of the lesson in terms of expected learning outcomes to be achieved by the learners. Consider:

- What you intend the learners to know or do following the lecture. This must guide your selection of an ALT.
- Using the ALT to help them explore the topic more deeply, to practice a new process or skill, or to demonstrate their achievement of a learning objective.



Teaching Strategies

Methods used by the instructor to deliver content for the lesson. As you plan the lecture, consider:

- **Learning Activities:** activities that the learners carry out. The ALTs that you select complement the teaching strategy of lecture. They enhance the learning of the content presented in the lecture.
- **Instructional Materials** are needed to support the learning activities and to clarify how activities will be carried out. Examples include slides, handouts, questions to be addressed, time frame for the activity, and a description of learning assessment methods.
- **Asking Good Questions:** Clear questions can motivate students to pay attention, facilitate their critical thinking, help synthesize information and experiences, and create a context for exploring ideas. Thinking about questions to ask learners in advance is a critical part of preparing for your interactive lecture.



Learning Assessments

Provide evidence of what the learners have learned. You can use various other tools provided in the Assessing Learning section of this Toolkit. Asking good questions is a key element of assessing learning. Explore Bloom’s taxonomy of the cognitive domain for more information (see resources).

Engaging Learners at the Start of the Interactive Lecture

The first few minutes of your lecture is the perfect time to engage the learners, build a connection with them, establish the climate for a truly interactive lecture, and invite them to take an active role in the learning experience. It's important, right from the outset, to demonstrate that you are all in the learning experience together, that you want to hear from them, and that you want them to learn from one another (not just from you).



When planning for a lecture in an actual classroom or in a virtual online setting, plan to take a few minutes for the learners to help 'break-the-ice' and set the stage for learning together. Here are a few ideas of what you can do to effectively begin an interactive lecture.

- As you introduce the topic, be certain to **tie it into previous lectures or topics**.
- Share an example from your own life about the topic. You may choose to humbly share a mistake or your own learning experience regarding the topic. This **self-disclosure** demonstrates your honest relation to what will be discussed and invites honest and personal sharing from the learners. If you've taken a risk to share personal information, the better chance that others will as well.
- Say aloud that you wish to **create a respectful learning environment** where you invite the learners to share their questions and experiences during the session. Ask the group to agree that remarks shared during the lecture will remain confidential.

And here are a few ideas for things you can ask the learners to do in the first 5 minutes of an interactive lecture. Some of these can be assigned in advance, with learners submitting their responses to address at the beginning of the lecture. These Quick Engagement strategies can also be used during or after an interactive lecture to assess learning. Think of them as Double-Duty Assessments of Learning.



Polling

Asking learners to respond to a poll is a quick and easy way to engage them. It is non-threatening and can help to focus on the learning objectives by gauging their understanding, checking on misconceptions, reviewing baseline knowledge, allowing them reflect on a point, and providing a chance for them to learn about themselves as a sample population.

For example, in a lecture on aging, you might ask:

- Which of you has a grandparent age 65-75 years? 76-85 years? Over 85 years?
- What is the leading cause of death in people age 65 and older? Provide options.

You might also want to consider free online polling apps, such as [Poll Everywhere](#), for more advanced techniques.

Pre-lecture Knowledge Survey

Learners respond to 1 or 2 questions to help you learn a bit more about them, such as:

- What experiences have you already had with today's topic?
- What are the biggest questions or concerns you have about today's topic?

Responses can be submitted via email or on notecards so that the questions are anonymous as you answer the most common questions with the large group.

Small Group Questioning

Ask learners to break into groups of three (best done in an actual classroom though possible using online break-out rooms) and discuss their questions from the assigned readings. Each group selects one question to submit. Respond as in the previous techniques.

Snow-Ball

This technique is particularly useful in learning situations in which learners do not know each other or are likely concerned or unsure about learning a new topic. It is appropriate only for actual, classroom situations.

1. Pass out a piece of paper to each learner as they enter the room.
2. Ask learners to write down their biggest question or concern about today's topic.
3. Have them scrunch the paper up into a ball, and stand up.
4. At the count of three, create a 'snow-storm' by having them all throw the questions (anonymously) at you. (This is a good, physical ice-breaker that also breaks down the formality of a class environment.)
5. With the help of one or two of the participants, unfold and write down the questions on a flip-chart or board, and address the most commonly asked ones. Address others throughout the class. Note that you will follow up with questions you don't respond to following the session.

How you use the first few minutes is important to the success of an interactive lecture because it allows you to demonstrate that:

- The focus of the session is on the learners (not on you as the instructor) and their attainment of the learning objectives
- You welcome their honest questions, thoughts, and feelings
- You invite them to be active participants in the rest of the interactive lecture.



The remainder of this guidebook presents you with several examples of active learning techniques you can include to make your lecture interactive. These examples comprise some of the more commonly used ALTs; many more options are readily available.

Examples include:

1. Discussions
2. Role Play
3. Case Studies

The last section of the guidebook includes a menu of “Assessments” that you can use to evaluate learning in your interactive lecture, to obtain learner feedback, and to engage learners until the end of your session.

You may also wish to refer to the Index of Quick Interactions, descriptions of informal methods that require little planning that can be incorporated at various points within an interactive lecture, a number of which are also described in various sections of this guidebook.

Additional resources and references on active learning techniques and interactive lectures can be found in the Resources section at the end of the guidebook.





Examples of Alternative Learning Techniques

1. Discussions

Discussions are verbal interactions between people that provide opportunities to explore diverse ideas. Group discussions within a lecture can help participants clarify their thinking about new information, and can facilitate the building of new knowledge.

Planning for a Discussion Within an Interactive Lecture:

As you plan the Discussion for your interactive lecture, work through the considerations listed earlier (Factors to Consider As You Plan to Use ALTs in Your Interactive Lecture):



1. **Instructor's Goal** for Using This ALT



2. **The Setting:** Will your interactive lecture be actual or virtual?



3. What is the **Topic/Content** to be covered?

- How much time should be allotted for the discussion?



4. **The Learners:** Base the number of small groups you plan on the number of participants in the lecture. Try to keep small groups to no more than 5 - 6 participants.



5. The **Learning Objectives** for the lecture:

Include an objective that will ensure learners understand the reason they are discussing a given topic. For this example, “At the end of the lesson, you’ll be able to describe methods for using bladder diaries to assess urinary incontinence in older adults.”



6. **Teaching Strategy:** Interactive lecture

- Learning activities (ALT): Discussion
- Instructional materials for Discussions:
 - **Provide clear instructions for the group process**, including time limits for responding. Convey a list of each step in the discussion (using the instructional materials and technology you have selected), and how much time should be allotted for each step, including reporting back to the large group. For example, if learners are accessing a recorded lecture in an asynchronous, online format, you may want to instruct them to post responses to questions on a Discussion Board, and post a certain number of responses to other learners’ comments.
 - **Construct questions for discussion** based on the learning objectives for the session.
 - **Observe the groups as they work.** Answer questions as they arise. You may ‘drop into’ online groups as well, but should set this up in advance.



7. **Learning Assessment:** Be certain to leave time for this important component of the discussion. Consider selecting a technique such as one of the following:

- Verbal Reports
 - If using verbal reporting by small groups to the whole class following the discussion, **be sure to limit the time for each group report**. Discussions tend to use more time than planned.
 - Verbal reports are useful in actual classrooms or in synchronous virtual classrooms.
 - Verbal reports from each group may lead to further discussion.
- Written Reports
 - Written reports can be used if the lesson needs to be graded and may be collected after the class.
 - Consider using other assessments such as a Minute Paper, polling, or Muddiest Point. (Descriptions of these can also be found in the Index of Quick Interactions section at the end of this guidebook.)

Discussions can be used in a variety of formats, depending upon the particular objectives you have in mind. You can find an array of options at the [Liberating Structures](#) website. This site describes discussion formats to use with various group sizes, topics and objectives, along with specific instructions for how to set up those groups.

Example: Using a Group Discussion in an Actual, Live Lecture

The following example of an adult group discussion illustrates a specific strategy called [1-2-4-All](#). This active learning technique was used to guide an actual group of nursing faculty learners on how to use various ALTs to teach their nursing students. This is an example of a [Liberating Structure](#).



The instructor's goal for using this activity was for the participants to begin identifying factors presented in a video that affect healthy aging and function in older adults. The instructor planned an hour-long lecture in an actual setting for a large group of 35. First, the instructor presented 2-3 slides to present an overview of the learning objectives for the lesson, then lectured for ~20 minutes about the sociological aspects of aging. A discussion activity designed to engage the learners in the topic was then presented. It began with the whole group viewing a 4-minute, YouTube video, [Coming of Age in Aging America](#).



Planning the Discussion

1. **Instructor's Goal:** Engage learners by responding to a video.
2. **Setting:** An actual classroom
3. **Topic:** Socioeconomic factors affecting older adults
4. **Learners:** Adult learners with experience in teaching.
5. **Learning Objective** pertinent to the discussion: Explore current knowledge about socioeconomic factors affecting aging in America.
6. **Teaching Strategy:** Interactive lecture
 - Learning Activities:
 - Watching a video
 - Small group discussion using 1-2-4-All.
 - Instructional Materials: Slide set for introducing the topic, a video, instructions for group process (presented on a slide)
7. **Learning Assessment:** Verbal report by each small discussion group

Implementing the Discussion

The instructor conducted the discussion within the interactive lecture as follows:

Time Allotted: Total time for the discussion was 30 - 35 minutes, broken down into:

- Group discussion (using 1-2-4-All): 10 - 12 minutes
- Verbal report of each group to the large group: 2 minutes per group; 10 - 12 minutes total
- Wrap-up of content on slides after discussion: 10 minutes

Instructions for Group Process: The instructor provided the following instructions for small group discussions on a slide right before presenting the video:

- Questions to answer:
 1. Describe three factors related to the socioeconomics of aging in America.
 2. How will these factors affect the care you provide to your older adult patients?
- Group Process: 1-2-4-All
 1. Select a group recorder and reporter.
 2. After silently reflecting on the video, each group member writes thoughts about factors on an index card (1 minute).
 3. Members share thoughts with partner in group (2 minutes).
 4. Members share in groups of 3-4 to discuss strategies (4 minutes).
 5. All: Each whole group develops a written list of strategies for care affected by factors in the video with rationale (3 minutes).

Learning Assessment

- Each group verbally reported out to the larger group (2 minutes each to report). Example: Group 1 report on responses to questions, such as:
 - Question 1 Response: Decrease in income due to retirement; isolation due to loss of significant other; need for downsizing family home and relocation
 - Question 2 Response: Older adults may experience anxiety due to their reduced ability to pay for care or because of loss of a significant other; and may experience isolation due to relocation.

The instructor conducted a brief discussion of all reports to assess the accuracy of the reports and to reinforce important content.

The instructor continued the lecture incorporating ideas from the group discussion.



2. Role Plays

As a means to engage learners in their own learning, role plays allow learners to step into the role of another individual and anticipate how that individual might respond in a given situation. This strategy can be particularly helpful for having learners practice using therapeutic communication and empathy with patients. Role play requires advance planning by the facilitator and—as with all teaching strategies—must clearly fit with the learning objectives.



Planning for a Role Play Within an Interactive Lecture:

Consider the following when using role play as an ALT in your lectures.



1. Instructor's Goal for Using This ALT

Be certain in your planning that you can articulate why you have selected a role play as an active learning technique. For example, “The role play will enable the learners to practice a difficult communication interaction in a safe place.”



2. The Setting

Role plays can be used in either an actual classroom lecture or in a virtual (online) lecture. (For virtual lectures (synchronous or asynchronous), using a pre-recorded role play is more easily managed.

How much time should be allotted? At a minimum, plan for at least 15 minutes to conduct and discuss a role play. Add a bit more time if selecting students for a live role play in an actual setting. The time involved depends on the number of learners and the number of groups.



3. Topic/Content

Role plays can be used with any topic but fits well with teaching about situations that require sensitivity to attitudes, beliefs, and values that may differ from the learners’.



4. The Learners

Base the number of role play groups on the number of participants in the lecture. Try to keep small groups to 5 - 6 for to include those role playing and observers. Role plays may also be used with a large group audience followed by open discussion. Role playing in front of a large group is best when the learners are familiar with one another.



5. The Learning Objectives for the lecture:

Role plays can be most effective when learning objectives focus on communications or relationship skills. They provide an opportunity to practice skills and receive feedback. For example, At the end of the lesson, the learners will be able to:

- Identify the health issue that the patient is experiencing.
- Create a plan of care for this patient listing one key goal.



6. Teaching Strategy: Interactive lecture

- Learning activities (ALT): Role Play
 - Select the problem or situation to be illustrated and to be experienced in the role play, and develop the role play situation or locate a pre-recorded scenario. A wide array of role plays can be found, for example, by searching [health care role play scenarios on YouTube](#). or
 - The instructor may develop a scenario in advance describing roles for each player and initial storyline to begin the role play and set the stage,
 - Assign roles with clear directions for carrying out each role based on the starting script.
 - Brief the players about their roles. In actual settings, do this by handing out slips of paper to each person, or using slides to set the stage.
 - Instruct players to begin with no rehearsal and to keep within allotted time.
- Instructional Materials:
 - Develop debrief questions that you will assign to either the large group or smaller groups. Consider asking the actors first to discuss what they thought and felt as they role played, followed by asking for observations from the larger group, such as:
 1. What went well with each speaker?
 2. What did you observe about how each speaker dealt with the conversation?
 3. What could have been addressed differently?



7. Learning Assessment

- Verbal Reports
 - Asking the learners to share verbally the key point(s) they learned from participating in or observing the role play.
 - Breaking the large group into smaller groups to discuss what they observed in response to questions provided them
 - After a live role play, ask the role players to debrief about their experience, thoughts, and feelings.
- Written Reports
 - Have each class member write a reflection on the role play to be submitted after class.

Learn more about [conducting role plays in your lectures](#).

3. Case Studies

Case studies are stories that are used as a teaching tool to show the application of a theory or concept to real-world situations. Depending on the learning goal they are meant to fulfill, case studies can be context-driven, in which multiple solutions are possible. As a teaching tool, case studies are a great way to engage learners in their learning as well as to assess what they have already learned. Instructors can create their own cases or locate



cases that have already been published. Several case studies on aging topics can be found in the [Age-Friendly Care and Education Collection](#). The development of questions to ask learners is essential when using this ALT. Questions may vary depending on the instructor's goal and learning objectives.

Planning for a Case Study Within an Interactive Lecture:

When deciding to incorporate a case study in an interactive lecture, consider the following:



1. Instructor's Goal for Using This ALT

When planning for this interactive lecture, you should be able to clearly articulate how and why you will use this alternative learning technique. For example:

- “The case study will serve as a knowledge check over the key concepts in the first section of the lecture.”
- “The case study will enhance learners’ problem-solving skills related to the topic.”
- “The case study will provide insight for learners into multiple perspectives.”



2. The Setting

Case studies can be used in actual, classroom settings as well as in virtual (online) settings.



3. Topic/Content

Case studies provide opportunities for broad coverage of content. They require advance planning depending on the topic and the goal of the instructor. The **time** allotted to a case study can vary and should be based on considerations about what the learners already know that applies to the case. The case can be assigned to be read in advance so that time in the lesson will be focused on case analysis in groups. Cases can be assigned to be read in class, (so allot more time), or cases can be assigned to assess individual knowledge, or as the result of a group discussion of the case.



4. The Learners

Consider learner experience and background as you select the case.



5. The Learning Objectives for the lecture

Case studies can be good learning strategies to support the achievement of learning objectives related to decision-making, learning of processes, or for various skill-building objectives. For example, At the end of the session, learners will be able to:

- Describe the main problem experienced by the family presented.
- Prioritize the interventions needed by the healthcare team to address the main problem.



6. Teaching Strategy: Interactive lecture

- Learning activities (ALT): Case Study
- Instructional Materials: The instructor needs to develop a case or locate one online when planning the lecture. In many instances, case study activities can benefit from including links to websites or to a pdf of the case in advance of the lecture.
 - Develop and provide a list of questions to guide learners' on a slide or handout.
 - Provide clear instructions for group process. Base the number of small groups and the size of each group on the total number of participants, so that you have no more than 5 or 6 in each group. For example:
 1. All learners read the case in advance of the session.
 2. Gather in groups of 5-6 for discussion (2-3 minutes).
 3. Group Process (10 minutes)
 - Select a group recorder and reporter.
 - In turn, each group member lists one factor.
 - Members develop a list of factors and discuss rationale for choices.
 - Members vote on type of assessments and write reasons for choice.
 4. Total time allotted: ~15 minutes



7. Learning Assessment

Be certain to leave time for this component of the case study. Consider selecting a learning assessment technique such as one of the following:

- Verbal Reports
 - The reporter compiles the findings of each group.
 - Each group reports to the large group.
 - The instructor holds a large group discussion following reports.

- Written Reports
 - Each group summarizes their responses and submits them to the instructor.
 - Each learner submits an individual summary of the solution.
- Quiz
 - Instructor asks a brief list of questions in class or online. This can be used as a knowledge check. Groups can reconvene to compare answers.
 - Learners can complete a quiz after class so that the instructor can evaluate learners individually and/or assign a grade. The instructor needs to present a clear rationale to learners, and consider the fit of a quiz with groups such as experienced, adult learners.
- Minute Paper
 - Learners share written reflections about what they learned from the case study and the solution or response they believe was best.

Example: Using a Case Study in an Interactive Lecture



1. **Instructor's Goal:** This case study was used to present content about urinary incontinence (UI) and to assess learner knowledge of factors contributing to UI.
2. **Setting:** An actual class, but can also be used in a virtual class.
3. **Topic:** Patient with Urinary Incontinence
4. **Learners:** Adult learners who are caregivers in acute care. They had knowledge of urinary incontinence in general, but this knowledge was not based on experience with older adults. This case can be used with an audience of any size, but small groups of 5 - 6 is ideal.
5. **Learning Objectives pertinent to the case study:**
 - Describe factors that predispose the character in the case study, Martha, to urinary incontinence (UI).
 - Identify the type of UI she is likely experiencing.
6. **Teaching Strategy:** Interactive lecture
 - Learning Activities: Case Study
 - Instructional Materials: Slide set for introducing the topic, a video, instructions for group process (presented on a slide)
 - Learners accessed the case by downloading it from a virtual course site (before or during the lecture), but could also be given a print-based handout. If the lecture is virtual, preparation must be made for online breakout rooms.

- Instructions for the group process:

1. Select a group recorder and reporter.
2. In turn, each group member lists one factor that may predispose Martha to urinary incontinence.
3. Group members develop a list of factors and discuss their rationale for their choices.
4. Members vote on what type of incontinence they believe Martha is experiencing and write reasons for choice.
5. The reporter presents the group's findings.

7. Learning Assessment: Each group presented a verbal report to the large group. The instructor evaluated the accuracy of the group reports.

In another offering, random groups reported out followed by a large group discussion. In addition, the recorder of each group submitted their group response to questions in writing to the instructor as a separate form of learning assessment. If written reports are submitted, the instructor may assign a grade.





Assessing Learning

Assessing learning is a process of collecting information/data that helps instructors to determine if learning has occurred. Collecting this information during the lecture is called formative assessment. Techniques used for formative assessment are typically not intended to be formal, as in graded testing. Researchers have determined this type of low-threat, low-stakes assessment offers benefits such as:

- Helping instructors identify where learners are struggling and enabling them to address those issues immediately
- Helping learners to identify gaps in their learning
- Helping learners to make adjustments in their studying process
- Facilitating learner engagement.

Including a learning assessment at the end of an ALT or lecture also clarifies for the instructor what has been learned, what the learners are now thinking about the topic, and how they feel about the activities and lecture.

The use of ALTs usually involves planning for assessment, because it requires soliciting feedback directly from the learners. The examples of ALTs above include descriptions of assessments that fit with that particular ALT.

This section describes a number of types of assessments that can be used for various purposes within an interactive lecture, but, here, specifically as learning assessment strategies. Some described as Quick Interactions can serve as ALTs as well as assessments.



Asking Questions

Asking questions to assess learner knowledge and understanding, second only to lecturing, is the most common instructional practice. Verbal questioning, as demonstrated in numerous studies over time, has the potential to improve learning, help learners retain new knowledge, stimulate critical thinking, and help synthesize new material. It is important to target questions to the appropriate level of knowledge intended, as described by Bloom in his Taxonomy of Educational Objectives (1956). The levels in Bloom's Taxonomy are: knowledge, comprehension, application, analysis, synthesis, and evaluation. At each level, the learner is required to exercise more mental activity.

Games

Games serve as a means to both introduce concepts and assess learning. Learners of all ages respond to the use of games such as Jeopardy (<https://www.playfactile.com/>) and Kahoot (<https://getkahoot.com/>) that provide immediate feedback on their current state of knowledge. Studies demonstrate that people of all ages learn more from a game than from other forms of learning because games:

- Gain learners' immediate attention
- Encourage focus
- Learner-focused
- Provide immediate feedback on level of knowledge
- Can be used with groups.

Minute Paper

Instructors ask learners to anonymously write and submit the answers to questions such as:

- What were the main points presented today?
- What was the most surprising concept you learned?
- What question(s) do you still have?

After collecting the short papers (in email or in writing), you may select some of the questions randomly to respond to at that point, and/or may choose to stop and respond to other questions throughout the class as short breaks.

Muddiest Point

The purpose of this activity is to identify the points or concepts about which the learners remain unclear. Allow learners to answer anonymously in writing or using technology a question such as:

- What confused you most in the lecture today?
- Which concept is still muddy to you?

Polling

Asking learners to respond to a poll is a quick and easy way to assess learning at any point in the lecture. It is non-threatening and can help to:

- Focus on the learning objectives by gauging learners' understanding of the content
- Checking on misconceptions
- Reviewing baseline knowledge
- Allowing learners to reflect on a point
- Providing a chance to learn about themselves as a sample population.

You might also want to consider free online polling apps, such as [Poll Everywhere](#), for more advanced techniques.

Post-lecture Knowledge Survey

The instructor poses a set of questions related to the knowledge or skills presented in the lecture. Students respond individually or in groups. This strategy facilitates:

- Student reflection on lecture content
- Identification of problem areas
- Motivation for learners to ask questions
- Learner discussion of issues with other learners.

Pre-post Freewrite: Writing to Learn

This is a short, informal task that facilitates learner engagement by asking learners to think about the ideas that will be presented in the lecture.

- Pre-write section
 - At the very beginning of the lecture, learners focus on the topic and objectives and jot down what they know about the topic in 3 - 5 minutes. This activity activates their prior knowledge and improves their readiness to gain new knowledge.
- Post-write section
 - Completed at the end of the lecture, this activity enables both the instructor and the learners to assess the acquisition of new knowledge. In addition, it provides a sense of value to the lecture, and provides an opportunity to identify and address misconceptions

Punctuated Lecture

After approximately 20 minutes of lecturing, the instructor asks learners to answer questions about what they are doing at the moment. This activity enables the instructor to assessment the degree of learner engagement in the lecture at that point. In addition, learners become aware of distractions during the lecture. Another benefit of this strategy is that it facilitates reflection on learner metacognition, or 'thinking about how I think.'

Think-Pair-Share

This measure allows for students to discuss individual learning from the lecture and to process the information in small groups. Learners to reflect upon, discuss, and analyze a point by: *Thinking* individually about and jotting down the response to a question; *Discussing* their response with one or two partners in the group; and *Sharing* the small groups' conclusions with the large group. This type of assessment facilitates:

- Individual as well as group focus/reflection on content presented
- Identification of issues of questions about the content
- Focus on areas requiring more study
- Reflection on the value of the lecture content.

Index: Quick Interactions

The Pre-lecture Knowledge Survey and Small Group Questioning activities used for opening a lecture, and Think-Pair-Share and Muddiest Point suggested for Learning Assessment are examples of some short and simple interactive learning activities that you can integrate into various sections of your lectures. Consider trying some of these informal Quick Interactions that require little planning. Here is a list of Quick Interactions, some of which you've already been introduced to throughout this guidebook.

Games

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Muddiest Point

The purpose of this activity is to identify the points or concepts about which the learners remain unclear. Allow learners to answer anonymously in writing or using technology a question such as:

- What confused you most in the lecture today?
- Which concept is still muddy to you?

Use this technique to identify what areas you need to clarify and review, and do so as soon after as time permits.

Polling

Stopping to ‘poll’ learners is a quick and easy way to gauge their understanding, check on misconceptions, introduce a new topic by seeing baseline knowledge, allowing them to reflect on a point, and providing a chance for them to learn about themselves as a sample population.

For example, in a lecture on aging, you might ask:

- Which of you has a grandparent age 65-75 years? 76-85 years? Over 85 years?
- What is the leading cause of death in people age 65 and older? Provide options.

In an actual classroom, learners can be asked to stand and be counted (which also provides them a physical break from sitting), or just raise their hands. In a synchronous online lecture, learners can simply raise hands.

You might also want to consider free online polling apps, such as [Poll Everywhere](#), for more advanced techniques.

Post-lecture Knowledge Survey

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Small Group Questioning

Ask learners to break into groups of three (best done in an actual classroom though possible using online break-rooms) and discuss their questions from the assigned readings. Each group selects one question to submit. Respond as in the previous techniques.

Think-Pair-Share

This learning technique allows learners to discuss individual learning from the lecture and the process the information in small groups. Learners reflect upon, discuss, and analyze a point by:

- Asking them to individually think about and jot down the response to a question.
- Discuss their response with one or two partners (small group).
- Share the small groups’ conclusions with the large group.

It’s important to keep this activity moving along quickly, so you must inform learners of exactly how much time to spend on each step for example, one minute for step 1; two minutes for step 2; and three minutes for step 3. If you are implementing this mini-ALT in an online (synchronous) environment, you can usually create break rooms for the small groups. After that, reconvene in the larger group to report on conclusions.

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- Liberating Structures. General website with information on using a menu of interactive strategies to engage a variety of learners in a variety of settings. Each type of activity has a list of detailed instructions for planning and using it: <http://www.liberatingstructures.com/>
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Specific Alternative Learning Techniques

Role Play

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- Assessment of learning techniques: Center for Excellence in learning and Teaching, Iowa State University: <https://www.celt.iastate.edu/teaching/assessment-and-evaluation/learning-assessment-techniques-lats/>

Games

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