Clinical Instructor Academy

Module 3 – Clinical Instructor: Role as Facilitator of Learning

Transcript
CIA Module Navigation

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Clinical Instructor Academy
Module 3 – Clinical Instructor: Role as Facilitator of Learning

Slide 1
American Society of Radiologic Technologists
essential education

Slide 2
Clinical Instructor Academy
Module 3 - Clinical Instructor: Role as Facilitator of Learning

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Slide 3
Introduction
As a clinical instructor, you have many responsibilities. You have a responsibility to your clinical site, to the program and to the student.

Clinical Instructor Responsibilities
- Clinical site.
- Educational program.
- Student.

This unit is designed to give you information in that role and to give you information to learn about areas that you may want to expand upon. You can take this into the clinical setting. You may want to get into doing classroom instruction, or you may want to go on and do in-service talks, or you may want to go on and do talks at continuing education seminars. No matter what you want to do, this will be a good background for you, and it can help you advance into lots of other areas. Because once you learn how to design these things, you can take it a lot of places.

Objectives
At the end of session, you will be able to:
- Describe the characteristics of learners.
- Identify your goals and objectives for teaching.
- Develop strategies for designing learning opportunities.
- Produce materials for your presentation or course.
- Design assessment techniques and materials.
- Evaluate your process for improvement.

Objectives for the program: At the end of this session, you'll be able to describe the characteristics of learners. We're going to look at lots of different things about how people learn. We want to identify the goals and objectives for teaching a topic and develop strategies for designing learning opportunities, make materials that you can use at your clinical site or, if you want, to take them into the classroom. And the last thing you need to do when you've done all this is to assess if what you've done has worked. You want to evaluate the students, because eventually we do have to give them grades, and you want to look at this and decide how did it work for you and what things you might change for the next time.

Who Is Your Audience?
- Identify the group:
  - Students in the clinic.
  - Students in a classroom.
  - Coworkers at an in-service.
  - Technologists at a meeting.

The first thing to do is to look and see what group are you going to work with before you do any of these things. Are you going to work with students? Is it going to be in the clinic? Are the students going to be in the classroom? Is it going to be something with your coworkers? Are you going to do an in-service? Are you going to do something for a technologist's continuing education session at a meeting?

- Some general concepts will apply to all groups.

Any of these activities and things that we're going to talk about in this session can be used for all of these areas. Even if the person is a tech or the person is a student, they have a lot of things in common when they are learning things.
Knowledge base varies for each group.
It's just the knowledge base for each group is going to be a little bit different. That means you would change slightly what you're doing for techs vs. what you would do for students.

Learners
Let's look at learners. Again, in general, this works for a lot of people no matter what you're learning, whether we're beginners or advanced individuals.

Learning is the process of creating meaning from previous knowledge and new information.
• Relate information to personal experience or prior knowledge.
Mostly what we want to do is help people learn new things. But in order to learn something new, a lot of times it's based on past experience. If you can relate the information that you're telling them to experience that you know that either they have had or something that you have had, it helps people to remember things. If they don't have a basic understanding about some of the background, then it's hard to learn new things. You may want to learn what the background is of the people that you're dealing with.

• Present one idea at a time; organization is important.
A big thing is to only do one thing at a time and try to be as organized as you can and present it in a fashion where one idea builds on the next idea.

• Remember to summarize.
The last thing is remember to summarize as you're going along. Periodically, throughout whatever activity you're doing, you may want to summarize that we've done a few things up to this point, talk about that and then go on to the next thing.

Learners
Variety of learning styles, memory and attention spans.
The other thing you want to look at is learning styles. We all have different learning styles. We have different ways of activating memory, and all of our attention spans are different. Adults have different attention spans just like kids do.

• Visual, auditory and kinesthetic/tactile learning styles.
Learning styles, most of the ones that we're used to thinking about – visual learners, auditory learners, kinesthetic/tactile – most of us have a combination of these. You may have one predominant. I'm a visual learner. I like to read. I like to see pictures. Some people like to talk about things and are auditory, but they also like to see things. They may like to see things while a talk is going on. The tactile and kinesthetic like to be moving around, like to touch. A lot of people in our area have to be real heavy into tactile because we do touch our patients.

• Provide a choice for learning.
The biggest thing is to provide some choice. Don't try to do just one thing and stand up and talk or just do touching things. You want to do a combination of things. Because like I said, people tend to have a combination of these with one being the predominant learning style.

• Adults learn better through activity or discussion.
A lot of adults like to learn through doing activities or talking about things. Lecturing is fine, but we need to include other things.

- **Consider time required for learning.**
The biggest thing is to think about how much time do you have to cover the material that you need to do? Whether it's in clinic, students come up and ask you a question and they don't understand something, how much time do you have to deal with what they want to learn?

- **Students do better when they know the goal.**
Students and other individuals do better when they know what the goal is. One of the things we're going to talk about is developing goals and then developing objectives.

- **What should the learner be able to do in a real world situation?**
Most of the time, it works out pretty well for us in our field because there is a real world out there that the students are going to be getting into and doing. In the clinical situation in particular, it's pretty good because they are out there in the clinic working on patients. This really helps with them figuring out what they're supposed to do.

- **Objectives and learning plan are based on goals.**
Objectives are part of your learning plan. You want to sit down – what is my goal? What can I do to get to that goal?

- **Provides learners an opportunity for self-evaluation.**
At the end, you want to help them with their self evaluation. If they know what the goal is, it helps better with their evaluation.

**Motivation for Learners**

- **Extrinsic factors:**
  - **Life-changing events.**
  Thinking about learners, what makes people want to learn? There's extrinsic and intrinsic. Extrinsic are, of course, external factors. A lot of them are going back to school because of something life changing. They may be getting a divorce. Maybe the kids are all gone – they're all off in school. Something a lot of times has triggered – they lost their job. Something externally has happened that makes them want to go back to school. People in continuing education classes want to learn a new skill because they may want to move into another area.

  - **Rewards such as money, grades.**
  A lot of times we're motivated by money. If we go to a new area, we may get a salary increase. We also like to get good grades, so that's an extrinsic factor for a lot of students.

  - **New learning opportunities.**
  The more educated people are about a certain area, the more they want to learn about it. The technologists at the continuing education lectures or the in-service at your hospital, they want to learn more about what's going on with what they're doing.

- **Intrinsic factors:**
Intrinsic is more internal, inside of ourselves.
- **Curiosity.**
- **To be effective at what we do.**

We have a certain amount of curiosity. We want to be effective at what we do. We want to learn about things that we're already doing, so it makes sense that we want to learn more about what we're doing. These are some things that you can think about that are motivating the people that you are working with.

**Planning**

- **Determine type of activity:**
  The biggest thing is planning. You want to figure out a good sequence of events to do when you are putting together these activities.

- **Small group activity in clinic.**
  Small group activities in the clinic – you may have two or three students. Some places have more. I've seen places with up to 15 students, but it's still generally smaller than your classrooms are, so you can do a lot of activities with the small groups of students.

- **Presentation for in-service.**
  Are you doing an in-service? How many techs are going to be at the in-service?

- **Lecture for professional meeting.**
  Are you doing a professional meeting? A lot of times those are bigger groups of people. The size of your group is going to determine to a certain extent what you're going to do.

- **Guest lecture for college class.**
  Are you going to do a guest lecture at the college? Sometimes the colleges like to have people that are working out in the field come up and do a particular lecture for them, so you may be asked to do that.

- **Teach college course.**
  Teaching a college class – eventually people would like to go from the clinic setting to the classroom setting. Then you would have to plan for an entire term or semester depending on how the college works. It may be a part-time job. It may be a full-time job. Doing any of these activities, if you keep track of it, you can put it in a portfolio, résumé type of thing, and show people what you've been doing.

- **Planning for most activities is similar.**
  Planning of any of these activities tends to be similar. It's just some of them are just longer term than others.

- **Organization helps you and the learner.**
  Once you get your idea organized, it's going to make it a lot easier for you and for the learner.

**Decisions**

- **What to teach?**
  The big thing is what decisions to make about what you're going to teach.

  - **What is the goal?**
  - **What do you want the student to know?**
First off, what is your goal? The goal may be – in clinic – is to teach students about chest radiography. What do you want them to know about that? The goal is the target, and the objectives are going to be a little bit more specific.

- How are you going to teach?
- How will you assess learning?

First, set up your main goal. Then decide how are you going to teach that. What types of activities are you going to do? How are you going to structure what you’re going to do? Then at the end, how are you going to assess if the students learn that? The next set of slides that we’re going to go through are going to talk about how to set all of this up to help you plan what you’re going to do.

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**Slide 4**

What To Teach?

- What is the goal of your activity?
  
  What are you going to teach? Again, what is the goal of the activity that you want to do? My first example was chest radiography. You want to teach the students about chest radiography.

- Develop objectives for the goal:
  - Should be specific, measurable, observable.
  
  Once you have that goal, you have to start designing objectives, and objectives are a little bit more concrete. They give the student a better idea of what you’re going to do to reach the goal, and they’re more specific. Chest radiography is pretty general so objectives are going to be very specific. What do you want them to know about chest radiography?

- Performance objectives apply to clinic and classroom.
  
  A lot of the objectives that we’re going to do in clinic would be performance objectives, and even in the classroom we do a lot of performance objectives because it tells the students not only what we want them to know, but it also tells them how we want them to do it and what’s acceptable.

**Objectives**

- Objectives for a lecture are different than objectives for the clinic.
  
  Looking at objectives for a lecture, they’re going to be slightly different than objectives for the clinical setting.

- Keep objectives concise; avoid vague language.
  
  Again, we want to be concise; avoid very vague terminology, vague language. That’s harder to grade.

- Objectives tell students what they will learn.
  
  And this is letting the students know what you want them to learn.

- Objectives are about the result.
  
  You’re not looking at how they learn so much as what is the end result. What do you want them to know by the end? That’s what the objectives are going to do.
Examples of Objectives

- **Student clinical objective:**
  - At the end of this clinical session, the student will accurately identify the anatomy on a chest image.

I've got a couple of examples here. Clinical objective might be that at the end of the clinical session, the student will accurately identify the anatomy on a chest image, and then you might want to write a clinical objective about positioning. You could write a clinical objective about pathology. So you see, for chest radiography, you can write multiple objectives.

- **CE lecture objective:**
  - At the end of this presentation, the attendee will be able to differentiate between stroke pathology on a CT image compared to that on an MR image.

If you're going to do a continuing education lecture, your objective is going to look a little different because the outcome is going to be different. I gave you an example here. At the end of this presentation, the attendee will be able to differentiate between stroke pathology on a CT image compared to that on an MRI. Right here we see that we're looking at a different group of learners. These are people that have been working in the field and you assume they have some background understanding about strokes, and you're going to show them CT and MRI scans. You would write probably a number of objectives in this area. They are a little different.

**Objectives**

- **In the beginning, take time to write.**

When you start out writing objectives, it does take a little bit of time. It really helps in the planning if you could have some good objectives up front, and it helps the students know what it is that you expect of them. It will help you set up what you're going to do. I gave you Bloom's *Taxonomy of Educational Objectives*. That was the original. There are a lot of books out there.

- **Internet sites for writing educational objectives.**

There are a lot of Internet sites with this, so if you go to the Internet and put a search for writing education objectives, a whole bunch of sites will pop up. That makes it a lot easier to write them when you have this information. ASRT will also have some information for you on this.

**Decisions**

- **How are you going to teach?**
  - How do you structure and sequence information?
  - What do you need for instruction?

We just looked at some decisions with writing goals and objectives. Once you've done that, you can go on to deciding how you're going to teach. How are you going to structure the education session that you want to do? How long is it going to be? What type of information? Then how are you going to sequence that information? Do you need to have any paper or examples, films, images in order to help you teach? This is the next session that we're going to look at. Then we'll look at assessing if the students learn the material.

**Design**

- **The most common error is trying to include too much.**

That gets us to design. How are you going to design this? The biggest problem that I see – and, in fact, I'm guilty of, too – is trying to do too much. Write your goals and objectives and look and see if you can
do all of them in the time span that you have. You may have to cut back a little bit. Is there any extraneous information? Things might be nice to know, but do they need to know? Or is it something that they'll pick up a little later? Look very carefully at how much you're trying to include when you're going to teach. We call this curriculum design.

- **Motivate with real-life tasks.**
  Again, this is helping the students see where you want them to go. A lot of times it's easy to motivate them with some tasks that they can do. In clinic, in particular, this is pretty easy to do because the students are going to be working with the patients.

- **Make connections to personal experiences.**
The other thing is correcting what they're doing, what you're teaching them, with what they're doing out there. And making those real life connections helps the students learn the material a lot quicker.

- **Integrate new knowledge and skills.**
  You may want to plan some activities to help them, and in these activities you may have them do a mock exam with each other. You may give them some case study situations, and they would discuss them. These types of activities will help the students engage in what the learning session is about. Also try to set it up so that if you know they've done some of this in school, then you can help them integrate with what they've learned at school with what they do in clinic. Of course, in school, we do the textbook perfect patient. But as they find out pretty quickly, not everybody who comes in is that perfect patient.

- **People do not understand short cuts until they know the entire procedure.**
  Like I note here on the slide, research has shown that the students can't learn the shortcuts until they learn the long, entire procedure. You can tell them shortcuts, but until they've done it a couple of times and done it the long way, they don't get the shortcuts.

**Curriculum Design**

- **Use multiple approaches to engage learners.**
  Try to think of a couple of different ways to do things because, as we said earlier, a lot of learners have different learning styles, and the more activities you have, the more engaged they become, and the more likely they are to remember the learning session.

- **Unlearning may be required.**
  Sometimes they've figured out some things incorrectly so they may have to unlearn something. Sometimes they come in with a preconceived idea and we have to tell them, "No, that's not quite right. This is actually the way you need to do it."

- **Learners need feedback after session.**
  Give them feedback at the end of the session so that they can figure out if they have learned it correctly.
If you look at this slide – the pyramid – you'll notice that this is about how long people remember something that they've done. If it's only been a lecture, they don't remember very much. If you think back when you sat through lectures or maybe when you sit through continuing ed, after about 15 or 20 minutes, your mind starts to wander. So we don't always remember the full 50 minutes of what we've been listening to. However, if you can do other things related to the lecture, like doing some reading, doing some discussion, a work sheet, some sort of activity that coincides with the lecture, then we tend to remember it. As you can see, the more things we can do with it, the more we remember.

**Structure for Learning**

If we go to the next slide, you'll notice that we're going to use what we just looked at, and I'm going to try to give some examples to help you incorporate some of those areas into things you may want to do either with your students in the clinic or doing it in a classroom or doing it in a seminar.

- **Example**
  - **Short lecture.**
  - **Discussion and/or work sheet.**

You may want to think about how you're going to structure this. You may start out with a short lecture. You may have them do some sort of activity – doing a work sheet, working with another student, doing a demonstration, just something, talking about it.

  - **Require some reading before and/or after the activity.**

You may want them to do some reading before or after, something to tie in to what you're doing. Let's look at some examples.

**Lecture**

- **Use visuals to break up lecture.**
- **Use worksheets to regain attention.**

Visually is somebody just standing up there talking or somebody showing you pictures, graphs, charts, things that go along with the subject. A work sheet of the lecture material or say, a work sheet with
anatomy on it that you want the students to know – you may give them a drawing and they have to label what the anatomy is after you've done a lecture about it.

- **Ask students to write the “most important thing.”**
  
  Or you can have the students tell you what they think the most important thing is in some material that you've just talked to them about. I'm always quite surprised at what they consider important vs. what I think is important. Again, this is another way for you to assess how they’re picking up the topic and also for you to figure out if it's getting to them or not.

**Mini Lectures**

- **Lecture for 15 to 20 minutes.**
- **Individual or group activity for 15 to 20 minutes.**
  - **Return to lecture for 15 to 20 minutes.**

Let's look at mini lectures. About 15 to 20 minutes is about as long as people can pay attention to something. About 15 to 20 minutes into when you're talking, whether or not it’s to a large group or a small group, you might stop and have them do something. You may have noticed it at continuing ed lectures. A lot of people tend to do that, have you stop and say something to your neighbor, or they may do some sort of activity. Even in a clinical situation, if you're lecturing the students and talking to them about something they're having trouble with, stop and have them do something so they will remember what it is you were talking about.

- **Provides assessment opportunities.**
  
  This also allows you to assess how they're doing. You may walk around and listen to what they’re saying or look at what they’re labeling or collect the papers that you had them fill out.

- **Reaches more learning styles.**
  
  This helps you reach more of those learning styles we talked about earlier.

**Lecture Example**

- **Connect to the classroom and past experience or knowledge.**

  When you are doing this, it helps the students relate the information that you’re talking about as to something they may do later on, so this helps them learn it. You may also want to connect it to something that maybe they learned in this classroom, something they did at the clinic site, some experience they may have had, and you can connect it maybe to an experience you've had.

- **Example: Series vs. parallel circuits.**

  One of the examples I use for lecture is when I'm teaching a physics lecture on series and parallel circuits – we all know how much fun that was – you may have had trouble with what's the difference between a series of parallel circuits. I know my students do. So I'll bring in Christmas tree light bulbs or strings of lights. You remember the ones that when one light bulb goes out, they all went off vs. the string that you got where one light bulb went out and they stayed on. That's the difference between series and parallel circuits. Once a student sees that, then it makes it a lot easier for them to understand the difference between those two areas.

**Clinical Example**

- **Provide protocol for your facility.**
As a clinic example for an active learning activity, you could have the students go over the protocol. We were talking about chest x-rays earlier. You want them to learn about chests, so you bring in the protocol. Why do you do them at 72 inches? Do you always do a PA and a lateral? Why do you do PA vs. AP? Why do you do a left lateral vs. a right? This helps the students understand why they're doing what they're doing.

- **Ask students why exam is preformed in that way.**
  Asking them first why it’s done that way will help them figure it out and also help you find out if they know and understand that or are they just memorizing things.

- **Ask students to identify anatomy on an image.**
  Then you can go on to the anatomy where you show an image and have them identify. Give them the list of the anatomy that you want them to know and have the students get up and see if they can show each other where it is.

- **Ask students to critique an image.**
  Then have them do the critique of the image. Have them say, is it centered? Have they clipped anything? Have the students go through this. Don’t you go through it with them. Have them do it so you can see what they know and understand and areas that need to be worked on. The students can do this as a discussion with each other. You can listen to what they’re saying or have them write it out first and then talk about it.

- **Give a case study.**
  You may want to give them the case study at the end to see if they’ve picked up the information. Show them another x-ray and see how they do, or give them a situation and have them discuss how they would handle it.

**Active Learning**

- **Students are part of the learning process.**
  This is all called active learning where the students are part of the learning process and it helps them remember the information better.

- **Students learn more when the read, write and discuss.**
  If they read about it, write about it, and talk about it, they’re going to remember things a lot more.

- **Active learning activities must align with objectives.**
  These things have to line up with what your objectives were. Look at your objectives and see what types of activities will fit into the objectives and how you want to structure the learning. If the students see that all of this is related, it’s going to be a lot easier for them to remember it.

**Group Activities**

- **Think out loud.**
  What are some other activities? There's always thinking out loud so that the students can understand where they may or may not have gotten something correct or incorrect.

- **Case studies.**
  Case studies, as I've said before, students always like doing those.
- **Lecture/reading summary.**
  Have them do a summary of the lecture or a reading assignment that you gave them. That way they can see if they've picked up the major points and you can see that also.

- **Role playing.**
  The role playing is always good. Having one student pretend to be a patient, the other students have to position them, and how would they position people in different situations.

- **Ethical dilemmas/debate issue.**
  Ethical dilemmas or having an issue to debate, this is always a good one. It comes up in patient care classes or it could come up in some of the medical-legal issues that the students need to understand.

- **Repeat analysis.**
  Repeat analysis is always a good one to go through. Have the students critique why an image is not good, why an image has to be repeated. Have them go through their repeats and look and see how did they do with that and why were things repeated and can they figure out if there's one particular area that they're having a lot of trouble with.

- **Course review.**
  Course review – have them review at the end of the term what was covered in the course.

- **Mock test.**
  There’s always doing a mock test where they aren't getting a grade so that they can see how well they’re doing before they do a graded activity.

**Group Activities**

- **Problem recognitions tasks.**
  Another activity is where you have them figure out the problem. Do they recognize the problem and how to fix it? This could go back to doing the repeat analysis where they figure out why films are repeated or in their critiquing of images.

- **Document problem solutions.**
  - **Become aware of how problem was solved.**
    They need to document what the problem was and how did they figure it out. Because how many times have you seen somebody repeat an x-ray two or three times and they keep doing the same thing over and over again? We need to get the students to the point where they can look at an image, figure out what's wrong with it, go back and only have to take that image once. There are images we have to repeat, but we would like to keep it to a minimum. This helps them figure out the steps of how they need to critique images in order to get the good image. They're not always going to do the perfect image the first time. But if they can understand how to repeat something and only have to repeat it once, that would be good.

**Modeling**

- **Think aloud.**
- **Puzzle way through problem.**
Some other things that we can do: We can think out loud and show the students how we puzzle through a problem. We call that modeling, where you’re showing the students how you evaluate things. Because if they see somebody who has done this for a long time, it helps them figure out how they might go through that.

- **Cite your experience.**
  Using your experience and things you went through to figure this out will help them.

- **Point out key ideas in reading and image critique.**
  Another area that is a good one is to point out the main areas that they should be looking at, the key points in a reading or in film critique. What are the main things they should be looking at, and is that really where they’re headed. Are they looking at things that don’t really need to be looked at? Sometimes funny little things the students look at and it distracts them.

**Visual Interest**

- **Use pictures, cartoons, charts, graphs.**
  Visual interest – like I said earlier, giving the students something to look at. Sometimes a cartoon brings a point home. I tend to use cartoons sometimes in the patient care-type classes. Charts and graphs are always good to show them like we show them the chart with the characteristic curve. We show them lots of charts for how absorption properties work.

  - **Increases student interest.**
  - **Introduces alternative ways to look at topics.**
  - **Shows how subject relates to the real world.**
  - **Helps students process information.**

It makes the students a little more interested to see pictures and images, and it gives them something else to look at and allows them, again, to relate what they’re doing to the real world and helps them process the information. It helps particularly, in lecture probably more so, because perhaps out in the clinic they are surrounded by patients and images. But even in the clinic, you can show them images to help them learn things.

**In General**

- **Say it, then write it, then paraphrase it.**
  In general, when you’re teaching the students, whether it’s in the classroom or the clinic, you want to say it, then write it and paraphrase it one more time or have the students do the paraphrasing for you.

  - **Ask questions and then wait.**
  One of the things I think is most difficult for any of us as instructors is to ask a question and then wait, because we know the answer. But we want to find out if they know the answer.

  - **Let students answer.**
  Don’t be the answer person. Hold your tongue. Count to ten. Do something so that you give them the opportunity to answer the question.

  - **Interweave concepts, make connections.**
  Talk about the different areas and try to connect things. Make the connections. They need to understand all of the different parts of chest radiography in order to get good images.
Encourage discussion.
Have the students talk to you and talk to each other about activities.

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**Slide 6**

**Thoughts on Technology**

- **Technology is a tool, not the goal.**
  - Use it to get to where you want to go.

Technology is a tool. It is not the goal. The goal is to learn the material and what you have to do for the students to learn the material. So technology helps with that, but it's not the total answer. You can't have just technology. You need to have interactions with the students.

**Technology**

- **PowerPoint.**
- **Easy-to-make handouts.**

Some of the technology that can be used are things like PowerPoints. When you use PowerPoint, it makes doing handouts a lot easier; however, you need to expand upon what you do. You can't just have PowerPoint slides.

- **Be careful to limit the number of words.**

One of the big problems with PowerPoint is sometimes people put too much information on the slides. It gets too busy. So be careful with that. Be careful with how many words you put on there.

- **Allows links to outside resources.**

PowerPoint is really good for putting images on, and it allows you to also link to other things. Say there's something on the Internet you want the students to see, you can take the PowerPoint and put a link on there so that when you click on it, it goes automatically to a movie or a website that you want to show the students.

- **Provides visual interest.**

This goes to showing visual interest for the students so they can see pictures and links and all sorts of interesting things.

- **Use e-mail for assignments.**
- **Use online resources from publishers.**

Some other things you can do with technology is you can use e-mail. You can have students e-mail assignments to you or you can e-mail what you want students to do. You can have them turn in journals where you might have them talk about what's happened in clinic. You can send your handouts to them on e-mail. E-mail has really made our life a lot easier in some ways. You can also use Internet sites that are put out by book publishers. For instance, Elsevier has a lot of websites that have information from the textbooks that you use and allow the students to use them and the instructors to use them.

- **Use online video demonstrations.**

As I said before, there are videos out there with lots of information that we can use.
• Access pathology websites such as AJR (American Journal of Roentgenology).
There's lots of websites that have pathology. The radiology, AJR, all of those journals, a lot of them are online with lots of good images for us to use in our presentations. There are lots of them that have pathology on the websites. It's a lot easier now to find some of this information than it was when we only had books and magazines. Students, like I said, can journal and send you information.

Decisions
• How will you assess learning?
We've gone through the first couple of sections. You had to decide what to teach, do your goals and objectives, and you had to figure out how you were going to do the teaching and different types of activities that can be done.

Assessment
• Learners and teachers need feedback.
• Provides information on how and what students are learning.
We're to the last part, which is where you assess the learning. How are the students doing? How are you doing? This is for feedback. You want to find out if the students have picked up on the information, if they have kind of had it become part of them. And how did you do? Because the students, you want them to tell you how you're doing, too.

• Identify what you want to assess.
You want to identify first what it is do you want to assess of the students? A lot of times a lot of the assessments we do aren't graded. They are things that show us how the students are doing, and the students don't necessarily get a grade for doing these things.

Assessment Techniques
• Individual or group activity.
You can do them as individuals. You can do them as groups. There's a variety of things you can do.

• Focus listing.
One of the things I have the students do is a list, focus listing, where I give them – you might say “chest” and have them write all the things they can about chest radiography, just in a list. Or in physics, I may say the word "electricity," and they have to write all the words that come to their mind about electricity.

• Concept mapping.
Then you can develop a concept map where they draw lines between things that are connected. That helps them think about all the different things they've learned and how interconnected they are.

• Categorizing grid.
There's a categorizing grid where they may have to sort things out. You may list a number of things and then categories that you want them to be in. Like I list when I'm teaching – we still have to teach film-screen, for instance, and I list things that go with film and things that go with screens. They have to decide what of those things on the list go only under screen or only under film, what things could go in both.

• Directed paraphrasing.
Paraphrasing – have the students paraphrase some lecture that you've done or have the students paraphrase to each other what's going on. You can have them paraphrase verbally or you can have them do it by writing it down.

- **1-, 2- or 3-minute paper.**
Some teachers like to do the one-, two-, and three-minute paper where they have the students take one, two or three minutes to write down their thoughts on what's going on in the classroom.

- **1-sentence summary.**
Or the one-sentence summary – at the end of the lecture or at a break in the lecture, have them take one sentence and in one sentence tell them to summarize the material you have just covered.

**Evaluation**
After you've done the assessment, the last thing we do towards the end is evaluation, and we usually have to do an evaluation at the end of the term or the semester. This is where we give the grades. So evaluation is more than just a written test. Usually there are a number of things you can do for evaluation.

- **Evaluate how students are doing.**
It helps the students, again, see how they're doing. Like I said, we usually need to do grades. That's something the schools require.

- **Evaluate your instruction.**
It allows you to look at how you're doing too, because looking at them – and they can also evaluate you. This is where you can come up with some new ideas after you're all done and you've looked at how they've done and how you're doing.

- **Helps to develop new ideas, validate what worked.**
Sometimes what works for one group doesn't work for another group. Or you can do this one activity for two or three years and then all of sudden, it doesn't work. Sometimes we have to develop a number of ideas that work with some people and not with others.

**Evaluation**

- **Written tests.**
So what kinds of evaluations are there? Of course, there's a written test and these can be multiple choice, short answer, essay.

- **Case studies.**
There are case studies. You give the students case studies, and they have to come up with a way to handle the particular case that you give them. And these can be quite complex.

- **Observation.**
Observation – a lot of times we do this in the lab, and I'm assuming you do it out in the clinic because you watched the students and you will give them the competency for doing a particular exam. In the lab we do role playing where we observe how they're doing, and the students will get a grade based on how they position a particular student.
• **Demonstration.**
Demonstrations – you may have the students demonstrate something to you. You can grade their procedure.

**Reflection**
**Provide the time to:**
- Determine if material was covered adequately.
- Develop appropriate assignments.
- Identify changes for next time.

The last thing, now, you want to do when you’re all done, the students have left, you want to reflect on how a particular class you did or a particular term you had, how did it go? How did the students do? How did you do? How do you feel? Was the material – do you think it was all covered? Did you have extra time? Did you run out of time? Just think about what happened. Sometimes this is hard to do because it does take some extra time on your part. But it really helps for you to set it up for the next year.

As you’re doing this, it seems like a lot, but the more you do this, the easier it gets, because you're going to build up a repertoire of things to do. You can talk to anybody who started out in teaching in any area and find out that in the beginning it seems kind of overwhelming. But as you go along, things do get better. I started a long time ago, and it seemed like a lot, and now I’ve got quite a few tricks up my sleeve to help with the students, and you'll develop those also. You can evaluate the assignments you gave the students, see if you want to tweak them a little bit. If they work just fine, use them again. This gives you time to develop other things and look at what kind of changes you want to do for the next time.

**Resources**
**Use these terms to find information:**
- Teaching and learning.
- Writing educational objectives.
- Adult learning.
- Active learning.
- ASRT resources.

For resources, there are lots of books out there. There're lots of websites out there. Go to search engines, type in teaching and learning. Type in adult learning, you'll find all sorts of information on the Internet. Like I said, writing educational objectives, there's lots of websites on that. The ASRT has lots of resources for you for what a clinical instructor does and also for classroom instruction. I've given you some ideas there.

**Summary**
**For each learning activity, think about the following:**
- **Who is your audience?**

In summary, whenever you will be performing a learning activity, think about the following things I’ve listed. Who is your audience? That's probably one of the biggest things. Is it somebody who's new to the field, or is it somebody who's been working in the field for a while? You will tailor your activities accordingly.

- **What do you want them to learn?**
- **Goals and objectives.**

What do you want them to learn? First, what is the big goal, and then write some objectives for how the student or the learners will achieve that goal. Remember, objectives are very specific. Goals are broad-based.

- **How are you going to present the material?**

That will then lead you into thinking about how you want to present that material.

- **How will you assess and evaluate the learners?**

Finally, how are you going to assess and evaluate how well the learners did in that material?

- **You have the practical experience.**

I’d just like to let you know that you are the expert. You have the content knowledge. You’ve been a tech. You know what you’re doing. You don’t necessarily have to come up with the answer right away if somebody asks you a question. You may, in fact, tell them that you want to look it up to make sure that you have it correct. I have to do that all the time. We can’t possibly keep it all in our head. And the students don’t expect you to. They don't like it when you make things up. Just tell them, "We'll look it up." In fact, you can tell the student, "Let's look it up together."

- **Start out small, do one or two new things.**

So my recommendation, start out small. Only do one or two new things a year. Otherwise, like I said, you can get a little overwhelmed and it will overwhelm the students too if you try to do too much at once. It seems like a big job, but it gets easier as time goes on. You’re going to develop more skills, and you’ll be able to share those skills with other people.

**What all the great teachers appear to have in common.**

Go ahead and look at this last slide. I particularly like this statement about how we are very serious about what we do as educators. We want to be good educators. We want our students to be good technologists because it is very serious for our patients and for ourselves. Thank you.

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**Slide 7**

The icons on the following page link to audio recording from fellow educators. Click on each icon to listen to the recordings. Once you’ve listened to all recordings, click on the “continue” button to go to the last section of this module.
I became an educator because it sounded like a challenge. I didn’t know what I was getting into. My first classroom experience – I was three days on the job and they told me to go in and teach radiation biology, and I had never even had radiation biology. It was scary.”
Slide 10

“My first classroom experience – I was as nervous as a long-tailed cat in a room full of rocking chairs. I’m standing there on the podium in front of all these bright, shining faces, and I thought they were going to tear me up like a starving dog on a pack of baloney.”

Slide 11

“The single greatest bit of advice for someone new would have to be to admit when you don’t know the answer, because the students are going to know anyway. So you might as well just go ahead and say, “I don’t know. I’ll look it up. I’ll get back to you as soon as I can.””
Kevin: It’s time once again to spend a few minutes with our panel of subject matter experts. I’d like to thank Barbara for her very rich presentation today. Barb, what do you feel are the key points you’d like users to take from your presentation?

Barbara: One point is the fact that the clinical instructor has a very good knowledge base, especially in the clinical part of the program. They know a lot more than the students, and they can share that knowledge with the students. If they're going to be talking to another audience, they need to find out what that audience is. But you've been out working for some time, so you know a lot more.

Another one is that they should be aware that there's always help available. There's help on the Internet. There's help probably at their local institution and at their hospital. Probably the third thing is that in your position, especially as a clinical instructor, you can offer to do things. You can offer to do inservices at the hospital. You could do something across different departments. You could do guest lectures or even do a continuing education lecture for your affiliate society. The more you do things, the more you learn.

Kevin: Nance, do you agree for the new clinical instructor the idea of having more clinical experience than the students is a key anchor for them in their early phase of their role as clinical instructor?

Nancy: I think it is. Clinical experience is the tactile, the hands on, and students are looking for that. They have book learning, and they don’t always know how to transition that. The clinical instructor plays a key role in that. So they have more clinical experience. They can share that. They also have more knowledge
because they've had to use critical thinking. They've had to modify or be creative to complete the task. The student doesn't have that ability yet. That's something that they're building.

The CI has more than they know. They also may not know all the answers, and that's okay. I don't think that any person knows all the answers. I think one thing that the CI needs to know is that there are books to help. And the student has books. The department has books. You can always look up the answer. There's nothing wrong with that; it just shows that you have intelligence and that you're willing to share and teach.

**Kevin:** One of the other things is that often new clinical instructors kind of take on the burden of doing it all by themselves. The idea that Barbara has that there's a lot of help out there is one that is very important for the clinical instructor to keep in mind.

Andrew, from your experience, how easy or difficult has it been for you to call upon others to help you in terms of putting your presentations together and getting experience in doing these presentations?

**Andrew:** I think the fault that we have is we don't ask for help soon enough. We'll get backed into a corner and it's like, "Oh, I don't know what to do," instead of saying, "Wait. Let's ask for help up front."

The sources for help are: Do you have another CI that's within your institution? Is there a CI at one of the other sites that's with your program? You have listservs that you can become members of and post your questions there. You can go to the clinical instructor meetings, whether it's local or some of the other national meetings. You'll find a lot of companionship there in that everybody has been through what you're going through. They can provide you with some really good tidbits of wisdom on do this and consider doing this, but definitely don't do that. You can eliminate some of your growing pains in the process, but also get some really great ideas that you can take back home with you.

**Kevin:** Have you ever had anybody tell you "no" when you asked for help?

**Andrew:** When I've asked for help? No. I'll say, "Can you help me with this?" They may not be able to give me their papers, but they'll certainly sit down and freely discuss any of the ideas that I may have had or that they had that worked well for them. That's been over 25 years’ worth of meetings, nobody has ever turned me down when I've said, "What have you tried? Has that worked? Has that not worked?" And good things like that.

I've come back with some really great ideas from many conferences.

**Kevin:** Angie, how about the art or the practice of teaching?

**Angela:** The best way to learn is to do. The more you teach, the more often that you do lectures the more comfortable you'll be with presenting. It's just the best way to do it. The easiest thing to do is, as a new clinical instructor, volunteer to do an in-service for the department on something that you have expertise in. I guarantee you the program would absolutely love it if you volunteer to do a lecture on something that you feel is one of your areas of expertise or offer to help out with a lab session. Volunteer to team teach.
Kevin: I think that idea about team teaching is very valuable. Oftentimes there are very talented people out there that are willing to help or willing to participate in doing a presentation with you. It’s just a matter of asking them and giving them an opportunity to participate in that activity.

Before we continue with our panel discussion, let’s take a few minutes to look at this brief video.

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Slide 13
ASRT Essential Education
Facilitator

SCENE I –

Michele: Lynette, I was just coming to see you. I need you to prepare an in-service for our evening techs on using the new short-axis grids. We need to make sure they know we have one in the department and three more on order. They also will need to know what technique adjustments to use and the positioning benefits of these grids, especially on cross-table and portable work.

Lynette: When would you like this done?

Michele: I’d like the in-service to be held next month, oh, and don’t forget to make sure it’s approved for CE credit.

Lynette: Sure, let me start the paperwork for CE approval along with a draft outline for the in-service.

Michele: Thanks.

SCENE II – Lynette is sitting at a computer to retrieve a request for approval form.

SCENE III – Lynette is looking over the request for approval form.

Lynette [Voiceover]: Let me see. The in-service should have a goal. Michelle said she wanted the evening techs to know there is a short-axis grid in the department and that others have been ordered. She also wants the techs to know how use those grids.

Learning objectives support the goal:

1) Find and identify the short axis grid in the department.
2) Adjust exposure factors correctly to compensate for a short axis grid.
3) Identify the patient procedures and technical situations that yield the greatest benefit from using a short axis grid.

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Slide 14
Panel Discussion

Kevin: Barbara, I'm sure that you can appreciate Lynette as a new clinical instructor going through those steps of composing her first in-service instructional session and following the guidance that was present in your presentation. But what do you feel is one of the most frequent errors a new clinical instructor makes when planning out their first instructional session?

Barbara: One of the most common problems that people have in the beginning whenever they're doing a presentation for anything is that they probably try to do too much. You try to put everything you know into your presentation, and it's usually a little too much. Just like on a PowerPoint, they'll put way too many words. You have to scale back a little bit, maybe write everything down you think and then go through that and figure out what you consider the most important points and see how that works out.

Kevin: I'll open this up to the overall group. From your experience, do you find that you vary your message in your presentation based upon the group you're doing the presentation to, whether it be first-year students talking about, grids vs. last-semester, second-year students in terms of the depth of your presentation?

Andrew: There is no doubt that I change the depth of my presentations depending upon my audience. If I have an audience with a tremendous amount of experience, I'm going to do a lot of question and answer to get them to be interactive, to kind of tune them in to what they can do in their practice vs. an audience who may not know anything about the topic. First-year student, first day of clinical, they've seen a little bit in school, maybe a little bit in their lab. But when they get to clinical, it's a whole other world. You really need to know your audience to gauge what depth you're going to go into.

Kevin: Barbara, in your presentation when you had the little pyramid about what people tend to retain 24 hours after a presentation is kind of depressing, I have to admit it. We put so much time and effort and passion into our presentations and we do our lectures. To think that people are only going to remember about 5 percent of what we tell them, it's a depressing thing to think about. But as Andrew said, that idea about asking people questions, getting them involved – according to your pyramid, when we get into things like group discussions or practice by doing or teaching others to do a task prior to immediate use, the level of retention there immediately spikes to around 90 percent.

Barbara: Yes, it goes up. The more active the individuals can be in learning the material, the more they'll retain it; whereas in a lecture, it is fairly passive, so if you can get them to write or talk role model, go over case studies, problem solve, they'll learn a lot more.

Kevin: This would be a key for the new clinical instructor, too, that maybe is not that seasoned in terms of delivering instruction. By participating in these group activities or practice activities with students, it then allows them to draw upon their practical experiences and the skills they have to fill in the gaps for the students, and take the burden off of them of having to worry about sequencing the lecture or writing out the learning objectives, but interact with the students by doing the activities.

This brings to the close our panel discussion for today. Thank you very much for your time and attention.
Slide 15
Production Credits

Slide 16
Clinical Instructor Academy
Assessment of Clinical Performance

Close this window to return to your study area.